





Test & Inspection

FOCIS Duel™

**Fiber Optic Connector Inspection System
Quick Reference Guide**






www.AFLglobal.com or (800) 321-5298, (603) 528-7780

Controls, Display, Interfaces

- 1 Power key - 
- 2 Image Capture key - 
- 3 F1 soft key (Back, Cancel, Zoom/Help)
- 4 F2 soft key (Menu, Select, OK function)
- 5 Navigation and Edit functional keys
- 6 Display (2-inch Color LCD [320 x 240])
- 7 Micro-USB port
- 8 5 VDC input jack
- 9 Charging indicator

Battery Charging and Operation

- Plug the included AC Charger into AC outlet.
- Connect charger plug into 5 VDC jack **8**.
- LED **9** indicates charging status as follows:
 - **OFF** - AC not connected;
 - **RED** - Charging battery;
 - **GREEN** - Fully charged;
 - **RED/GREEN flashing** - Charging error. Verify correct 5VDC 2A charger is used. Allow to cool before charging again.
- FOCIS Duel charges while operating.
- Battery icon **A** on FOCIS Duel screen indicates battery state as follows:

-  - AC connected; charging, not fully charged
-  - AC connected; charging, fully charged
-  - Battery operation, fully charged
-  - Battery operation, partially charged
-  - <15 min Battery operating time remaining



FOCIS Duel Optical Inspection Ports

FOCIS Duel is a self-contained twin-ported Bluetooth connected fiber optic connector inspection probe.

- 1 Port 1** – Fully featured optical inspection port. With the press of a single button, Port 1 auto-focuses, captures, centers and analyzes the end-face image to industry standard IEC 61300-3-35 (2015), IPC, AT&T and user-defined criteria. Port 1 is compatible and interworks over Bluetooth with the FOCIS App (on iOS and Android smart devices) and provides aeRos connectivity.
- 2 Port 1 adapter tip** – Interchangeable adapter tips support single and multi-fiber connector inspection for a wide range of patch cords and bulkhead-mounted connectors having either PC/UPC or APC polished end-faces. A key on the probe snout combined with a slot on the adapter tips assures that adapter tips never loosen during use, under any circumstances. Quad-slotted APC adapter tips ensure the screen is visible in any use case.
- 3 Port 2** - The functionality of Port 2 is limited. Port 2 features fast and convenient female click-in adapters, auto-focus and 2X zoom capabilities. Port 2 is intended for subjective “view only” inspection. There is no image capture or end-face automatic pass/fail analysis on Port 2. No FOCIS App support or aeRos cloud support for Port 2.
- 4 Port 2 adapter tip**– A slot on the adapter tips combined with a keyed snout eliminates loosening during normal use. Port 2 adapter tips are available for all common connector types – Universal 1.25 mm and 2.5 mm, SC and LC in both UPC and APC polish types.



Powering Up/Down

Power-Up

- Press and release the Power key **(A)**.

Power-Down

- Press and hold the Power key **(A)** until display turns off.

Configure FOCIS Duel to Auto-Off

- From the Main Menu > Settings, select Display & Power > Auto Off option.
- Select desired power save option: 2 min, 5 min, 10 min, Never.



Enabling Optical Inspection Ports

FOCIS Duel powers up in the initial Live Image Mode screen **(B)**. While in the Live Image screen, use the left arrow key **(C)** to select between the two inspection ports. The selected port is identified by its label **(D)**, either "1" or "2", which is displayed in the top left of the Live Image screen to indicate the user's selection.



Port 2 Functionality in Live Image Mode

Port 2 is intended for subjective “view only” inspection.

