



OV350-DW96
Hand Held Mini OSA
(Optical Multi Wave Analyzer)
Users Guide



Fiber Instrument Sales

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Revision A
3/21/2025

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Section 1 Safety

Prior to using the quick start guide or operating the equipment in any way, it is highly suggested the user reads all safety information.

This product has been designed and tested in accordance with the Manufacturer's safety standards, and has been supplied in a safe condition.

Personal Safety

Personnel should always be aware when working with fiber optic test equipment that active fibers may be present and therefore infrared optical energy may be present.

Never look directly into the end of a connected fiber optic cable or fiber optic adapter of test equipment, to do so could expose the user to laser radiation and could result in severe personal injury.

To Prevent Fire or Shock Hazard

- Batteries are not field replaceable, equipment must be returned to the factory for battery replacement
- Do not use the charger without the batteries installed
- Do not expose the battery charger to rain or excessive moisture
- Do not use the AC adapter when there are signs of damage to the enclosure or cord
- Ensure that you are using the correct charger for the local line voltage

To Prevent Connector Damage

Fiber-optic connectors are easily contaminated or damaged. The connection to the OV350-DW96 is a physical contact type of connection and dirty or damaged connectors may impair the instruments capabilities at minimum and at worst result in the need to return the OV350-DW96 to the factory for expensive repairs. Prior to making any connection to the unit, ensure that all proper cleaning procedures have been followed.

The OV350-DW96 is available in both UPC and APC connector styles. Ensure the proper connector is used to interface with the unit. It is suggested a sacrificial patch cord be used to minimize multiple connections and disconnections to the OV350.

Section 1 Safety


To Prevent Optical Damage

The OV350-DW96 has two ports, a low power port and high power port. The low power port is designed for maximum input power of -10dBm per channel and a maximum composite power of +17dBm. The high power port is designed for a maximum of +10dBm per channel and a maximum composite power of +29dBm.

If unsure of the power level, it is best to start in high power mode and use the designated high power port.

Section 2 Quick Start Guide

Power Up

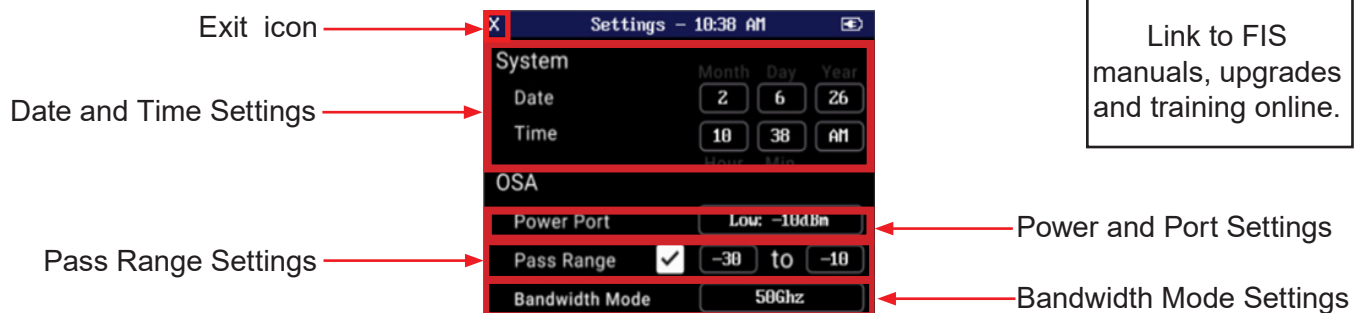
Press the  button to power on the OV350-DW96, the home screen will be displayed.

The home screen offers direct access to the OSA and video scope modules. The visible laser is operated directly from the home screen, simply touch the Visible Laser icon and toggle through CW, modulated and off. File management icon opens file management screen to manipulate and transfer files saved in the OSA and video scope modules as shown below and the settings icon opens the settings page. The Help icon offers the user a link to Fiber Instrument Sales manuals, upgrades and training online.



Setting Screen

Select the Settings icon to open the settings screen.

The image shows a screenshot of the Settings screen. The screen has a dark blue header with the text "Settings - 10:38 AM" and a close icon (X). Below the header are several sections: "System" with date and time settings, "OSA" with "Power Port" (Low: -10dBm), "Pass Range" (checked, -30 to -10), and "Bandwidth Mode" (50Ghz). Red arrows point from text labels to specific elements: "Exit icon" points to the X icon; "Date and Time Settings" points to the date and time fields; "Pass Range Settings" points to the Pass Range section; "Power and Port Settings" points to the Power Port section; and "Bandwidth Mode Settings" points to the Bandwidth Mode section. To the right of the screenshot is a QR code with the text "Link to FIS manuals, upgrades and training online." below it.

Setup

Follow the steps below for initial setup and periodic adjustments

- From the Home screen or the OSA menu screen, select the Settings icon to enter the settings screen.
- Set the date and time for accurate time stamps on saved files.
- Low power port (max channel power, -10dBm) or high power port (max channel power, +10dBm). Select the Power Port value to toggle between the two. ***If the expected power levels are unknown, it is best to start on the high power port setting.***

