



**Test & Inspection**

# **FOCIS Lightning<sup>®</sup> 2**

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

[www.AFLglobal.com](http://www.AFLglobal.com)



## Controls, Display, Interfaces



1. Power Button.
2. Image Capture Button.
3. Touchscreen Display.
4. Optical inspection port.

5. Adapter Tip.
6. Protective Dust Cap.
7. USB-C Power / Data Port.
8. Power Charge Indicator.

## Powering Up/Down

### Power-Up

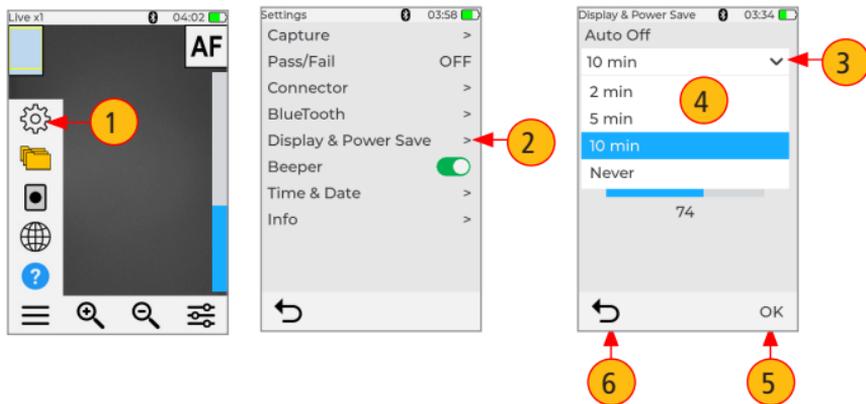
- Press and release the On/Off Button (left side when facing unit).
- Display powers up in Live Image mode.

### Power-Down

- Press and hold the Power button until display turns off.

### Configure FOCIS Lightning®2 to Auto-Off

1. From the Main Menu, touch Settings.
2. Touch Display & Power Save menu option.
3. Display Auto Off pull-down menu.
4. Select the desired power save option: 2 min, 5 min, 10 min, Never.
5. Touch OK to confirm selection.
6. Touch Back to return to the previous screen.



## Battery Charging and Operation

### Battery Charging and Operation

- Plug the included AC Charger with USB cable into AC outlet
- Connect charger plug into USB-C port on FOCIS Lightning2
- Power Charge Indicator shows charging status as follows:
  - **OFF** - AC not plugged in
  - **RED solid** - Battery is being charged
  - **GREEN solid** - Battery is fully charged
  - **RED/GREEN flashing** - Charging error:
    - Verify battery is properly plugged in.
    - Verify correct charger used.
- FOCIS Lightning2 charges while operating

### Battery Operation

Battery icon indicates battery charge state as follows:



- Charging, not fully charged



- Charging, fully charged



- Battery operation, fully charged



- Battery operation, partially charged



- Battery operation, <15 min operating time remaining



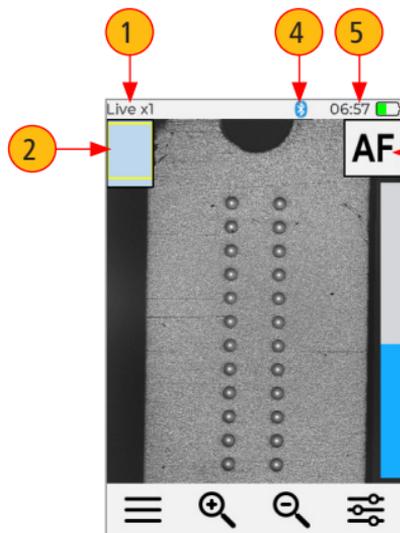
- Battery operation, <15 min operating time remaining, charging

## MPO Live Image Mode Features

FOCIS Lightning2 powers-up in the Live Image mode screen. Users can always display the Live Image screen (from any other mode/screen) by pressing the Capture button once or by touching Back ↶ enough times.

### Touch Screen Indicators

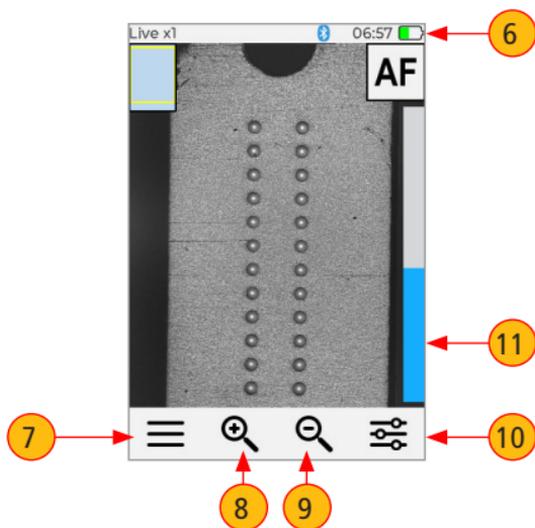
1. **Current Zoom level indicator** — 'x1', 'x2', 'x4', or 'x8'. Zoom level is controlled by touching Zoom buttons.
2. **Fiber position** — Shows fiber position in MPO connector.
3. **AF label/touch screen button** — indicates Auto Focus On/Off, as set in Menu > Settings > Capture screen.
4. **Bluetooth icon** — indicates if FOCIS Lightning<sup>®</sup>2 is paired with Android and iOS devices: Blue  - Bluetooth enabled; Black  - Bluetooth disabled.
5. **Time stamp** — displays current time in 24-hour format.



- **AF** label is displayed in **Black** when Auto Focus is enabled – .
- **AF** label is displayed in **Red** when Auto Focus is disabled – .
- The user may touch **AF/AF** to auto focus once.

## MPO Live Image Mode Features

- Battery icon** — indicates battery charge state.
- Menu icon/touch screen button** — Touch to display the Main Menu that allows the user to set preferences, manage saved test results, and perform other non-test functions.
- Zoom In button** — Touch to increase image magnification: x1, x2, x4, x8.
- Zoom Out button** — Touch to decrease image magnification: x8, x4, x2, x1.
- Brightness/Manual Focus/Zoom toggle control**—Touch to display Brightness/Manual Focus/Zoom toggle sub-menu.
- Focus level** — Vertical Blue slider indicates the current focus level relative to focus range:
  - Touch and drag up/down to manually adjust focus.
  - Blue section on the slider indicates the current focus level relative to focus range.



