Test & Inspection

FlexScan® FS300 Quad and HDR OTDRs

Quick Reference Guide

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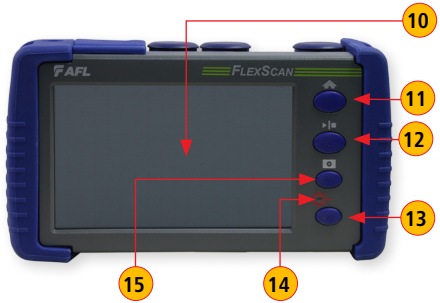
Controls, Display, Interfaces



FlexScan FS300 Model	Wavelengths (nm)
FS300-320 HDR OTDR	1310/1550
FS300-323 HDR OTDR	1310/1550/1625
FS300-325 Quad OTDR	850/1300/1310/1550

1. Power button
2. Power jack (5 VDC)
3. Charge/AC indicator
4. USB host port
5. Micro-USB function port
6. Multimode OTDR/Source port*
7. Single-mode OTDR/Source/ PON OPM** port
8. VFL port
9. Power Meter port
10. Touchscreen display
11. Home button
12. Start/stop test button
13. VFL button
14. VFL indicator
15. Capture screen image button

* FS300-325 model only

** PON OPM is optionally available for the FS300-323 only

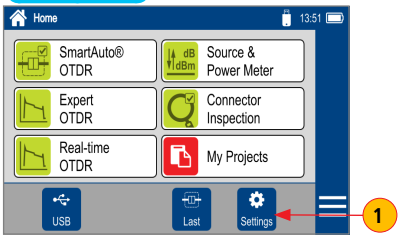
Battery Charging

- Plug the included AC charger into AC outlet.
- Connect charger plug to power jack.
- LED indicates charging status as follows:
  - **OFF** - AC not connected
  - **RED** - Charging battery
  - **GREEN** - Fully charged
  - **Flashing RED/GREEN** - Charging halted due to over-temperature.
- FlexScan charges while operating.
- A fully-charged battery operates for approximately 12 hours of typical use.

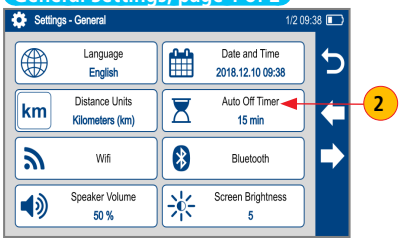
Configure FlexScan to Auto-Off

1. Turn your FlexScan On. From the displayed Home screen, touch Settings.
2. In the Settings menu, touch the Auto Off Timer field to display the settings sub-menu.
3. Select the desired power save option (5 min, 15 min, Never).

Home Screen



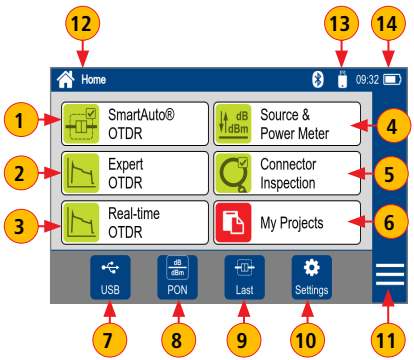
General Settings, page 1 of 2



The Home screen is displayed at FlexScan startup.

Modes and Features Summary

1. SmartAuto® OTDR (recommended): Configure and run SmartAuto OTDR test using multi-pulse acquisition.
   - SmartAuto-FleXpress - faster SmartAuto test
2. Expert OTDR: Configure and run Expert OTDR test with averaging.
3. Real Time OTDR: Configure and initiate OTDR test with real-time updates.
4. Power Meter & Source (OPM + OLS): Measure power and loss; generate fiber ID Tones; enable light source.
5. Connector Inspection: View connector inspection results received via Bluetooth from FOCIS Flex probe.
6. My Projects: Touch to view test results.
7. USB: Touch to enable file transfer to/from PC.
8. PON (optional on FS300-323 model only): Touch to configure PON OPM settings.
9. Last: Touch to view the most recent test results.
10. Settings: Touch to configure General Settings.
11. Menu: Touch to view Device Information screen.
12. Screen Title: Name of the currently displayed screen.
13. USB: Indicates external USB memory stick detected.
14. Battery Icon: Indicates battery charge level.