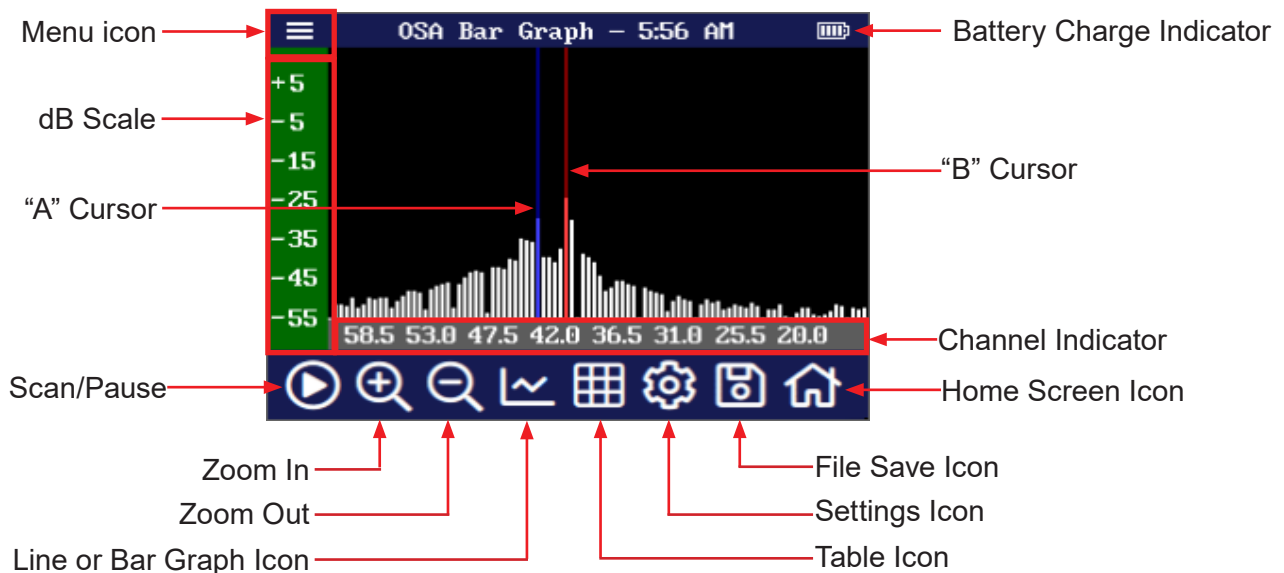
Section 2 Quick Start Guide

Setup Continued

- Set the pass range by long touching the low and high pass range limit values to scroll to desired setting. Use the check box to turn on or off the pass zone indicator. (This is a green shaded area on the graph screens.)
- Set the bandwidth resolution by touching the value to cycle through available settings of 50 GHz, 100GHz-A and 100GHz-B. **The “A” channels are the full step channels and “B” channels are the half step or (.5) numbered channels.**
- When finished, select the Exit icon in the top left of the display.

OSA Operation

OSA Bar Graph Screen with Menu Screen/Icons



Section 2 Quick Start Guide

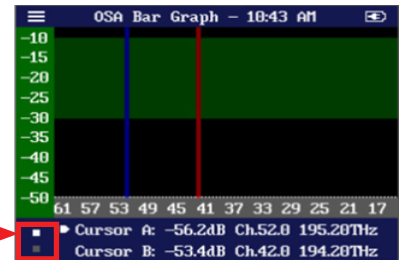
OSA Menu Screen Icon Functions

<u>Menu</u>	The menu icon cycles on and off the OSA menu bar
<u>Scan</u>	The Scan icon starts a live scan of the fiber under test. The icon is replaced with a pause icon when scanning, press the pause icon to cancel scanning.
<u>Zoom In</u>	Selecting Zoom In will increase the zoom factor to 2x or 4x.
<u>Zoom Out</u>	Selecting Zoom Out will decrease the zoom factor to 2x or 1x.
<u>line Graph</u>	Selecting the line graph icon will open the 6GHz line graph screen. When the line graph is active the icon is replaced with a bar graph icon.
<u>Table</u>	Selecting the table icon to open the table mode.
<u>Settings</u>	Opens the settings screen as describe on the previous page.
<u>File Save</u>	Opens the file save screen
<u>Home Icon</u>	Select the home icon to return to the home screen.

OSA Screen with Cursor Data

The arrow indicator next to the cursor indicates the active cursor when moving the cursors on the display. The data associated with the current channel is also listed. Click on the text of “Cursor A:” or “Cursor : B” to select which cursor should be the active cursor when interfacing with the scan.

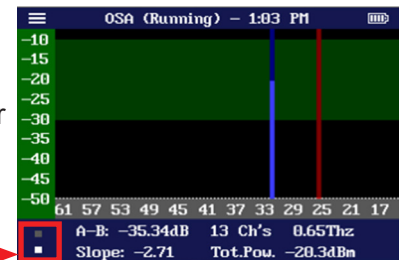
Select Top Box for Cursor Data



OSA Screen with Scan data

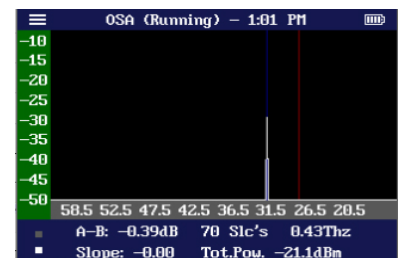
Scan data indicates the deviation in dB, number of channels and THz value between the two cursors. It also indicates the slope and total power of the scan.

Select Bottom Box for Scan Data



OSA Line Graph

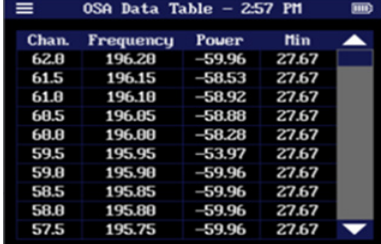
Selecting the Line Graph icon when in bar graph operation will display the 6GHz line graph with 8 high resolution slices per 50 GHz bar, to examine laser centering and drift.. Below the graph, is the same cursor data that is available in the bar graph mode, however, the scan graph mode presents the high resolution slice deviation between cursors instead of channels.