## Capture Button Functionality

**In the Live Image mode** — Capture button initiates live image capture.

- When **Auto Focus is enabled** and Capture button is pressed:
  - Auto focus is initiated.
  - Image is captured when auto focus completes.
  - Image is analyzed if Pass/Fail analysis enabled.
  - FOCIS Lightning<sup>®</sup>2 transitions to Captured Image mode.
  - Save and send results to the Bluetooth-paired device if auto-save and auto-send enabled on '**1st Capture Key**'.
  - If auto-save or auto-send enabled on '**2nd Capture Key**', press the Capture button again to save and/or send.
- When **Auto Focus is disabled** and Capture button is pressed:
  - Image is captured (without adjusting focus)
  - Image is analyzed if Pass/Fail analysis enabled.
  - FOCIS Lightning2 transitions to Captured Image mode.
  - Save and send results to the Bluetooth-paired device if auto-save and auto-send enabled on '**1st Capture Key**'.
  - If auto-save or auto-send enabled on '**2nd Capture Key**', press the Capture button again to save and/or send.

**In all other modes** — Capture button is used to return to the Live Image mode.

## To Inspect MPO connector

1. Turn on FOCIS Lightning<sup>®</sup>2 by pressing the Power button on its left side.
2. Plug FOCIS Lightning2 adapter tip into MPO bulkhead adapter. The bulkhead adapter could either be part of an MPO fiber panel or, if inspecting MPO cabling, a standalone MPO coupler.
3. The full MPO end-face in 'x1' view mode will be displayed on the FOCIS Lightning2 display in less than two seconds.
4. Press the Capture button to initiate fiber inspection and analysis.

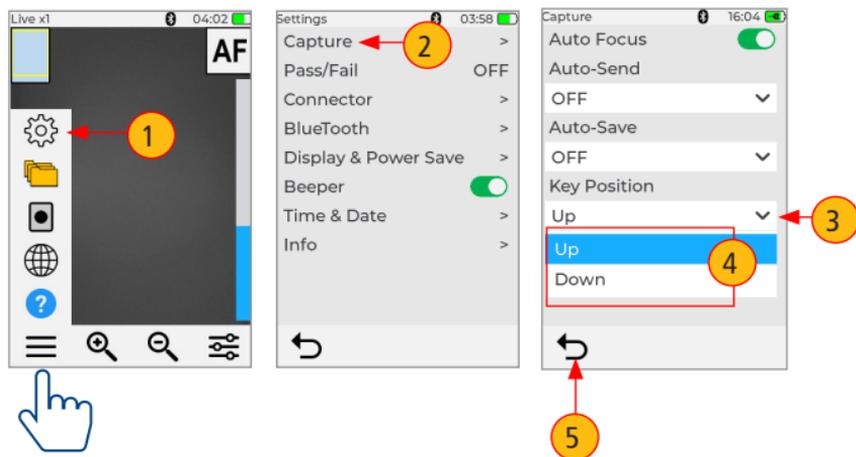
## Understanding MPO Connector Key Orientation Settings

The goal of the MPO Key Up/Down settings is to provide users with the correct information about fiber numbering (pinout) after the image capture. When inspecting MPO connector using bulkheads with **opposed keys**, **it is important to define the MPO key orientation** in the in Live Image mode prior to the Image Capture.

At power-up, FOCIS Lightning2 defaults to key Up orientation. The MPO connector key orientation (key Position) is set in Main Menu > Settings > Capture.

1. In the Live Image screen, touch Menu, then touch Settings.
2. In the Settings screen, touch Capture.
3. In the Settings screen, touch the Key Position option Arrow Down icon.
4. From the displayed menu select Up or Down option as required.
5. Touch back to return to previous screen

**Note:** This setting should be defined in the Live Image mode prior to image capture.



## Understanding Fiber Numbering after Image Capture

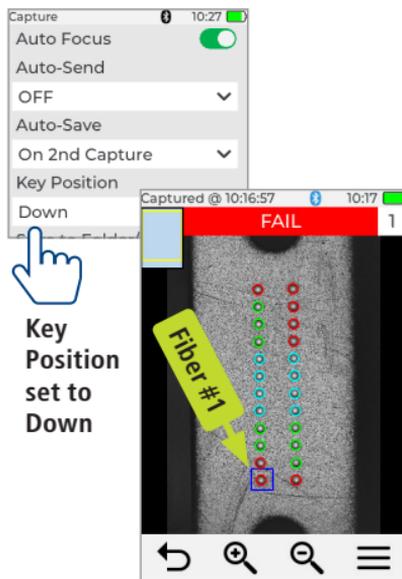
After the inspected fiber end-face image is captured, FOCUS Lightning®2 transitions to the Captured Image mode displaying inspection results:

-  — Fiber #1 location is indicated by **Blue** box
-  — Passing fiber is indicated by **Green** circle
-  — Failing fiber is indicated by **Red** circle
-  — Not evaluated fiber is indicated by **Cyan** circle

- When the MPO Key Position is set to Up in the Capture menu (default setup), Fiber #1 is located at top-right as indicated by Blue box.
- When the MPO key orientation is set to Down in the Capture menu, Fiber #1 is located at bottom-left as indicated by Blue box.



Captured Image

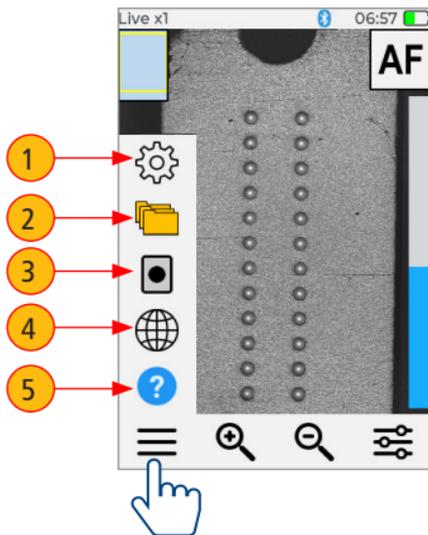


Captured Image

## Main Menu – User Settings and Controls

The Main Menu is accessed from Live Image mode by touching the Menu ☰ icon. Main Menu is used to select user preferences, perform general settings, manage saved test results, and perform other non-test functions.