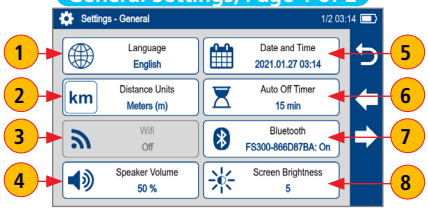
General Settings

On the Home screen, touch Settings to access the General Settings screen. Touch the desired option to configure.

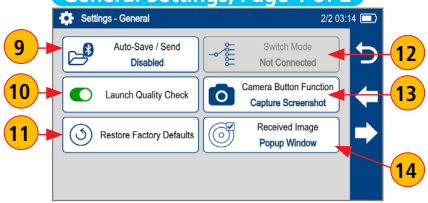
1. Select Language: English, Finnish, French, German, Italian, Japanese, Korean, Norwegian, Polish, Portuguese, Russian, Simplified Chinese, Spanish, Traditional Chinese, Turkish, Vietnamese.
2. Select Distance Units: kilometers, meters, kilofeet, feet, miles.
3. Configure Wi-Fi (Future).
4. Set Speaker volume.
5. Set Date and Time.
6. Set Auto Off Timer.
7. Enable/configure Bluetooth.
8. Set brightness and auto-dim.
9. Configure Auto-Save/Send.
10. Enable/disable Launch Quality Check.
11. Restore Factory Defaults.
12. Configure MPO Switch Control (if switch connected & enabled) and access the Data Center mode (if purchased).
13. Configure Camera Button Function.
14. Display received FOCIS Flex results in popup window or save in background.

For details, see FlexScan FS300 OTDR User's Guide.

General Settings, Page 1 of 2



General Settings, Page 1 of 2



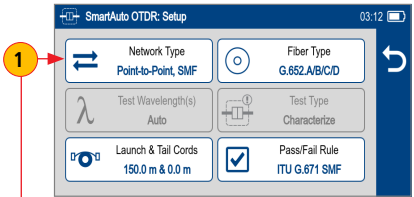
SmartAuto OTDR Settings Summary

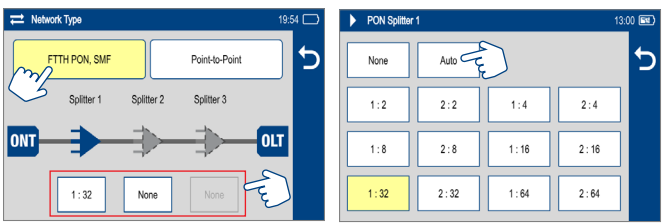
Important: Changes made to the test settings are applied to all OTDR test modes.

From Home screen, select SmartAuto OTDR test mode and configure SmartAuto test as outlined below.

1. Network Type: Touch to select one of the following:
   - Multimode Point-to-Point (FS300-325 only)
   - Single-mode Point-to-Point
   - Single-mode FTTH PON. If FTTH PON selected, configure splitters:
     - Tap each expected splitter field (located below PON diagram) to display a sub-screen and configure split ratio.
     - Up to 3 splitters may be configured.
     - If Auto selected– FS300 automatically detects splitters and reports split ratio based on loss.

Note: If Auto selected, excess loss at splitter may result in incorrect split ratio being reported.

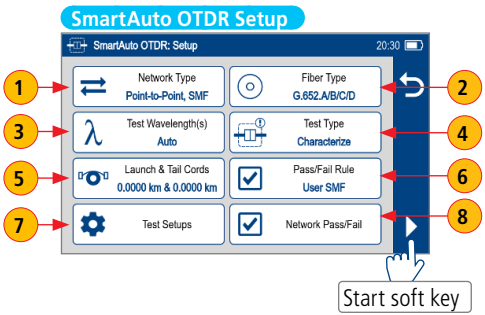




Configure and Initiate SmartAuto® OTDR Test

Important: Changes made to the test settings are applied to all OTDR test modes.

2. Fiber Type:
   - Multimode OMx or User (FS300-325 only)
   - Single-mode G.65x or User
3. Test Wavelengths: Select desired wavelength(s) (FS300-323 only).
4. Test Type: Select Characterize or FleXpress.
5. Launch & Tail Cords: Edit length.
6. Pass/Fail Rules:
   - ITU G.671
   - TIA-568.3-D
   - User-configured
7. Test Setups.
8. Network Pass/Fail – User-settable link length, loss and ORL.