Functional Keys

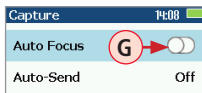
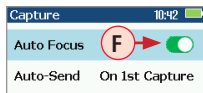
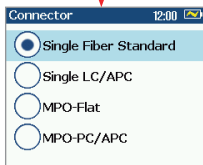
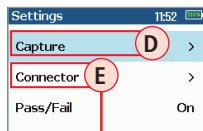
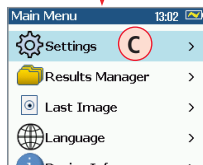
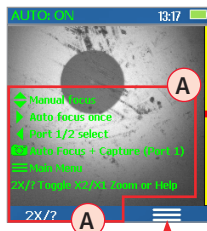
- Zoom/Help key (2x/?)** has two functions:
 - Long press initiates Help function and displays the on-screen Help menu.
 - Short press toggles 1X/2X zoom for the selected Port 2.
 - The label shown over the functional key **(A)** will be displayed as follows:
 - 2X/?**, if 1X zoom enabled
 - 1X/?**, if 2X zoom enabled
- Menu key:** Press to display the Main menu.
- Up/Down arrow keys:** Used for manual focus. Vertical slider **(B)** on the FOCIS Duel display indicates the current focus level relative to focus range.
- Left arrow key:** In Live Image node, toggles between Port 1 and Port 2 images.
- Right arrow key:** Press to autofocus. When using the LC female style “click-in” adapter, once the first LC (UPC or PC) end-face has been auto-focused, subsequent LC connectors of the same polish type (APC or UPC) will each be in focus without further user action, enabling rapid subjective connector end-face cleanliness and surface condition assessments. However, additional auto-focus of manual focus may be needed, if connectors are with different polish angles.
- Capture button is disabled for Port 2!**




Port 1: Live Image Mode

FOCIS Duel powers-up in the Live Image mode.

- Pressing and holding **Zoom/Help key (A)** displays help tips about FOCIS Duel keys usage.
- Pressing the Menu \equiv key **(B)** displays the Main Menu that allows the user to set preferences, perform general settings, manage saved test results and perform other non-test functions.
- Pressing Menu > Setting **(C)** > Capture **(D)** displays the Capture settings menu.
- Pressing Menu > Setting **(C)** > Connector **(E)** allows the user to select connector type.
- When the Auto Focus option is enabled **(F)** in the Capture screen and Capture key \square is pressed:
 - Auto focus is initiated
 - Image is captured when auto focus completes
 - Image is analyzed if Pass/Fail set to On
 - FOCIS Duel transitions to Captured Image mode
- When Auto Focus is enabled or disabled:
 - Press Right \blacktriangleright arrow key to auto focus once
 - Press Up/Down $\blacktriangledown/\blacktriangle$ arrow keys to manually adjust focus
- When the Auto Focus option is disabled **(G)** in the Setting screen and Capture key \square is pressed:
 - Image is captured (without adjusting focus)
 - Image is analyzed if Pass/Fail set to On
 - FOCIS Duel transitions to Captured Image mode








Port 1: Capture Key Operation

- In the Live Image mode, press the Capture key  to perform the following:
 - Auto Focus image (if the Auto Focus option is enabled)
 - Capture the displayed image and enter the Captured Image mode
 - Analyze image (if the Pass/Fail option is enabled)
 - Save results and send image to Bluetooth-paired device (if auto-save and auto-send enabled on “**1st Capture Key**”, see page 12 for details)
 - If auto-save or auto-send enabled on “**2nd Capture Key**” (see page 12), press the Capture key again to save and/or send
- In Captured Image mode, press the Capture key to return to Live Image mode.
- In the Main Menu or Settings modes, press the Capture key to return to the most recent Live or Captured Image mode.

Port 1: User Settings and Controls

The Main Menu is accessed from Live Image mode by pressing the Menu  soft key.

- **While in the Main Menu**, press Up/Down  arrow keys to navigate and select (highlight) the desired menu option.
 - **Settings:** Configure Auto Focus, Pass/Fail, Bluetooth, etc.
 - **Results Manager:** Navigate and Review or Send saved test results
 - **Last Image:** Recall most recently viewed image
 - **Language:** Select the FOCIS Duel User Interface Language
 - **Device Info:** View serial number, software rev, etc.
- Press Select or Right  arrow key to display the selected option sub-screen.
- **While in a sub-screen**, press Up/Down  arrow keys to navigate and highlight the desired option.
 - Press Select soft key or Right  arrow key to edit highlighted parameter
 - When selected parameter displays On/Off icon , press Select to enable/disable
- Press Back soft key to return to the previous menu screen.