Section 2 Quick Start Guide

OSA Table Mode

Select the Table icon while the menu is displayed in the bar or line graph Screens. There are four columns of information in the table mode. Column one indicates the channel number. Column two indicates the frequency or wavelength which is toggled by selecting the column header label. Column three displays the real time power level or the power at the time the scanning was paused. Column four displays the min, max or avg power measured during the scan, again selecting the column header will cycle through the available data. The upper left menu icon will make available the bottom of the screen icon menu to navigate to other screens.



Chan.	Frequency	Power	Min
62.0	196.20	-59.96	27.67
61.5	196.15	-58.53	27.67
61.0	196.10	-58.92	27.67
60.5	196.05	-58.88	27.67
60.0	196.00	-58.28	27.67
59.5	195.95	-53.97	27.67
59.0	195.90	-59.96	27.67
58.5	195.85	-59.96	27.67
58.0	195.80	-59.96	27.67
57.5	195.75	-59.96	27.67

OSA Operation

Basic Operating Procedures

- Plug fiber to be tested into the proper port. Noting -10dBm or +10dBm indicators on the top of the OSA.
- If not already accomplished, set the power port, pass range and bandwidth mode
- With the unit in menu mode, select the Scan icon.
- Zoom in or out as necessary with the zoom in or zoom out icons. Zoom will center the active cursor.
- Select the Menu icon in the top left of the screen to display the cursor and scan data.
- Toggle between cursor and scan data with the two boxes in the lower left of the display.
- Toggle between active cursors by touching the appropriate line when in cursor screen.
- Touch the display to snap the cursor to that location or touch and hold the cursor to drag it into position.
- To save a scan to file, select the Menu icon and select the File Save icon enter file name and select the green check mark to store the scan. There is a maximum of 15 characters available for file names.

Section 2 Quick Start Guide

Video Microscope

Video Microscope Icons



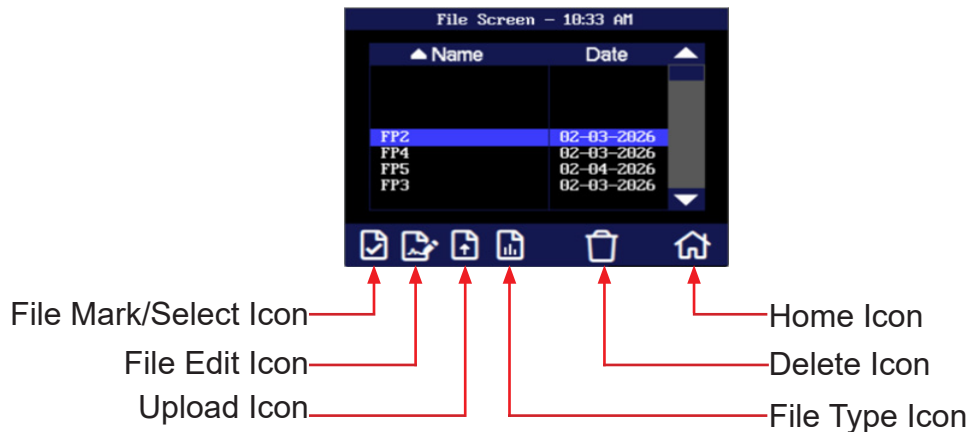
Video Scope Icon Function

- Live Icon Selecting the live icon turns on live or running mode. This is a real time reading of the connector face.
- Pause To freeze an image inspection, select the Pause icon. While in auto of the auto/pass/fail mode, pressing pause will also grade the connector end face and display calculated pass or fail.
- Zoom In Selecting Zoom In increases the image to 250x
- Zoom Out Selecting Zoom Out returns the image to 125X
- Save Icon Selecting the Save Icon opens the file save/naming screen with QWERTY keyboard
- Pass/Fail Selecting the set pass/fail icon while in the live mode will toggle through fail, pass and auto grading markers (Auto will be accomplished by the unit when entering the pause mode.)
- Brightness Selecting the brightness icon will cycle through the brightness levels available.
- Grading Rings Selecting this icon will toggle the grading rings off and on. These pass/fail grading rings are used to assist with manually grading a connector. The rings represent 25um, 120um, 130um and 250um.
- Edit Icon This is used to mark the points of contamination and is accomplished in the paused mode. Available markers will be displayed at the top of the screen. Pick up the marker by using the stylus and touching the contamination sample size that is required. Touch the image where the marker is to be placed. The marker may be fine-tuned with the stylus to cover the contamination point. Once positioned properly, touch the statement "Place marker on image then touch here" to lock marker in place. Repeat this as necessary to mark all the points that need to be indicated for the pass/fail status. At this point the image should be saved as the marks are removed upon returning to live mode.
- Home Icon Select the home icon to return to the home screen.

Section 2 Quick Start Guide

File Management

File Management Screen/Icons



Icon Function/Use

- Mark/Select Selecting this will mark the highlighted file for uploading or deleting.
- File Edit When selected the highlighted file will open in with the QWERTY keyboard for editing.
- Upload Icon Selecting this will upload Marked and highlighted files to the computer through FIS Connect Software.
- File Type This is a toggle and will display OSA files or video microscope files. Note that the image changes from a bar graph or scope target inset.
- Delete Icon This is a non-recoverable delete key, once selected the marked and highlighted files are erased immediately.
- Home Icon Select the home icon to return to the home screen

Note: Selecting the highlighted file will open that file in the appropriate screen, either the OSA or video scope.