When SmartAuto (and PON OPM if desired for FS300-323) settings configured, touch Start soft key to initiate OTDR (and PON OPM) test.

Refer to the FlexScan User's Guide for details on SmartAuto, Expert, Real-Time and Data Center OTDR test modes.

Live Fiber Detection

To prevent service disruption on live PONs, FlexScan performs a Live Fiber check prior to every OTDR test. If a live fiber is detected, FS300 models display a warning screen and do not allow testing.

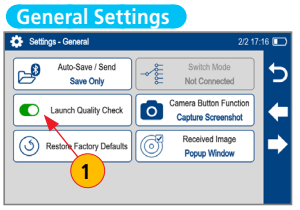
Launch Quality Check

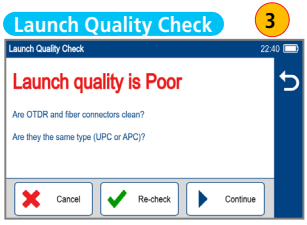
An optional launch quality check enables users to detect dirty, damaged, poorly seated, or mismatched (UPC to APC) connectors.

To perform the launch quality check:

1. With the Launch Quality Check option enabled in the OTDR or General Settings screen, initiate an OTDR test.
2. The FlexScan will assess the loss and reflectance at the OTDR's connection to the launch cord (fiber ring) or fiber under test.
3. If excess loss or reflectance is detected, the OTDR displays the 'Launch Quality is Poor' warning screen. From this screen the user may chose to perform one of the following:
   - Cancel a test by touching either Cancel or Back.
   - Clean connectors, then repeat the launch quality check by touching Re-check.
   - Continue testing without checking and cleaning the connection by pressing Continue.

Note: Testing a fiber with poor launch quality may produce poor test results.



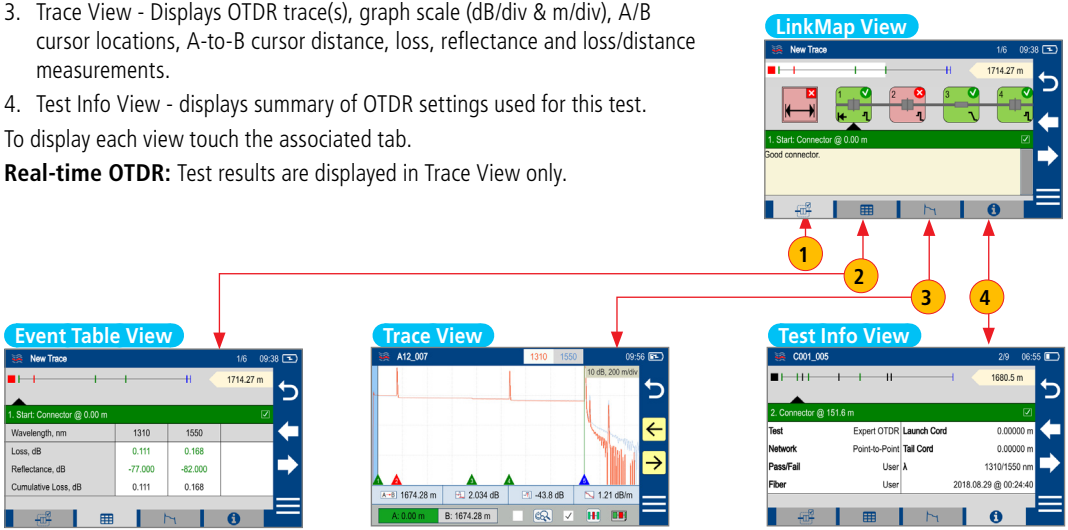


SmartAuto®, Expert OTDR, and Data Center OTDR: Test results may be displayed in four views.

1. LinkMap View - displays an icon-based representation of the network.
2. Event Table View - displays measurements for the currently selected Link Summary, Event, or Section.
3. Trace View - Displays OTDR trace(s), graph scale (dB/div & m/div), A/B cursor locations, A-to-B cursor distance, loss, reflectance and loss/distance measurements.
4. Test Info View - displays summary of OTDR settings used for this test.

To display each view touch the associated tab.

Real-time OTDR: Test results are displayed in Trace View only.



Initiate the SmartAuto test by touching either Start soft key or pressing Start/Stop button.