Port 1: Pass/Fail Settings

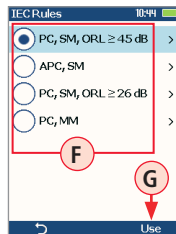
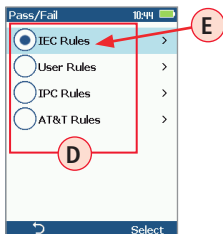
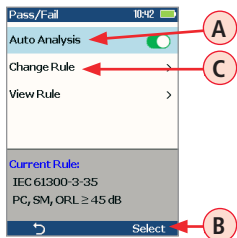
Pass/Fail menu is accessed from the Live Image mode > Main Menu > Settings.

Enable/disable Auto Analysis


- Highlight Auto Analysis **(A)**.
- Use Select key **(B)** to enable/disable  Pass/Fail analysis.

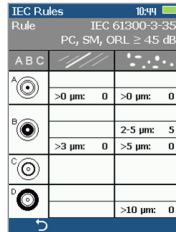
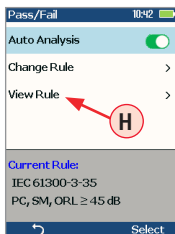
Change Rule:

- Highlight Change Rule **(C)**.
- Press Select or Right  arrow key to display a list of the available Rules **(D)**.
- Use Up/Down  arrow keys to highlight the desired Rule group **(E)**.
- Press Select or Right  arrow key to display a sub-list **(F)**.
- Use Up/Down  arrow keys to highlight the desired rule.
- Press Use **(G)** to apply the selected Rule in Pass/Fail analysis.



View Rule

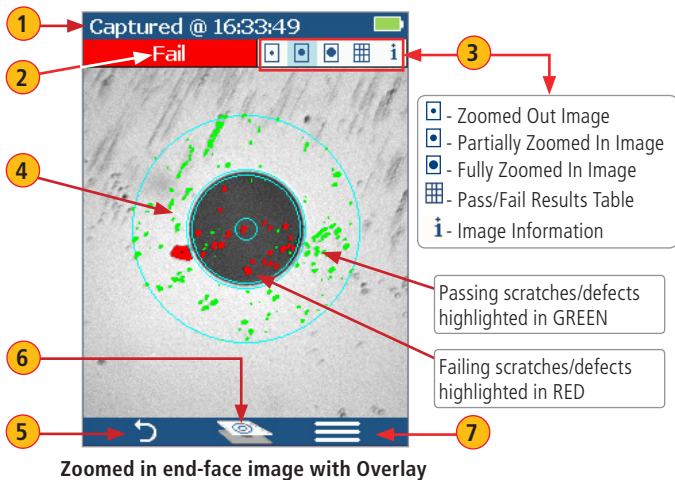
1. Highlight View Rule **(H)**.
2. Press Select or Right  arrow key to view details for the current rule.
3. User Rules may be edited while viewing.



Port 1: Captured Image Mode Features

Description

- 1 Screen Title: displays File Name (e.g. COO1-003) if saved image is shown or Captured @ hh:mm:ss if unsaved image is shown.
- 2 Pass/Fail Indication: shown only if Pass/Fail option is enabled in Settings.
- 3 Display Tabs: select the desired view using the Left/Right ◀▶ arrow keys.
- 4 End-face Image: displays end-face image with Pass/Fail overlay (if enabled).
- 5 Back soft key: press to return to previous screen.
- 6 Image Layers soft key: use Up/Down ▲▼ keys to view image layers as follows,
 - End-face image with overlay layer shown (default view)
 - End-face image only
 - Overlay only
- 7 Menu ≡ soft key: press to display the Save/Send Menu.