Section 3 Introduction

Fiber Instrument Sales OV350-DW96 Hand Held Optical Channel Analyzer offers full featured analysis of DWDM systems in a truly hand held portable package. DWDM optical levels in the C-band Channels 14 - 62.5 (196.25THz - 191.4THz and 1527.6 -1566.31nm) may be measured with a resolution of 0.01nm, and measurement levels range from +20 to -50dBm. Parameter settings to optimize the resolution, number of channels displayed, and power levels displayed allows for easy and accurate analysis of DWDM scans. Channel spacing may be set at 50 or 100 GHz with up to 98 Channels on the ITU grid, displayed in bar graph or 6GHz line graph with 8 slices on the ITU Grid. Use the slope measurement on the line graph to assist with gain flattening. There is also a table mode that offers min, max, and average power readings. This unit has super fast acquisition time of two scans per second. It has a pass/fail feature and a 4 inch color TFT Display. The OV350-DW96 is designed with solid state optics and no fragile or moving parts keeping the unit field friendly. There is storage for up to 1000 tests and the test may be viewed and printed with the included FIS Connect software for fast and easy reporting. These units are housed in a rugged enclosure with robust protective boot, are designed to withstand the rigors of field use and are extremely user friendly.

Section 4 Preparation For Use

4.1 Inspection

Before shipment, this instrument was inspected and found to be in perfect working order and free of defects.

The shipping carton contains the following:

1. Hand Held Optical Channel Analyzer, with protective boot
2. USB 5V, 3.4A charger
3. USB C cable
4. Quick Reference Guide
5. Interchangeable adapters, SC included for each OSA port.

4.2 Identification and Configuration

The instrument's Model/Part Number, Serial Number and Date of Manufacture are indicated on a label located on the back of the unit. The instrument's history is filed at the factory by model/part number and serial number.

4.3 Power Requirements

The OV350-DW96 OSA is equipped with a 8000mAh Li-Poly battery. It is also supplied with a 100-240V USB power adapter with 5VDC, 3.4A output. A fully charged Li-Poly battery will typically enable approximately 10 hrs. of use and require approximately 4 hours of recharging.

Warning

To Prevent Fire or Shock Hazard:

- Batteries are not field replaceable, equipment must be returned to the factory for battery replacement
- Do not use the charger without the batteries installed
- Do not expose the battery charger to rain or excessive moisture
- Do not use the AC adapter when there are signs of damage to the enclosure or cord
- Ensure that you are using the correct charger for the local line voltage

Failure to follow these caution statements may void the warranty of this equipment.

Section 5 Physical Description

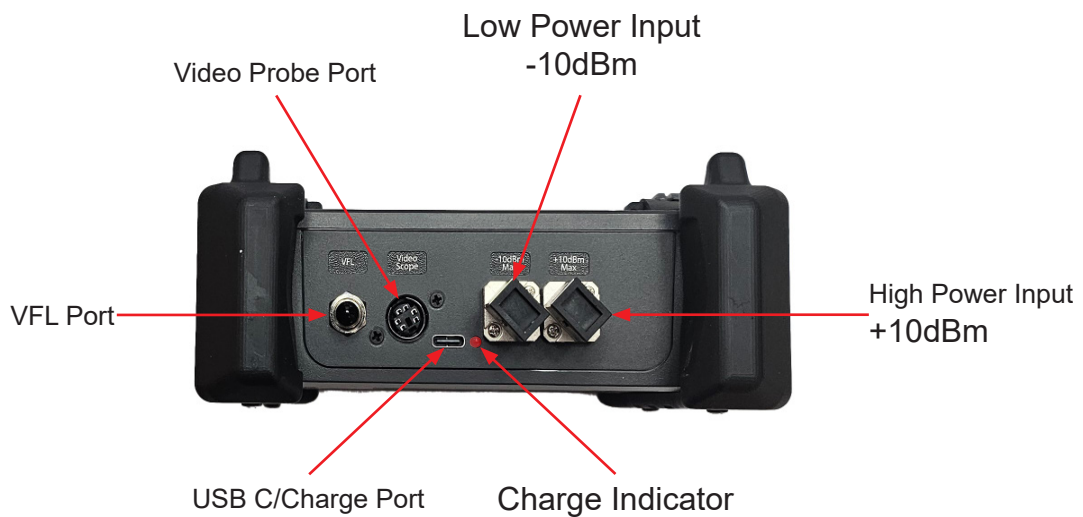
The Optical Channel Analyzer is packaged in a rugged housing which is further protected with a rubberized boot. Although the front panel is weather resistant, care must be taken to avoid liquids and contaminants around the fragile optical and electrical connectors, and the glass display. Use a mild cleaning agent and damp soft cloth to clean the panels and the outside case. See the maintenance section for notes to clean the optical connector. NEVER open the instrument for cleaning. Return to the factory for servicing if necessary.

Front Panel



Fig 6.1

Top Plate



Section 6 User Interface

6.1 Home Screen



Home Page Icons



Select the OSA Icon to enter the OSA module, bar graph, line graph and table modes.



Select this icon to enter the video scope module.



The visible laser is operated directly from the home screen, simply touch the Visible Laser icon and toggle through CW, modulated and off.



File management icon opens full file management module, vs. the simple file save screens available from the OSA and video scope modules.