1. FlexScan begins testing with the Live Fiber Detection and, for FS300-323, Live PON OTDR Test and if these checks pass, proceeds to next step.
2. If the Launch Quality check is enabled, FlexScan checks loss and reflectance of the OTDR connection.
3. If launch quality is good, FlexScan starts testing at both wavelengths using SmartAuto settings.
4. When testing is completed, FlexScan displays the LinkMap view, which is a primary display in SmartAuto OTDR mode.

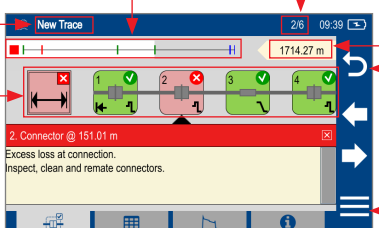
LinkMap® View Features

LinkMap is an icon-based representation of the analyzed network.

File name: consists of cable name and fiber number, or "New Trace" if file has not been saved

Link map thumbnail view with proportionally spaced events

x/y or x1-x2/y, where
x = number of the selected event
x1-x2 = link section between events,
y = total events



LinkMap detail view: shows summary and first 4 events, or up to 5 events. White highlighted area in thumbnail view indicates region of fiber for which events are shown in the detail view. Touch an event icon to see more details about that event.

Link Length

Back key: touch to return to the previous menu

Menu key: touch to navigate to Save As screen

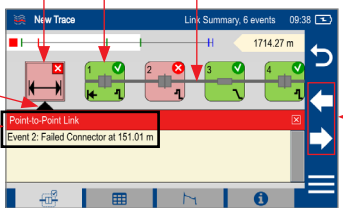
LinkMap® View Features

Link Summary icon: may be green (all events passed), red (one or more events failed)

Event icon: event icons may be green (pass) or red (fail). Pass/fail is based on event loss and reflectance thresholds configured by the currently selected Pass/Fail Rule. Touch an event icon to see details about that event.

Selection marker ▲ indicates selected icon: Summary, Event, or Section

Link Section between events



Details of the currently selected Summary, Event, or Section

Swipe or Use arrows to move to next or previous event or link section

LinkMap tab: when in any other test results viewer (Event Table View, Trace View, Test Info View), touch to return to LinkMap View

Info tab: touch to display summary of OTDR settings used for this test

Trace tab - touch to display Trace view that depends on selection:

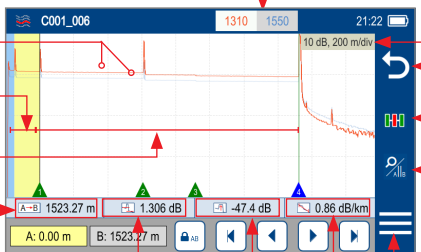
Selection	Display View
Summary	Trace of entire network
Event	Trace around event
Section	N/A

Event Table tab: touch to view measurements for the currently selected Link Summary, Event, or Section

Trace View Features

Trace View is accessed from any other results view by touching the Trace tab. Trace View displays OTDR trace(s), graph scale (dB/div & m/div), A/B cursor locations, A-to-B cursor distance, loss, reflectance and loss/distance measurements.

- Touch the desired wavelength make it active
- White background indicates active wavelength
- Cursor measurements apply to active wavelength



OTDR traces

Launch cable (if present)

Fiber under test

Distance from A to B cursor

Loss between A and B cursor

Maximum Reflectance between A and B cursor

Loss-per-distance between A and B cursors

Graph scale (dB/div & m/div)

Touch to return to the previous screen

Touch to switch to the LinkMap view

Touch to toggle between Zoom and A|B Cursor Control modes

Touch to display Menu (Save As, Print to PDF, etc.)

Trace View – Cursor Control Enabled

A and B cursors. Touch and drag in trace display area to move the active cursor to the desired location

Cursor A location (A is active). Yellow highlight indicates the currently active cursor. Cursor A is always located to the left of cursor B

Cursor B location (B is inactive cursor). Touch non-highlighted cursor box to make cursor active. Cursor B is always located to the right of cursor A

Lock / Unlock A/B cursors (when locked, cursors move together). A|B Cursor locked icon toggles to show expected function when touched (e.g. if A|B currently locked, icons shows unlock A|B)

Event Marker:
Green - Passing event
Red - Failing event
Blue - Not evaluated event