- While in the Main Menu, touch one of the menu item as follows.
  1. **Settings:** Use to configure Capture settings, Auto Focus, Pass/Fail criteria, Connector criteria, Bluetooth, and General settings.
  2. **Results Manager:** Use to navigate and review saved test results.
  3. **Last Image:** Use to recall most recently viewed image.
  4. **Language:** Select the FOCIS Lightning User Interface Language
  5. **Help:** View help tips regarding UI icons and functionality.
- If a menu item is followed by Right Arrow, touch to display a sub-screen of the selected menu item.
- Touch Back to return to the previous screen.



## Configuring Capture Settings

### Capture Settings

1. Touch Menu, then Touch Settings.
2. Touch Capture to display the Capture screen options.

### To Enable Auto Focus

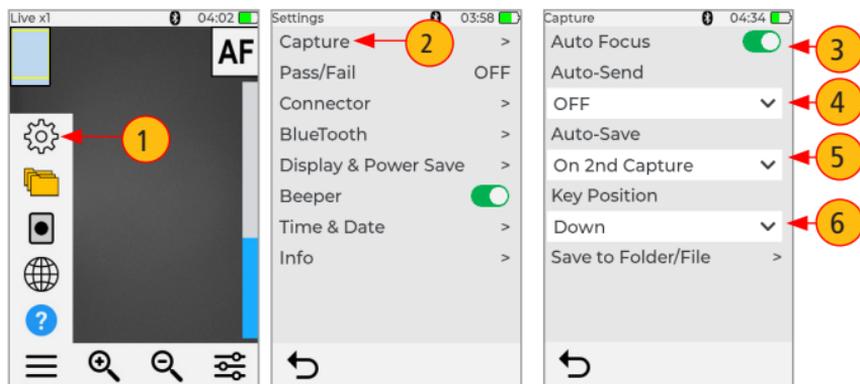
3. Touch Auto Focus On/Off control to enable or disable the auto-focus option.

### To Configure Auto-Save and Auto-Send

4. Touch Auto-Send drop-down menu to display available options. Select on of the following: OFF - disable Auto-Send functionality, enable on 1st Capture, or enable on 2nd Capture.
5. Touch Auto-Save drop-down menu to display available options. Select on of the following: OFF - disable Auto-Save, enable on 1st Capture, or enable on 2nd Capture.

### To Configure Key Position

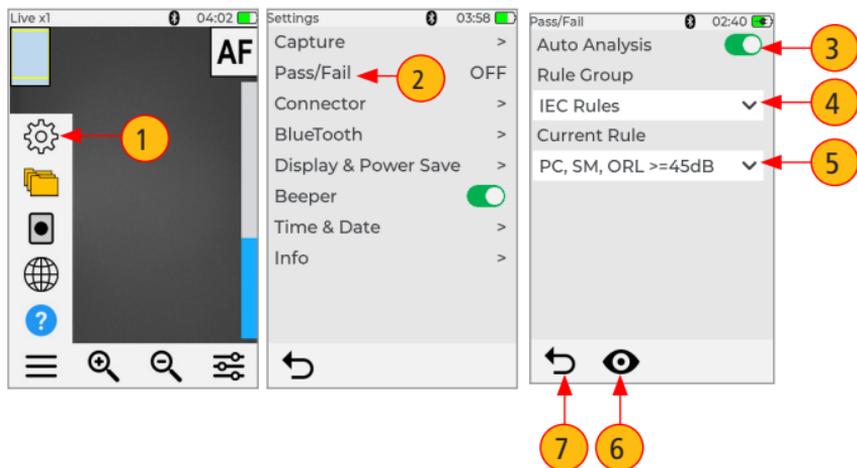
6. Touch Auto-Save drop-down menu to display available options. Select on of the following: Up, Down.



## Setting Pass/Fail Criteria

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

1. Touch Menu, then Touch Settings.
2. Touch Pass/fail to display the Pass/Fail screen options.
3. Enable Auto Analysis (if disabled): Touch Auto Analysis On/Off to enable.
4. Select Rule Group: Touch the Rule Group pull-down menu to display all available Rule Groups and select the desired Group. Note: User Rules may be edited.
5. Select Current Rule: Touch the Current Rule pull-down menu to display all available Rules and select the desired Rule.
6. View Rule criteria Touch the Eye icon to view the currently selected Rule.
7. Touch Back to return to the previous screen.



## MPO Connector Fiber Configurations Support

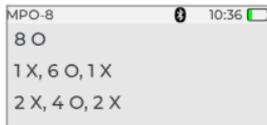
FOCIS Lightning®2 supports all fiber configurations of MPO-12 up to two rows, with “base 8”, “base 10”, and “base 12” fiber configurations per row as well as other MPO options.

### MPO Fiber Configurations

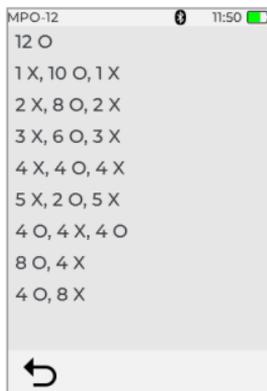
#### MPO configurations



#### MPO-8



#### MPO-12



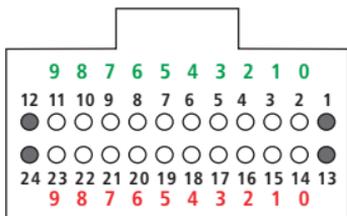
#### MPO-24



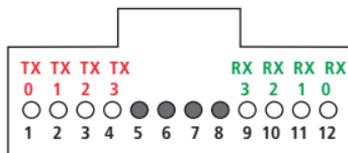
○ – active (used) fiber  
X – dark (unused) fiber

Note that solid circle is “X” or an unused fiber, and open circle is an active or used fiber and will be analyzed.