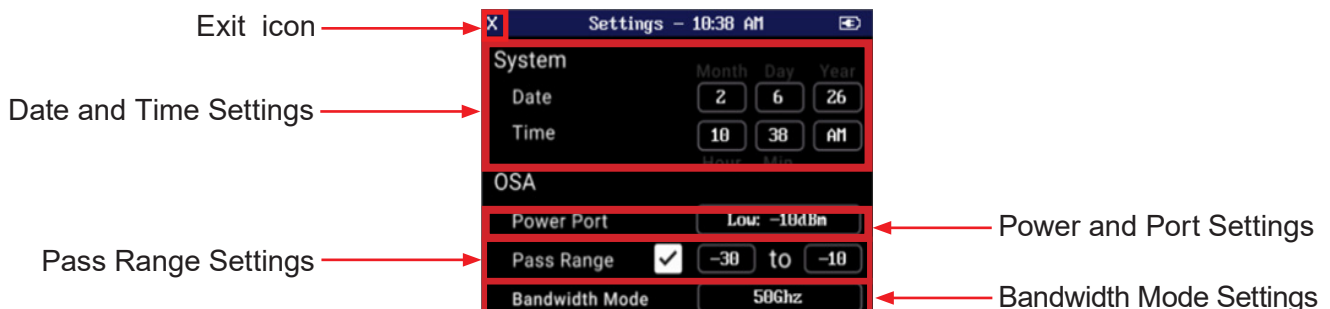


Settings icon opens the settings page, this is also available from the bar graph, line graph and table modes in the OSA module.



The Help icon offers the user a link to Fiber Instrument Sales manuals and training online.