Port 1: Pass/Fail Results Table

Description

- 1 Screen Title: displays File Name (e.g. CO01-003) if saved image is shown or Captured @ hh:mm:ss if unsaved image is shown.
- 2 Pass/Fail Indication: shown only if Pass/Fail option is enabled in Settings.
- 3 Display Tabs with the Pass/Fail display tab selected.
- 4 Analysis Rule applied to determine Pass/Fail.
- 5 Analysis Zones: A - core, B - cladding, C - adhesive, D - contact area.
- 6 Scratch analysis results for each zone:
 - Reports the number of detected scratches exceeding limit for each region
 - Highlights failed rules in RED
- 7 Defect analysis results for each zone:
 - Reports the number of detected defects exceeding limit for each region
 - Highlights failed rules in RED
- 8 Back soft key: press to return to previous screen.
- 9 Menu soft key: press to display the Save/Send Menu.

The screenshot shows a mobile application interface with the following elements:

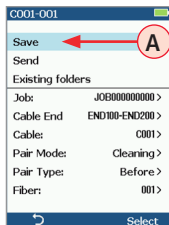
- 1**: Title bar displaying "Captured @ 16:33:49".
- 2**: Status bar displaying "Fail".
- 3**: Navigation icons in the top right corner.
- 4**: Analysis rule text: "IEC: PC, SM, ORL ≥ 45 dB".
- 5**: Analysis zones A, B, C, and D, each with a corresponding image.
- 6**: Scratch analysis results for each zone.
- 7**: Defect analysis results for each zone.
- 8**: Back soft key (left arrow) at the bottom.
- 9**: Menu soft key (three horizontal lines) at the bottom.

Zone	Scratch Analysis	Defect Analysis
A	>0 μm: 0	>0 μm: 1
B	>3 μm: 0	2-5 μm: 16 >5 μm: 4
C		
D		>10 μm: 1

Port 1: Saving Captured Images

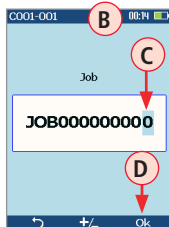
To save results to the current folder

- While in the Captured Image mode, press the Menu \equiv soft key to display the Save/Send screen.
- Highlight Save **A** and press Select soft key to save image and results to the current folder.



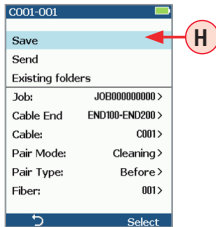
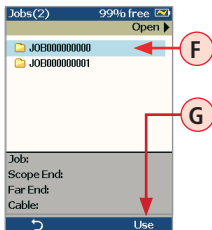
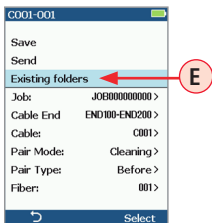
To edit file name

- While in the Save/Send screen, using Up/Down $\blacktriangledown/\blacktriangle$ keys, navigate to the desired parameter: Job, Cable End, Cable, Pair Mode, Pair Type, or Fiber.
- Press Select or Right \blacktriangleright arrow key to display Editor **B**.
- Use $\blacktriangleleft/\blacktriangleright/\blacktriangledown/\blacktriangle$ arrow keys to edit text field **C**.
- Press Ok to save new name **D**.



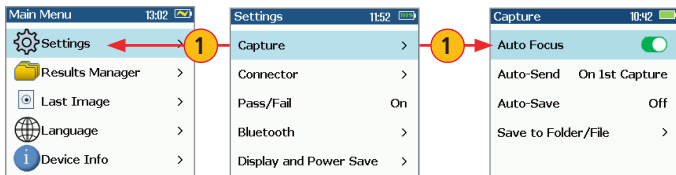
To save results to an existing folder

- Highlight the Existing folders **E** option.
- Press Select or Right \blacktriangleright arrow key to display a list of existing folders.
- Use Up/Down $\blacktriangle/\blacktriangledown$ arrow keys to select desired Job folder **F**.
- Press Right \blacktriangleright arrow key to open selected Job folder.
 - Repeat for desired Cable folder and Fiber number as needed.
- Press Use soft key **G** to confirm selection.
- When back in the Save/Send screen, highlight Save **H** and press Select.