### Fiber and Transceiver Numbering Example



Dual Row



Single Row

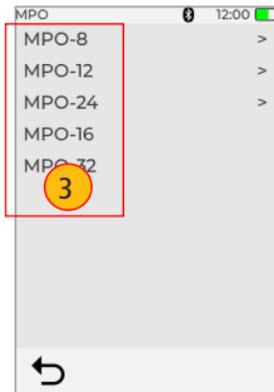
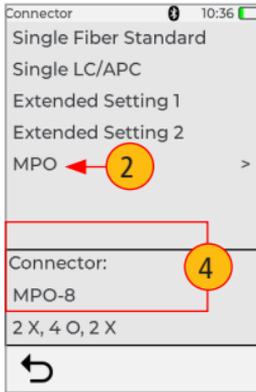
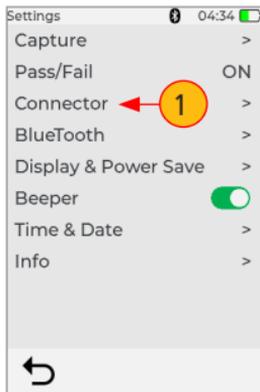
## Configuring MPO Connector

FOCIS Lightning®2 supports multiple single fiber and MPO connector types.

**Note:** It is important to set the correct MPO fiber configuration prior to inspection! If the MPO connector setting is not configured correctly, the auto-analysis results will likely show “false negatives” and possibly “false positives”.

### To Configure MPO Connector

1. From the Main Menu > Settings, touch Connector to display the Connector menu, which shows a list of the available Connector options.
2. Touch MPO option .
3. From the displayed list, touch the desired MPO connector configuration to select it.
  - Note that for MPO-8/-12/-24 options, you would need to select fiber configuration.
4. **Important:** Note that selected MPO configuration (for MPO-8/ for MPO-12/for MPO-24) is displayed at the bottom of Connector menu.

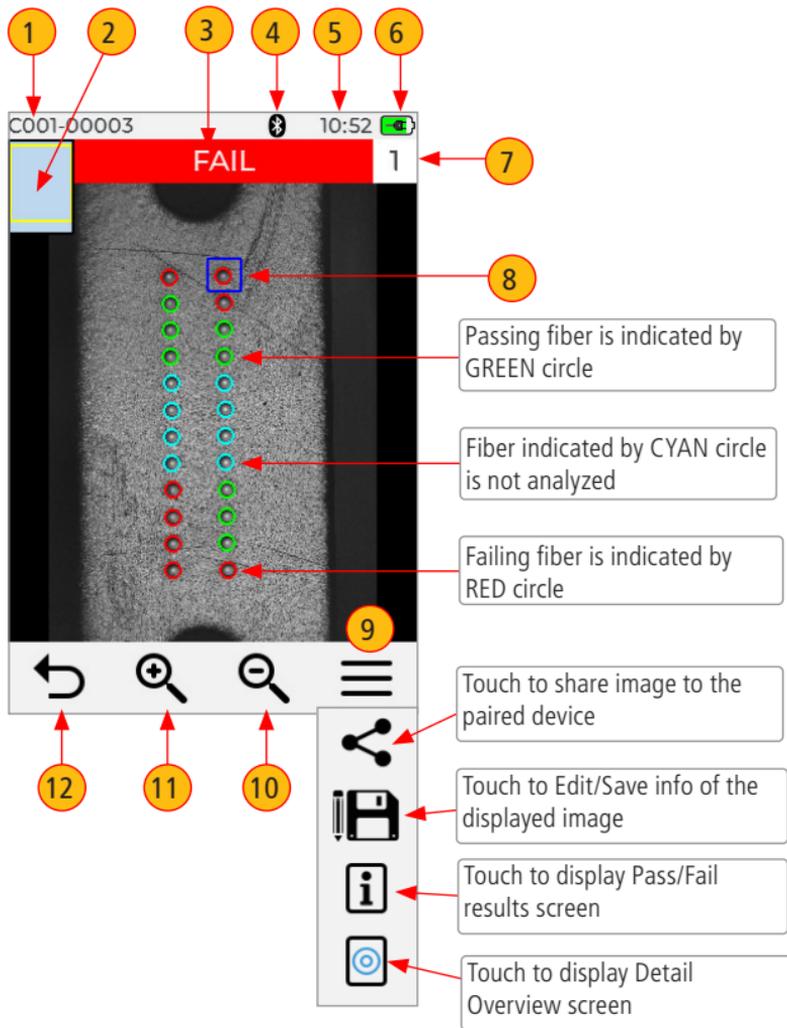


## Captured Image Screen Features

After the fiber end-face image is captured, FOCIS Lightning®2 transitions to the Captured Image mode displaying inspection results. Below is the description of features seen on the Captured Image screen.

1. **File name** — When a saved image is shown, displays file name (e.g.C001-00003). When unsaved image is shown, displays file name as 'Captured @ hh:mm:ss'.
2. **Fiber position** — Shows fiber position in MPO connector.
3. **Inspection analysis status** — (Pass or Fail): shown only if the Pass/Fail option is enabled in Settings.
4. **Bluetooth Icon** — indicates if FOCIS Lightning2 is paired with Android and iOS devices.
  - When displayed in Blue  - Bluetooth enabled.
  - When displayed in Black  - Bluetooth disabled.
5. **Time stamp** — displays current time in 24-hour format.
6. **Battery icon** — indicates battery charge state.
7. **Fiber number** — shows number of the currently selected fiber.
8. **Indicator of the selected fiber** — blue box indicates fiber that is the currently selected for detailed view.
9. **Menu button** — touch to display the sub-menu: Detail View / Info View / Edit/ Save / Share.
10. **Zoom Out button** — Touch to decrease image magnification: x8, x4, x2, x1.
11. **Zoom In button** — Touch to increase image magnification: x1, x2, x4, x8.
12. **Back button** — touch to return to the Live Image mode.

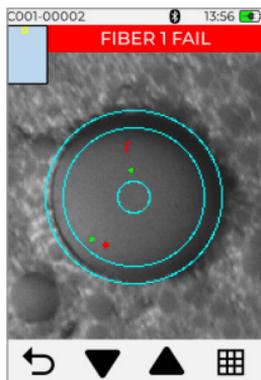
## Captured Image Screen Features



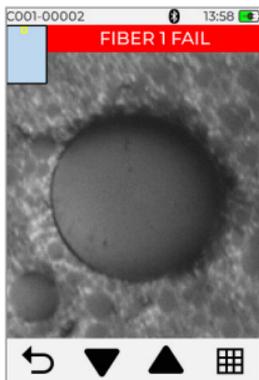
## Detailed View of the Currently Selected Fiber

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. **Fiber Analysis status:** indicates Pass or Fail and Number of the currently displayed fiber.
3. **Single fiber image:** Touching display will navigate through various detailed views of the currently selected fiber as follows:
  - End-face image with overlay layer shown (default view)
  - End-face image only
  - Overlay only
4. **Toggle button:** touch this button to toggle between Image Details display and Analysis Details display.
5. **Arrow buttons:** touch to navigate through fibers. Direction of navigation through fibers with Up/Down arrows depends on Key Up/Key Down settings.
6. **Back ↶ button:** press to return to the MPO Image Overview page.