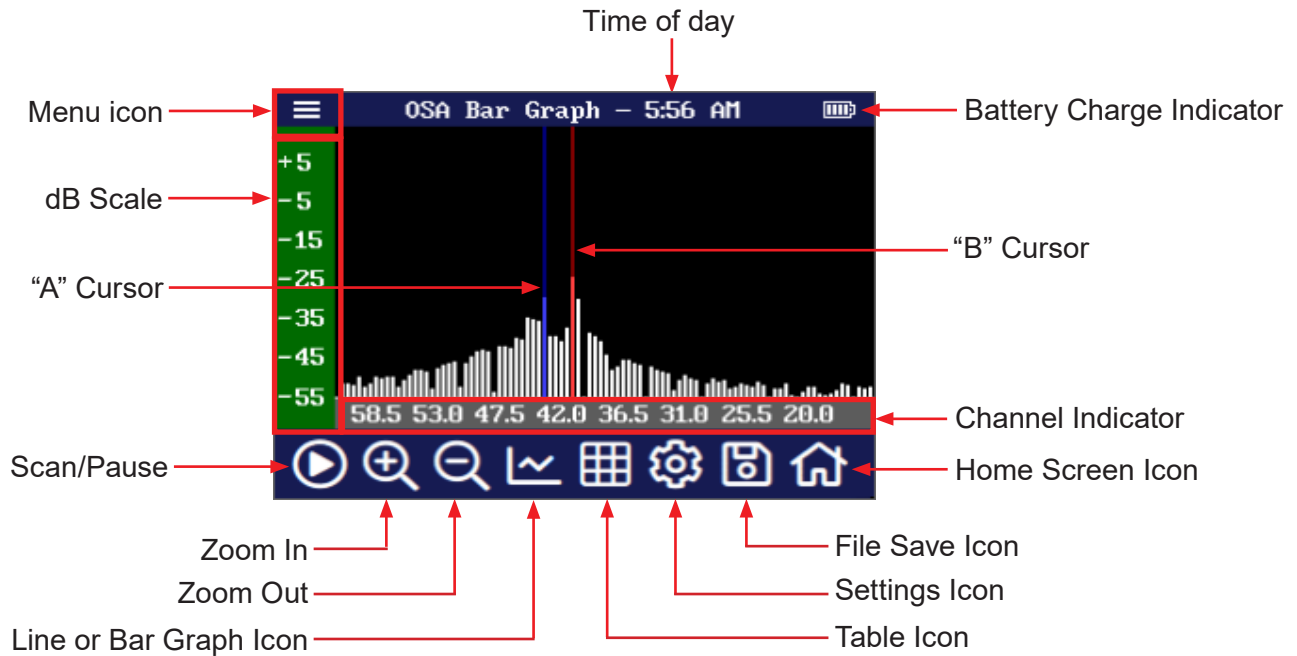
6.2 Settings Screen



Section 6 User Interface

6.3 OSA Screens

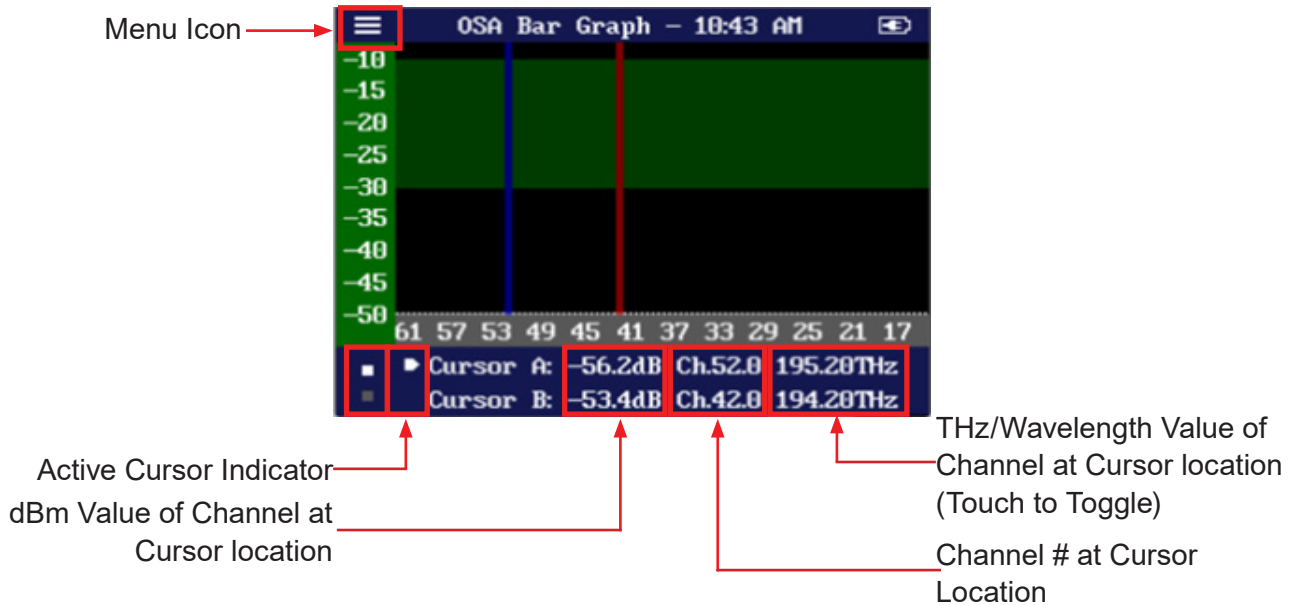
Bar Graph and Line Graph Menu Icons



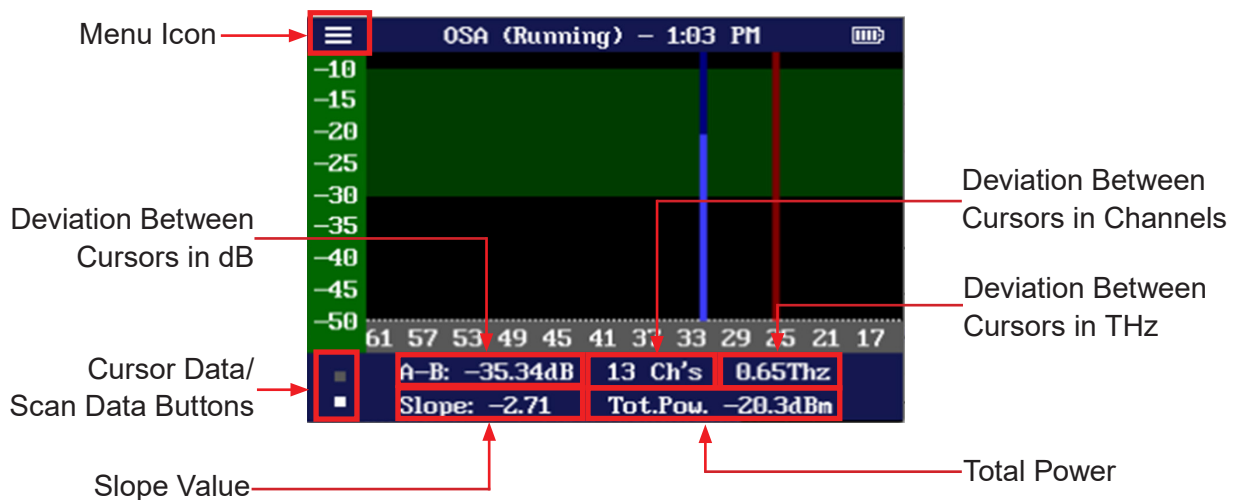
	Scan	Start Scan (replaced by pause icon below when Scanning)
	Pause	Pause Scan (replaced by scan icon above when in Pause Mode)
	Zoom In	Cycles screen to 2x or 4x
	Zoom Out	Cycles screen to 2x or 1x
	Line Graph	Opens line graph mode (replaced by bar graph icon when in line graph)
	Bar Graph	Opens bar graph mode (replaced by line graph icon when in bar graph)
	Table	Opens the table display
	Settings	Opens the settings screen
	File Save	Opens file save screen with QWERTY keyboard
	Home	Returns to the home screen

Section 6 User Interface

Bar Graph Mode with Cursor Data Open



Bar Graph Mode with Icon Data Open



Section 6 User Interface

Line Graph Mode with Cursor Data Open

When in cursor data screen in the line graph mode of operation, the information displayed is the same as that for the bar graph.