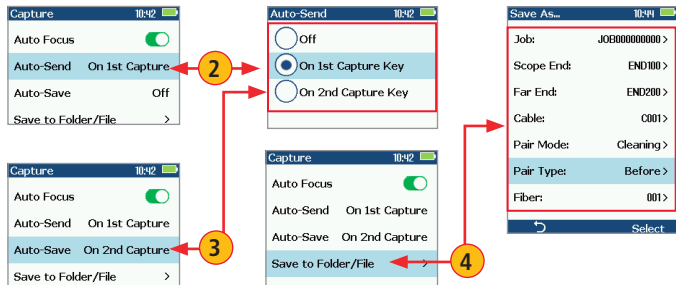
Port 1: Configuring Auto-Save and Auto-Send

- 1 From the Main Menu, select Settings > Capture > Auto Focus.
 - Use ◀▶ to enable or disable the Auto Focus option as needed.



- 2 Highlight and Select Auto-Send. Use ▼▲ to disable auto-send, enable on 1st Capture key, or enable on 2nd Capture key.
- 3 Highlight and Select Auto-Save. Use ▼▲ to disable auto-send, enable on 1st Capture key, or enable on 2nd Capture key.
- 4 Highlight and select Save to Folder/File. Use ▼▲ to select and edit the desired folder/file field.

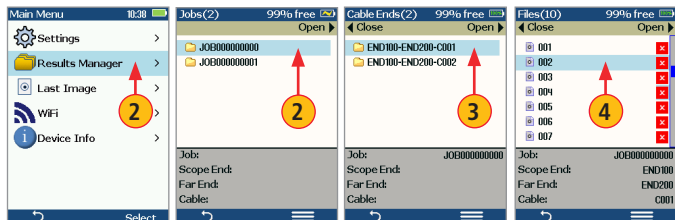
When Auto-Send and Auto-Save is enabled, press Capture from Live Image mode to auto-focus (if enabled), capture image, analyze pass/fail (if enabled), then send image and pass/fail results to paired device and save image and pass/fail results to configured Job/Cable folder.



Note: If Auto-Save or Auto-Send on 2nd Capture key is enabled, you will be prompted to press the Capture key again to save or send. Press the Back key if you do not wish to save or send image.

Port 1: View Saved Images

- 1 From the Main Menu, access the Results Manager by pressing Select or ► key.
- 2 Use ◀▶ keys to navigate and highlight the desired Job folder, press ► key to open.
- 3 Use ◀▶ to navigate and highlight the desired Cable folder, press ► key to open.
- 4 Use ◀▶ to navigate and highlight the desired File, then press ► to open.



Port 1: Sending Captured Results to FlexTester or FlexScan

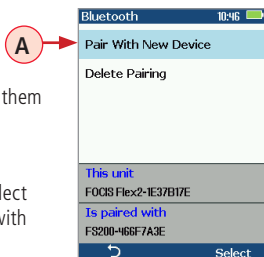
Automatically send results to FlexTester/FlexScan via Bluetooth

On FlexTester/FlexScan

- Configure FlexTester/FlexScan for pairing:
 - Select Settings > Bluetooth
 - Enable Bluetooth with Visibility option setting them to On

On FOCIS Duel

- From the Main Menu > Settings > Bluetooth, select Pair With New Device **A** and pair FOCIS Duel with FlexTester/FlexScan:



- Wait for list of visible devices to be shown
- Use ▼▲ arrow keys to select FlexTester/FlexScan device to pair with
- Select Set Default Connection to complete pairing
- After pairing, set FlexTester Visibility to Off
- From the Main Menu > Settings > Capture, configure FOCIS Duel to auto-send captured images on 1st or 2nd Capture Key. See page 12.
- Press the Capture key to return to Live Image mode.
- Press the Capture key to focus/capture/analyze/send image to FlexTester/FlexScan.