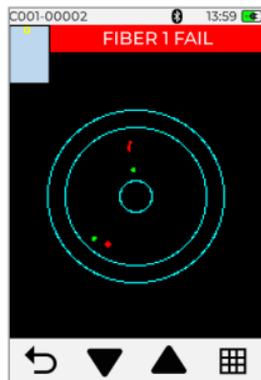
End-face with Overlay



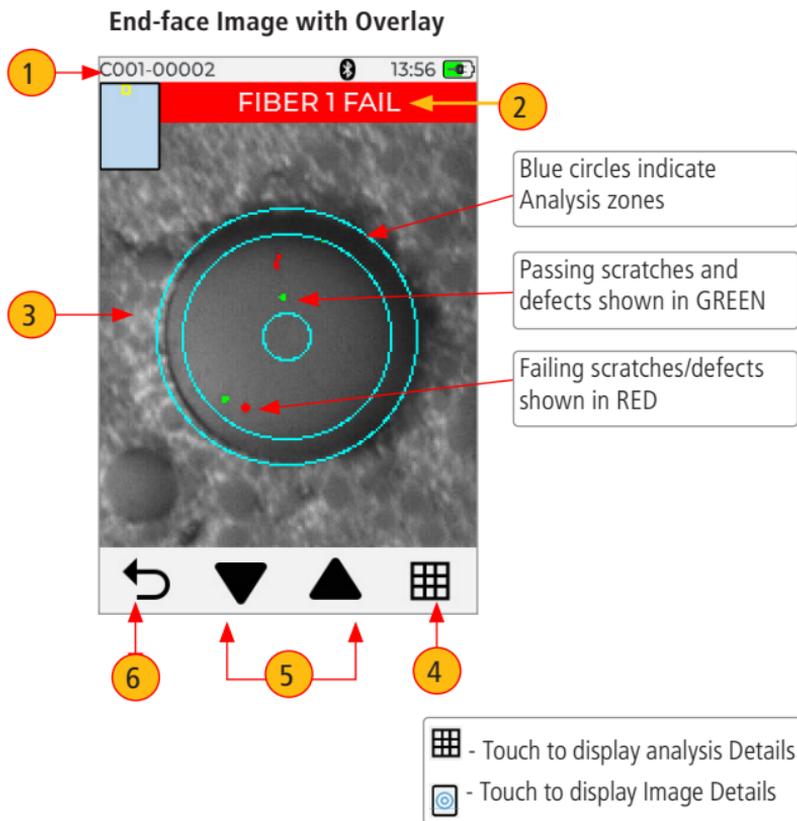
End-face Image only



Overlay Image only



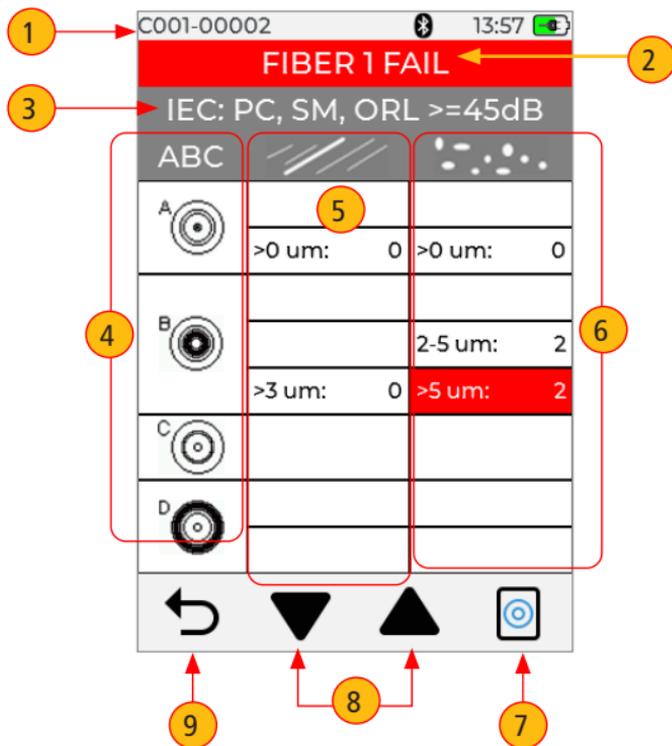
## Detailed View of the Currently Selected Fiber



## Pass/Fail Analysis Details Page

1. **Screen Title:** displays File Name (e.g. COO1-002) if saved image is shown or Captured @ hh:mm:ss if unsaved image is shown.
2. **Fiber Analysis status:** indicates Pass or Fail and Number of the currently displayed fiber.
3. **Analysis Rule:** displays Analysis Rule applied to determine Pass/Fail.
4. **Analysis Zones:** A - core, B - cladding, C - adhesive, D - contact area.
5. **Scratch analysis results for each zone:** reports the number of detected scratches exceeding limit for each region; highlights failed rules in RED.
6. **Defect analysis results for each zone:** reports the number of detected defects exceeding limit for each region; highlights failed rules in RED.
7. **Toggle button:** touch this button to toggle between Image Details display and Analysis Details display.
8. **Arrow buttons:** touch to navigate through fibers. Direction of navigation through fibers with Up/Down arrows depends on Key Up/Key Down settings.
9. **Back ↶ button:** press to return to the MPO Image Overview page.