Line Graph Mode with Icon Menu Open

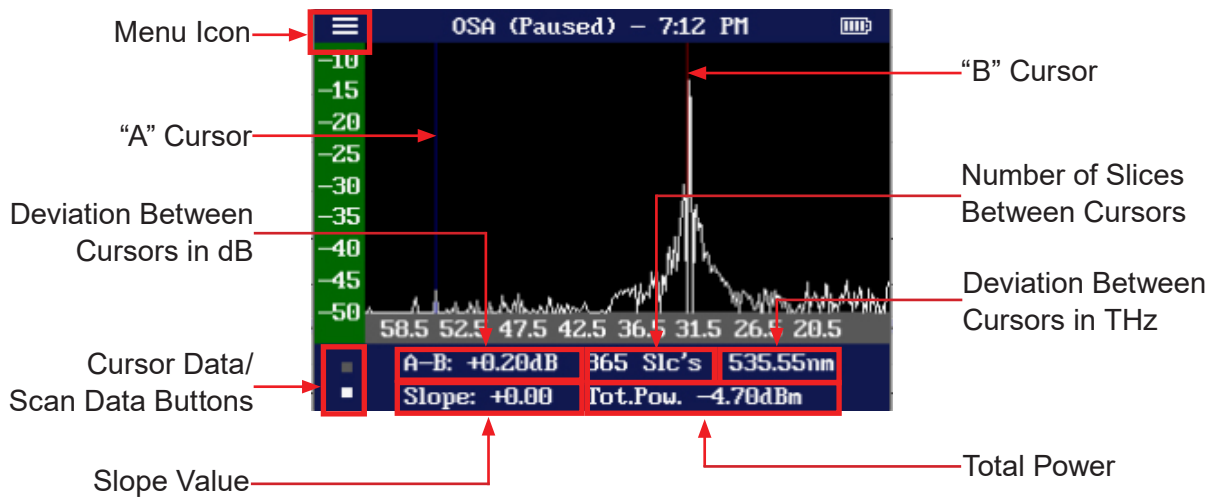


Table Mode

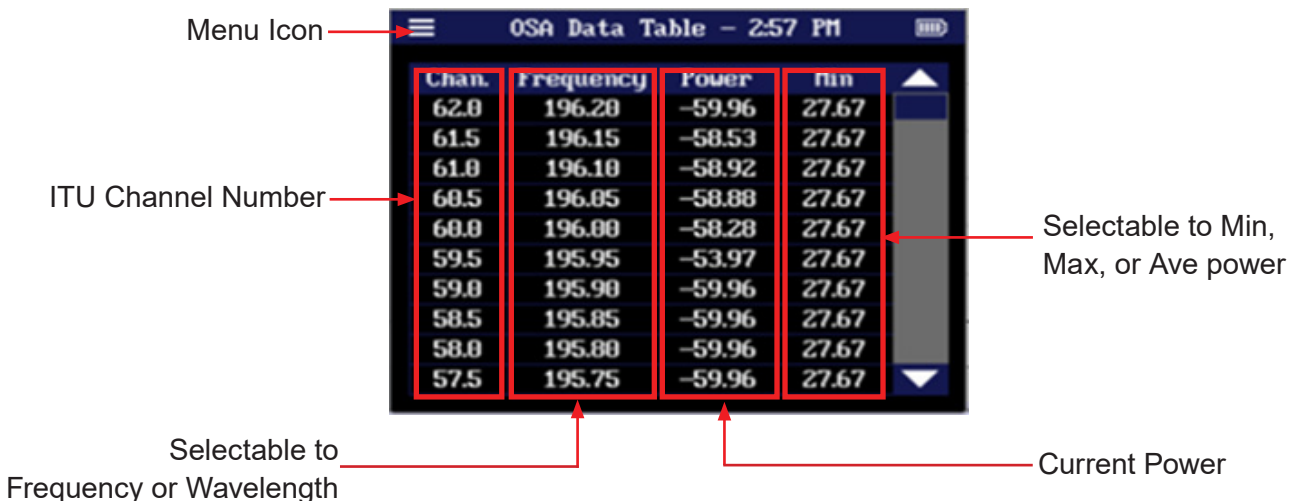


Table mode has the same menu options as the bar and line graph, with the exception of zoom in or zoom out. They are not available on the table mode.

Section 7 Setting Test Parameters

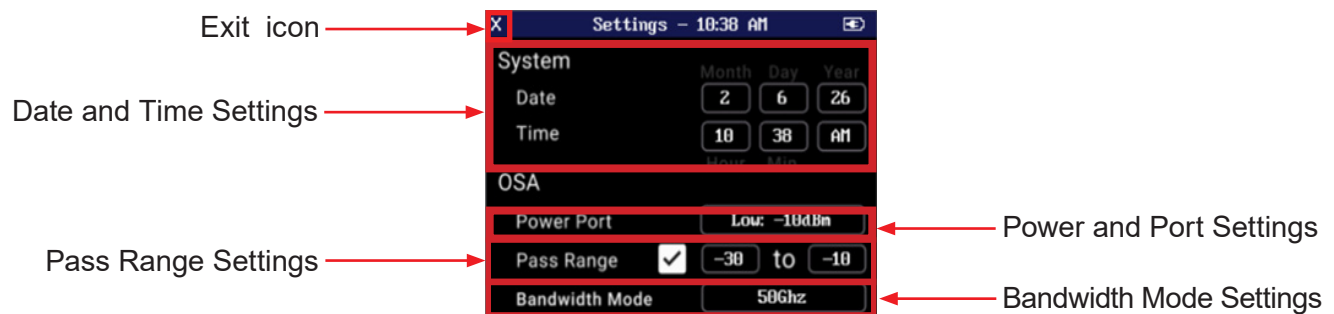
7.1 Settings Screens

To ensure the most accurate and usable information is derived from the OSA, it is necessary to set the testing and equipment parameters prior to starting a scan.

To set date/time and OSA testing parameters, access the setting screen from the home page, or menu bar in the OSA screen. To exit the setting screen touch X at the top of the display.

Select the Settings icon to open the settings screen.

Settings Screen



Set Date and Time

To ensure proper date and time stamps on saved files, set date and time to local time zone.

To set the date and time, long hold the date and time fields until the proper information is displayed.

Set Power Port

Set the power port to low, for a maximum channel power of -10dBm with a +17dBm absolute maximum power (damage threshold) or to high, for a maximum channel power +10dBm with a +29dBm absolute maximum power (damage Threshold)

To set the power level, touch on the Power Port value to toggle between the two.

Note: If the expected power levels are unknown, it is best to start on the high power port setting

Section 7 Setting Test Parameters

Set Pass Range

For a quick indication of passing channels, a green shaded pass range may be set to highlight the power level on the display for a passing channel. Set this range so that channels meeting the passing criteria, fall into the green shaded area of the dBm scale.

To set the pass range, long touch the low and high pass range limit values to scroll to desired setting.

Use the check box to turn on or off the green shaded pass zone indicator.

Set Bandwidth Resolution

The resolution may be set to 50 GHz (0.4 nm), 100 GHz A (0.8 nm) or 100 GHz B (0.8 nm). At 50 GHz all 96 channels are displayed and at 100 GHz only 48 channels are displayed with 100GHz spacing between channels. 100GHz "A" displays the whole numbered channels and 100 GHz "B" displays the half step or (.5) numbered channels. 50 GHz is considered high resolution and 100 GHz settings are considered low resolution.

To Set the bandwidth resolution touch the value indicated to cycle through available settings.