Touch Event marker to move active cursor to that event

Cursor Control enabled

Jump active cursor to the Next Event

Nudge active cursor Right

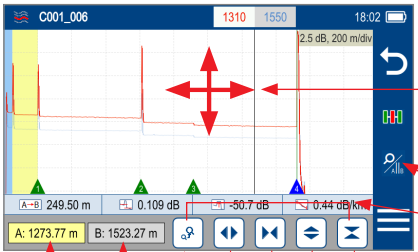
Nudge active cursor Left

Jump active cursor to the Previous Event

Trace View – Zoom Control Enabled

Note:

- Zoom In/Out centers trace about a point where the active cursor intersects with the active wavelength trace.
- Unzoom / Rezoom icon toggles to show expected function when touched (e.g. if zoomed in, icon shows Unzoom state).



- Pinch in trace area to zoom (horizontally or vertically)
- Swipe in trace area to pan display (horizontally or vertically)

Zoom Control enabled

Cursor A location (A is active). Yellow highlight indicates the currently active cursor. Cursor A is always located to the left of cursor B

Cursor B location (B is inactive cursor). Touch non-highlighted cursor box to make cursor active. Cursor B is always located to the right of cursor A

Touch to Unzoom (if zoomed in);
Touch to Rezoom (If zoomed out)

Touch to zoom out vertically on the active trace around the currently active cursor

Touch to zoom in vertically on the active trace around the currently active cursor

Touch to zoom out horizontally on the active trace around the currently active cursor

Touch to zoom in horizontally on the active trace around the currently active cursor

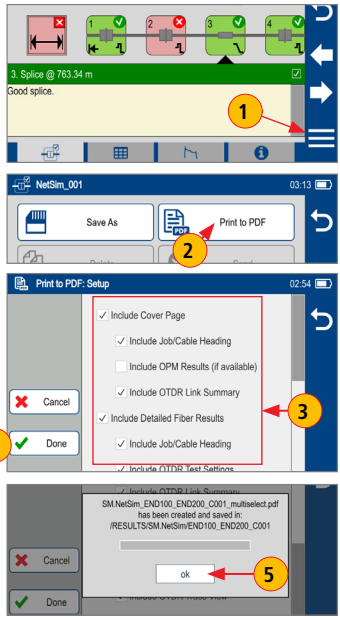
Saved test results may be organized into reports and printed to PDF file.

1. Navigate to the desired test results and touch Menu from the results display.
2. Touch Print to PDF from the displayed menu.
3. Select options to include cover page and configure content of printout.
   – Scroll and touch check boxes to configure additional options.
4. Touch Done to complete setup and generate PDF report.
   – Generated PDF report will saved to the same RESULTS > TRACES > PROJECT folder as test results.
5. Touch OK when done.

Uploading PDF reports to PC

- Connect FlexScan to PC (via FlexScan's micro-USB function port and USB port on a PC).
- On FlexScan, enable USB mode (on Home screen).
- On PC, navigate to FS300 (X:) > RESULTS > TRACES > "Destination PROJECT folder".
- Upload PDF report from FlexScan to PC.

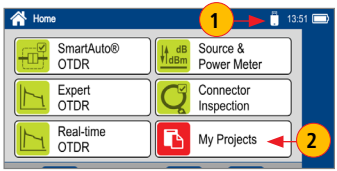
Note: Created PDF may also be sent via Bluetooth to FlexApp running on a mobile device (Bluetooth/Wi-Fi option required).

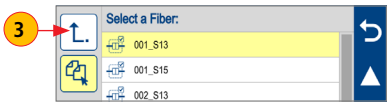


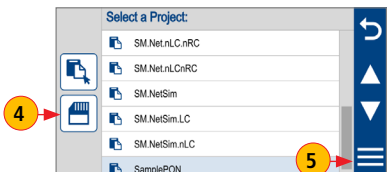
Back Up Saved Results to USB Memory

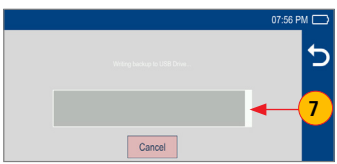
To back up internally stored results to USB memory stick:

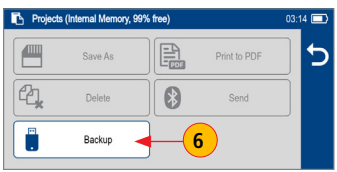
1. Plug external USB memory stick into FlexScan. Once plugged, you should see the USB icon on Home screen header.
2. From the Home screen, touch 'My Projects'.
3. If Folder Up icon is shown, touch it to navigate up to Projects level until icon disappears.
4. Verify that Internal Memory is currently selected - memory card icon is shown.
   - If USB selected, touch USB memory icon to toggle to internal memory.
5. Touch Menu.
6. Next, touch Backup.
7. Wait until "Writing backup to USB drive…" completes.