On FlexTester

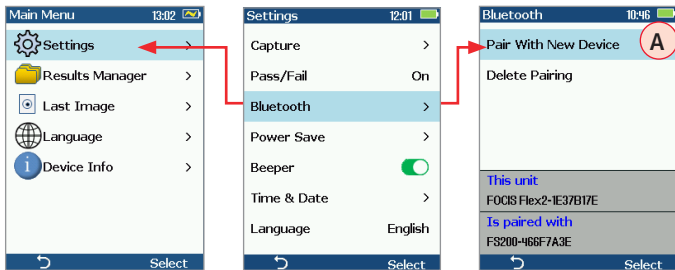
- After a few seconds, captured image will appear on your FlexTester.
- Press Right ► arrow key on FlexTester to view Pass/Fail results table.

On FlexScan

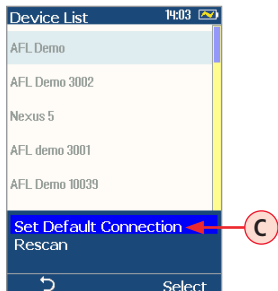
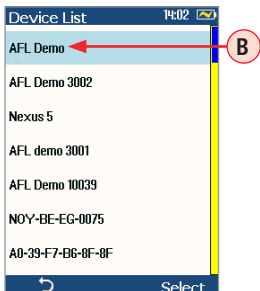
- After a few seconds, captured image and pass/fail results will appear on your FlexScan.

Port 1: Using FOCIS Duel with FOCIS App

- Download FOCIS App from Google Play / Apple App Store to your smart device.
- Pair FOCIS Duel to your smart device.
 - In smart device Bluetooth Settings, make your device visible.
 - In FOCIS Duel: from the Main Menu, select Settings > Bluetooth Settings > Pair With New Device **A**. Press Select.



- From the displayed Device List, select your smart device **B**. Press Select.
- Select Set Default Connection **C**. Press Select.
- Verify that FOCIS Duel indicates that it is paired with your smart device.
- In Capture Settings, configure FOCIS Duel to send on 1st or 2nd Capture Key.
- From Live Image mode, view connector end-face and press the Capture Key
- FOCIS Duel will capture image and send it to your smart device.
- FOCIS App on your smart device will display received image.
- For App details, see FOCIS Flex Inspection | aeRos User’s Guide.



“Made for iPad” — Legal Notice



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- iPad mini is a trademark of Apple Inc., registered in the U.S. and other countries.
- Android is a trademark of Google Inc.

Port 1: Inspection Reporting using TRM® 2.0

Upload Inspection Results to a PC

On FOCIS Duel

- Turn your FOCIS Duel unit off.
- Using the supplied USB cable, connect the micro-USB port on your FOCIS Flex unit with a USB port on your PC.
- Verify FOCIS Duel powers up and displays:
 - Mass Storage
 - Video
- Select the Mass Storage mode.

On PC

- Select 'My Computer'.
- Verify that device labeled 'PROBE (E:\)' appears in My Computer window
Note: drive letter assigned to PROBE device may be different.
- Double-click PROBE (E:\) to view contents of the FOCIS Duel internal memory.
- Double-click on RESULTS folder.
- Drag, copy, or move some or all of the results to your PC.
- When finished, disconnect USB cable and turn off FOCIS Duel (since FOCIS Duel will remain on and return to normal operation if USB cable simply disconnected.)

Install and run TRM 2.0

- Select Report Wizard
- Navigate to uploaded FOCIS Duel Results.
- Select entire [Cable] for all results.
- Select individual fiber for single result.
- Select desired inspection template (2 or 12 results per page).
- Select Finish and print or save as PDF file.

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