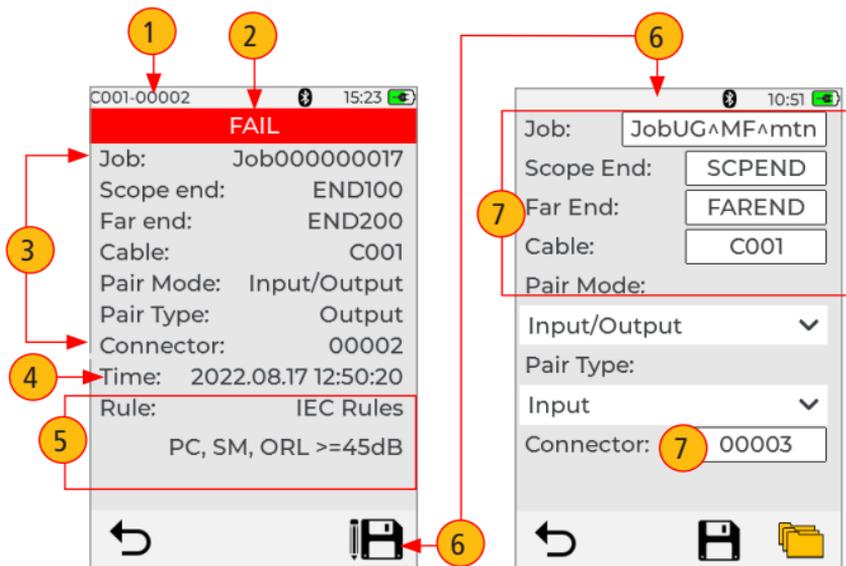
## Pass/Fail Analysis Details Page



- Touch to display analysis Details
- Touch to display Image Details

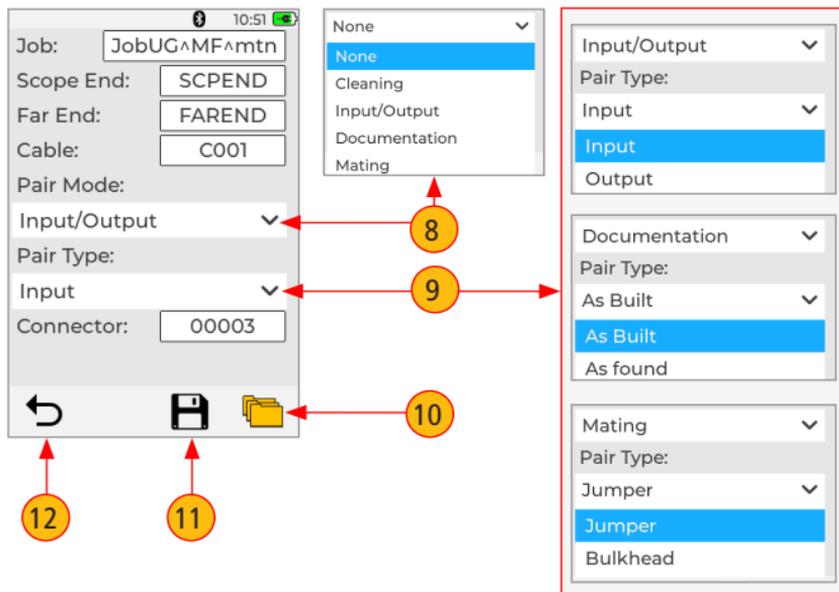
## Image Information Page

1. **Screen Title:** displays File Name (e.g. C001-002) if saved image is shown or Captured @ hh:mm:ss if unsaved image is shown.
2. **Fiber Analysis Status:** indicates Pass or Fail and Number of the currently displayed fiber.
3. **Results ID:** this field displays all information about saved result, Job ID/Scope End/Cable ID/Pair Mode/Pair Type/Connector ID.
4. **Time & Date:** shows time & date of the displayed captured image.
5. **Rule:** indicates applied Pass/Fail analysis rule.
6. **Edit Results ID button:** touch to display editor menu, which allows editing ID parameters as described in references 7-11.



## Image Information Page

- To edit Job ID/Scope End/Far End/Cable ID/Connector ID:** touch the desired field to edit.
- To edit Pair Mode:** touch to select one of the available option.
- To edit Pair Type:** touch to select one of the available option.  
Note that Pair Type selection options depend on Pair Mode selection.
- To edit destination folder:** if needed, you may touch Folder icon to go to the top level Job/Folder structure.
- Save edits:** when done, touch Floppy icon to save edits.
- Back button:** touch to return to the previous screen.



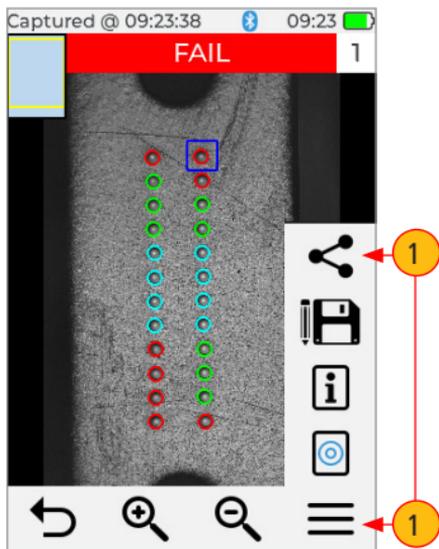
## Saving Captured Images

### Saving to a Newly Created Folder

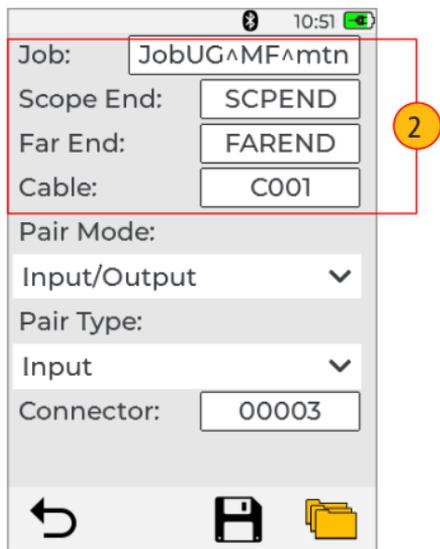
New Job/Scope End/Far End/Cable/Connector names/numbers are created by editing existing file name details.

1. From the Captured Image screen, touch Menu, then touch Floppy to display Job Details screen.
2. On the Job Details screen, touch Job to edit name — this will create a new folder. Touch /Scope End/Far End/Cable/Pair Mode/Pair Type/Connector to edit as needed.