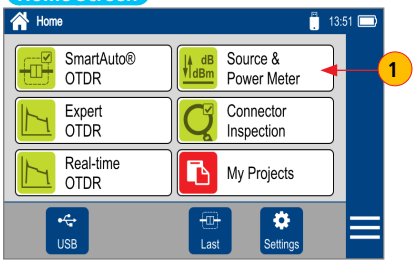




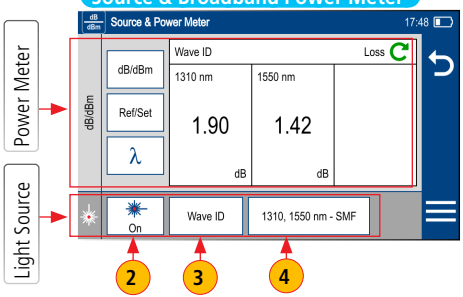
Source Settings and Features

1. Source & Power Meter test mode is accessed form the Home screen by touching its tab.
2. Touch to enable/disable light source – this function is only available on Source & Power Meter display.
3. Touch to select test mode: Wave ID, CW, Tone.
   - Select Wave ID mode (shown) for fastest loss measurements. While in this mode, the FlexScan source transmits wavelength information, enabling a Wave ID power meter to synchronize and measure power at received wavelength(s).
   - Use CW mode to generate continuous wave light at a single wavelength. Use CW mode for loss measurements with a non-Wave ID Power Meter
   - Generate Tone for fiber identification (270 Hz, 330 Hz, 1 kHz, 2 kHz).
4. Touch to select test wavelength.

Home Screen



Source & Broadband Power Meter

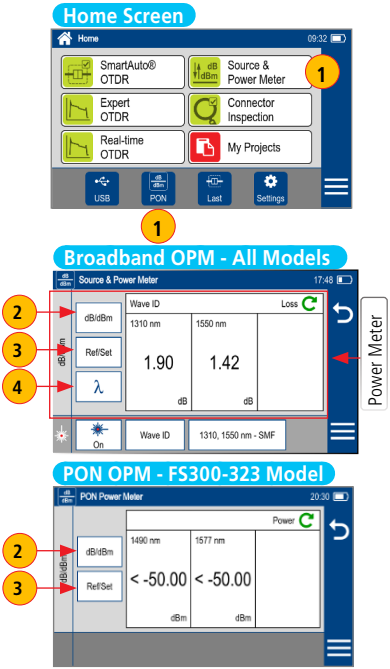


Broadband and PON Power Meter Settings and Features

1. Source & Power Meter mode is accessed form the Home screen:
   - Broadband OPM: tough the Source and Power meter tab.
   - PON OPM (FS300-323 only): touch the PON tab at bottom of the Home screen.
2. Touch to toggle between power (dBm or nW) and loss (dB) mode.
3. Touch and Hold Ref/Set to store new reference(s) at received wavelength(s). Touch Ref/Set to view stored reference(s).
4. If used with Wave ID source, power meter automatically synchronizes to and indicates received wavelength(s).
   - If used with non Wave ID source, touch to select wavelength.
   - Wave ID feature is not available on PON OPM. Wavelengths on PON Power Meter screen are always 1490 and 1550/1577 nm.

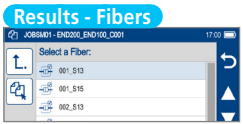
Notes:

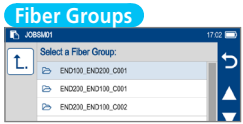
- Power meter detects and indicates fiber identifying tones when used with a light source capable of generating a modulated Tone signal.
- See FlexScan® FS300 OTDR User's Guide for details on how to manage OPM Test Setups may and configure power or loss measurement pass fail limits.
- PON OPM is a separately-charged advanced software feature.