### Captured Image not Saved



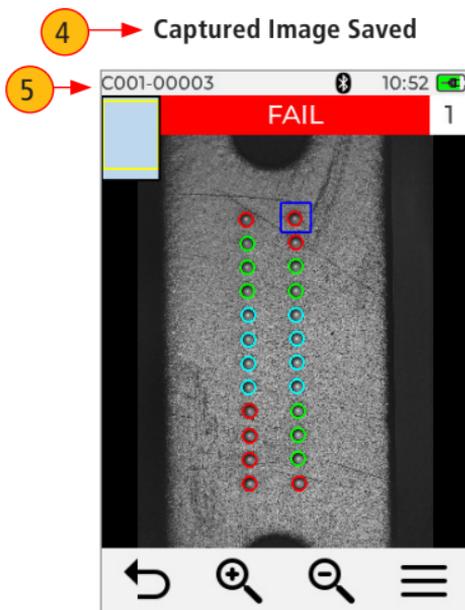
### Job Details Screen



## Saving Captured Images

3. Touch Floppy to save results to the newly created Job/Folder.
4. Display will show saving in progress and then reverts back to the Captured Image screen.
5. Note that screen header changes from 'Captured @ hh:mm:ss' to 'CO01-00003'.

**Note: The newly created Job/Folder becomes current where all subsequent test results will be saved.**



## Using FOCIS Lightning<sup>®</sup> 2 with Smart Device

AFL's FlexApp Provides wireless transfer of FOCIS Lightning<sup>®</sup> 2 inspection results to FlexReports, cloud-enabled PC software, for easy report generation. FlexApp is available for Android and iOS devices.

### Get your smart device ready:

- Download FlexApp to your smart device
- In your smart device Bluetooth Settings:
  - Enable Bluetooth.
  - Make your device visible.

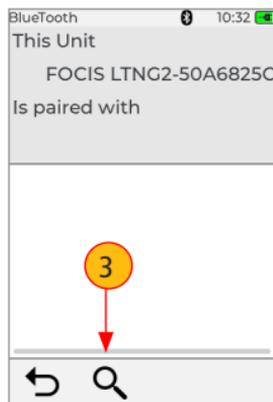
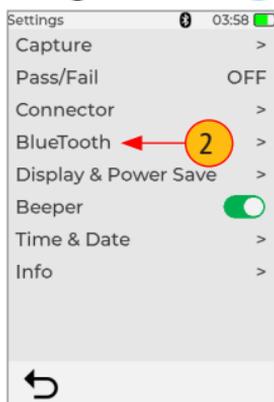
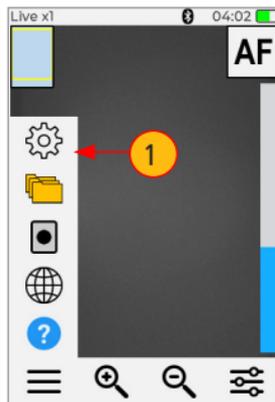


Mobile App    PC Software

### Pair FOCIS Lightning2 to your smart device:

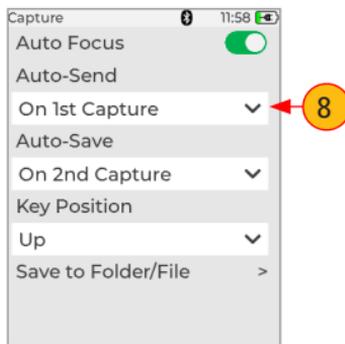
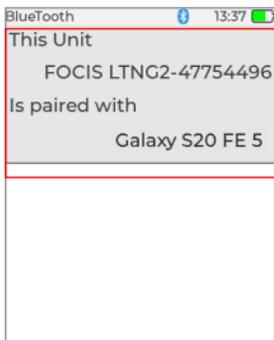
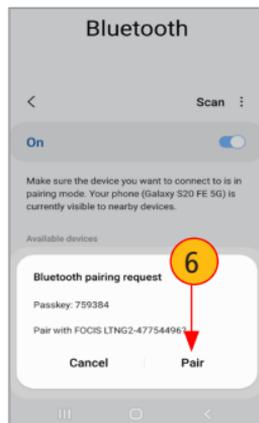
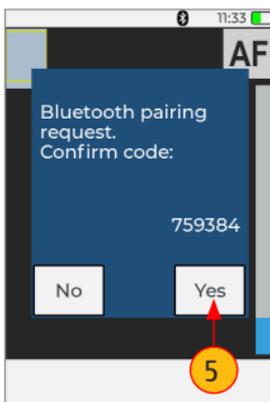
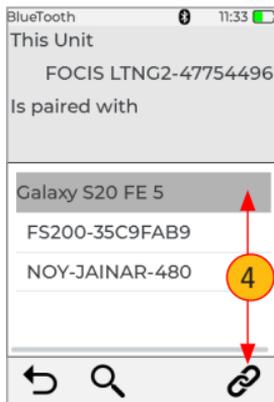
1. In the Live Image screen, touch Menu, then touch Settings.
2. In the Settings screen, touch Bluetooth.
3. Touch the Search icon to see all Bluetooth enabled devices in range.
4. When a list of visible devices is shown, touch your smart device to pair with; then touch Link to initiate pairing.
5. Confirm pairing on FOCIS Lightning2.
6. Confirm pairing on your smart device.

**Bluetooth icon:**  - BT disabled;  - BT enabled



## Using FOCIS Lightning<sup>®</sup>2 with Smart Device

- Verify that FOCIS Lightning2 indicates that it is paired with your smart device.
- From the Main Menu > Settings > Capture screen, configure FOCIS Lightning2 to auto-send captured images on 1st or 2nd Capture Key.
- Press the Capture button to return to the Live Image mode. Press the Capture button again to focus/capture/analyze/send image to FlexApp.
- FOCIS Lightning2 will capture image and send it to your smart device.
- FlexApp on your smart device will display received image.



## Sending Captured Results to FlexScan®

### Automatically send results to FlexScan via Bluetooth

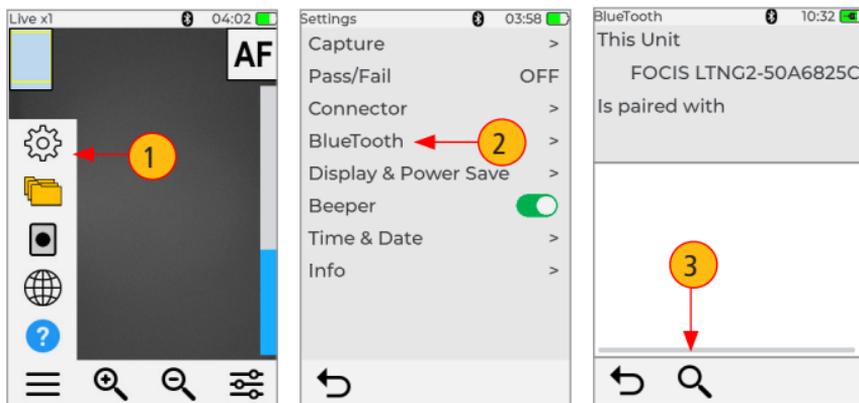
#### On FlexScan

Configure FlexScan for pairing: Select Settings > Bluetooth; then Enable Bluetooth and Visibility option - 'ON'.

#### On FOCIS Lightning®2

1. In the Live Image screen, touch Menu, then touch Settings.
2. In the Settings screen, touch Bluetooth.
3. Touch the Search icon to see all Bluetooth enabled devices in range.
4. When a list of visible devices is shown, touch your FlexScan to pair with; then touch Link to initiate pairing.
5. Confirm pairing on FOCIS Lightning2.
6. Confirm pairing on your FlexScan.
7. From the Main Menu > Settings > Capture screen, configure FOCIS Lightning2 to auto-send captured images on 1st or 2nd Capture Key.

Bluetooth icon:  - BT disabled;  - BT enabled

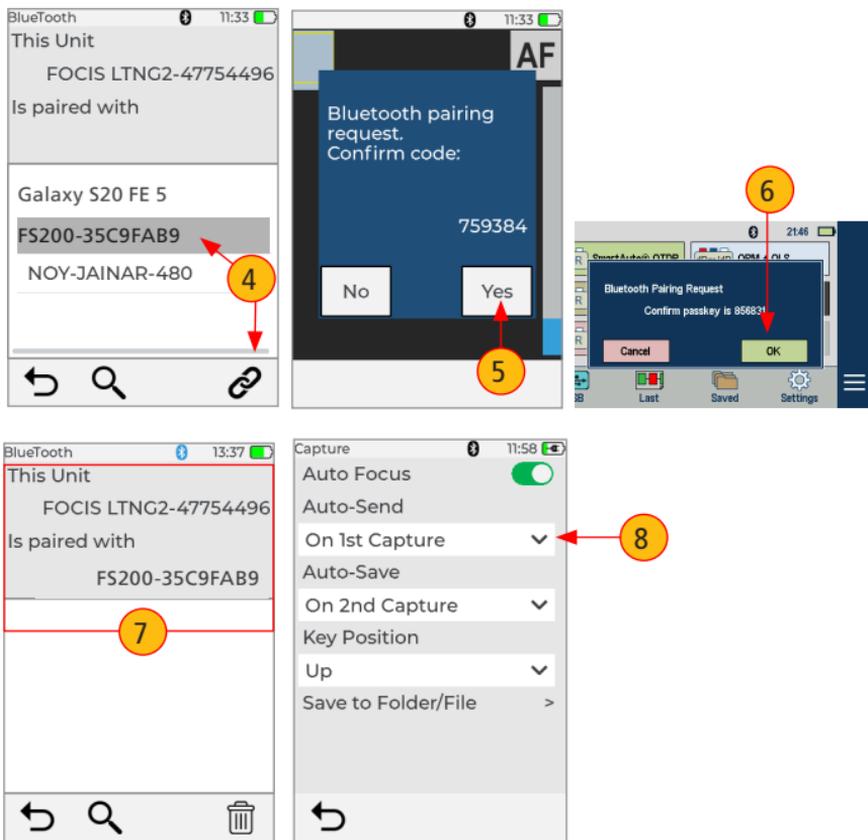


## Sending Captured Results to FlexScan®

- Press the Capture button to return to the Live Image mode.
- Press the Capture button to focus/capture/analyze/send image to FlexScan.

### On FlexScan

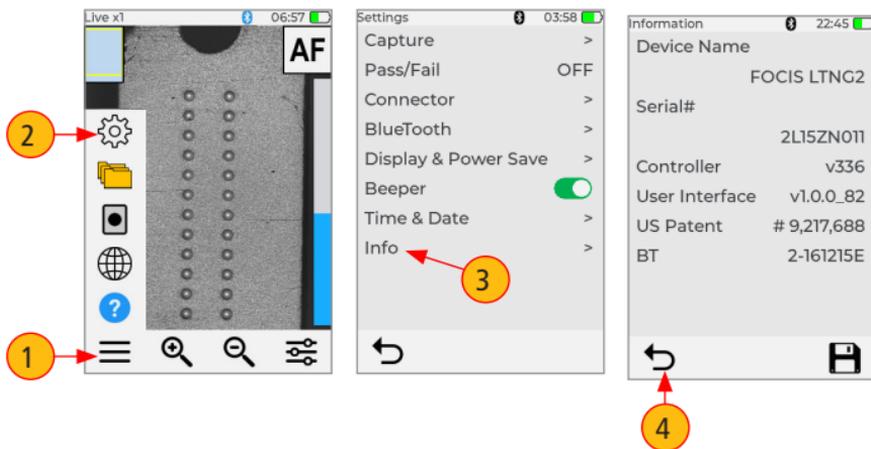
Captured image and Pass/Fail results will appear on your FlexScan.



## How to View Device Information Menu

1. From the Live Image mode, touch **Menu** (3-bar icon) to display the Menu Panel.
2. Touch **Settings**.
3. When the **Settings** screen is displayed, touch **Info** to see the following information:
  - Device name
  - Serial number
  - Controller version number
  - User Interface version number
  - US Patent - #9,217,688
  - Bluetooth version number
4. Touch **Back** to return to previous screen, or you may press Capture button to return to the Live Image mode.

**Note:** It is helpful to have your FOCIS Lightning®2 Device Information available if you need to contact AFL Test & Inspection Customer Service or Technical Support.



### Technical Support:

[AFLtesttechsupport@AFLglobal.com](mailto:AFLtesttechsupport@AFLglobal.com) | +1 (800) 235-3423 (Option 3)





**Test & Inspection**

**Thank you for choosing AFL Test & Inspection!**

**[www.AFLglobal.com](http://www.AFLglobal.com)**

**Technical Support:**

**[AFLtesttechsupport@AFLglobal.com](mailto:AFLtesttechsupport@AFLglobal.com) | +1 (800) 235-3423 (Option 3)**