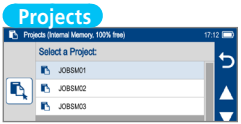


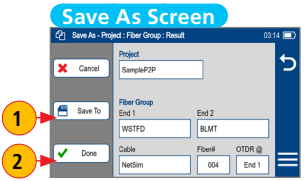
Fiber test results may be stored in the FlexScan internal memory or external USB stick.

Saved test results are organized into a Fiber Group sub-folder within a Project folder.









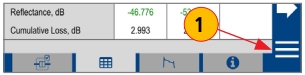
A name of the saved result consists of several parameters, which are defined in the Save As screen. Fiber Group folders are named and displayed as: <End 1>_<End 2>_<Cable>

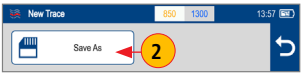
Individual Test Result files are named and displayed as:
<End 1>-<End 2>-<Cable>_<Fiber#>_<WavelengthCode>.SOR.

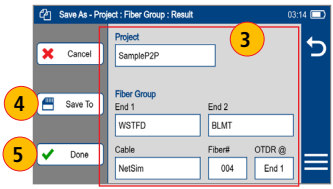
1. Touch Save To to display the File Manager screen and navigate to the desired Project / Fiber Group folder.
   - Project, End 1, End 2, and Cable are user-defined in Text Editor.
   - Fiber number auto-increments after each save, but can be modified in Number Editor as needed.
2. Touch Done when finished.

For Bi-directional OTDR reports, results must be obtained and stored from each end of the network: Use same test settings (range, pulse width, etc.) in both directions; Use same launch and receive cables in both directions; Set OTDR@ End 1 to test from one direction; Set OTDR@ End 2 to test from other direction; Bi-directional averaging and report generation is performed using FlexReports software.

1. While in the Results view, touch Menu.
2. Next, touch Save As.
3. Edit Project, End 1, End2, Cable, Fiber#, and OTDR@ fields used to identify saved results.
   - For Bi-directional OTDR testing: Set OTDR@ End 1 to test from one direction; Set OTDR@ End 2 to test from other direction.
   - Touch Done when finished.
4. Touch Save To to view, navigate and select destination Project/Fiber Group folder. Touch Back to return to Save As screen.
5. Touch Done to save test results.







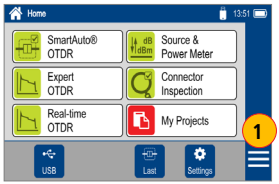
Saving Results for Bi-directional Reporting:

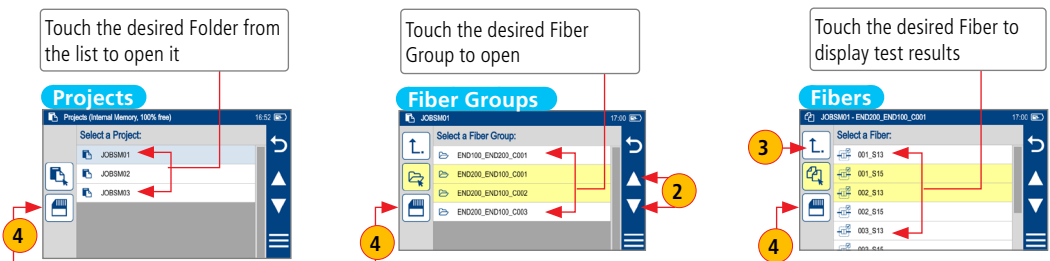
Results must be obtained and stored from each end of the network. Bi-directional averaging and report generation is performed using FlexReports software.

- To ensure FlexReports can associate results from both ends, proper naming of test results is critical:
- Use same Project name and Fiber Group name when testing from each end.
- Fiber Group name created from End 1, End2 and Cable names.
- Use same End 1 and End2 names.
  - End 1 and End2 names must be swapped when testing from End2.
  - Reset fiber number to same starting fiber when testing from End2.

To View Saved Test Results

1. From the Home screen, touch My Projects.
   Navigate through Project/Fiber Group/Fiber screens to locate the desired test record, then touch it to display test results.
2. Touch up/down keys or swipe to scroll up/down through list of files.
3. Touch Folder Up icon to navigate up to Fiber Groups or Projects level.
4. Touch the Memory/USB icon to toggle between USB memory stick and internal memory card (if USB stick present).





For details, refer to the FlexScan User's Guide.

Thank you for choosing AFL Test & Inspection!

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