Exit Settings Screen

When all settings have been accomplished use the "X" in the top left corner of the screen to exit back to the last screen and save your changes.

Section 8 OSA Operation

8.1 Start-up

Press and hold the power button for one second to start the OV350-DW96. To operate the OSA, touch the OSA icon.

Warm-up

There is approximately a 10 second warm up period once the unit is powered on and the OSA is ready to be operated.

8.2 Connecting Fiber

The OV350-DW96 has two ports, one to be used with low power mode and other to be used with high power mode. The ports are marked with a label on the top of the OSA unit. Ensure the proper port is used when connecting fiber cable to the unit. As a reminder, the low power port has a maximum channel power of -10dBm with a +17dBm absolute maximum power (damage threshold) and the high power port has a maximum channel power +10dBm with a +29dBm absolute maximum power (damage Threshold)

It is suggested that a test cable be used between the fiber under test and the OV350-DW96. This reference fiber should be approximately one meter in length and have minimal loss. The reference cable should only be removed from the unit when necessary. Limiting removal and termination of connectors to the unit will extend the live span of the panel connectors eliminating down time and costly repairs.

Fiber-optic connectors are easily contaminated or damaged. The connection to the OV350-DW96 is a physical contact type of connection and dirty or damaged connectors may impair the instruments capabilities at minimum and at worst result in the need to return the OV350-DW96 to the factory for expensive repairs. Prior to making any connection to the unit, ensure that all proper cleaning procedures have been followed.

The OV350 units are sold with either UPC or APC adapters. It is imperative that the proper fiber optic connector be used with these ports. Using the wrong connector can damage the port/connection and require sending the unit back to the manufacture for repair.

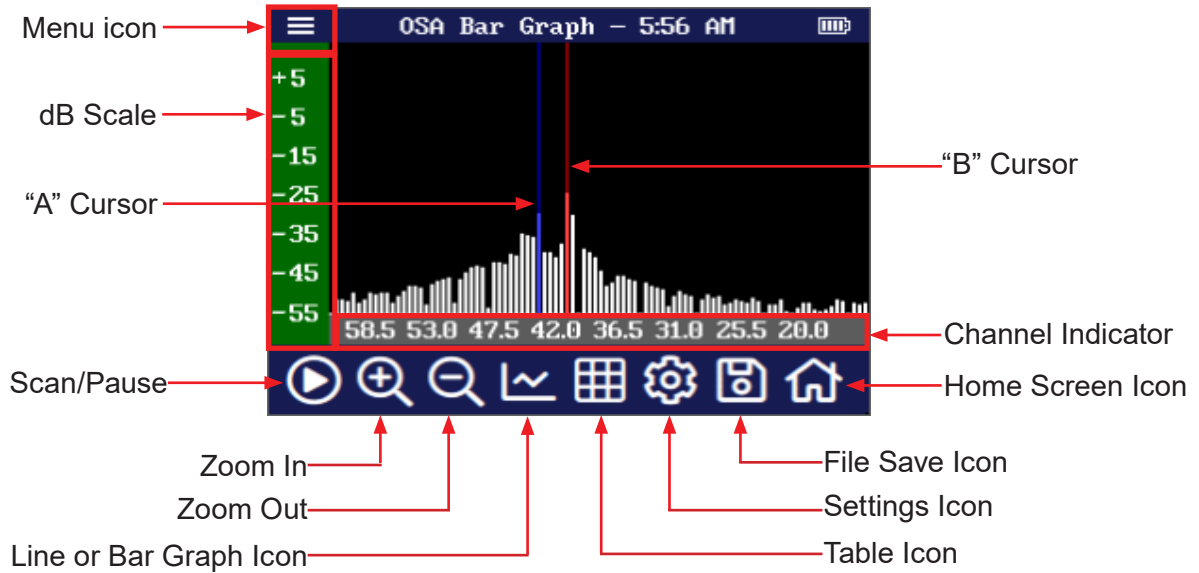
8.3 Taking Scans

Once all the parameters have been set, and the fiber connected, press the Scan icon on the menu page of the bar graph, line graph or table screen.

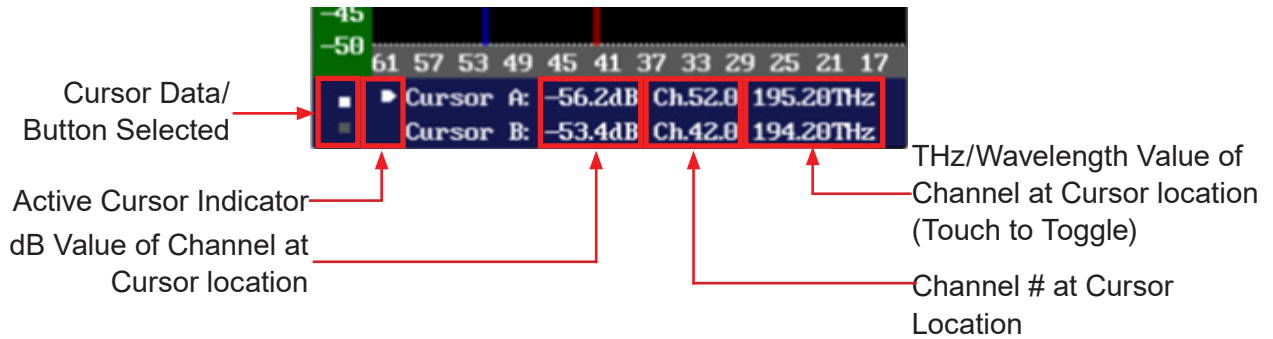
Section 8 OSA Operation

8.4 Bar Graph Display

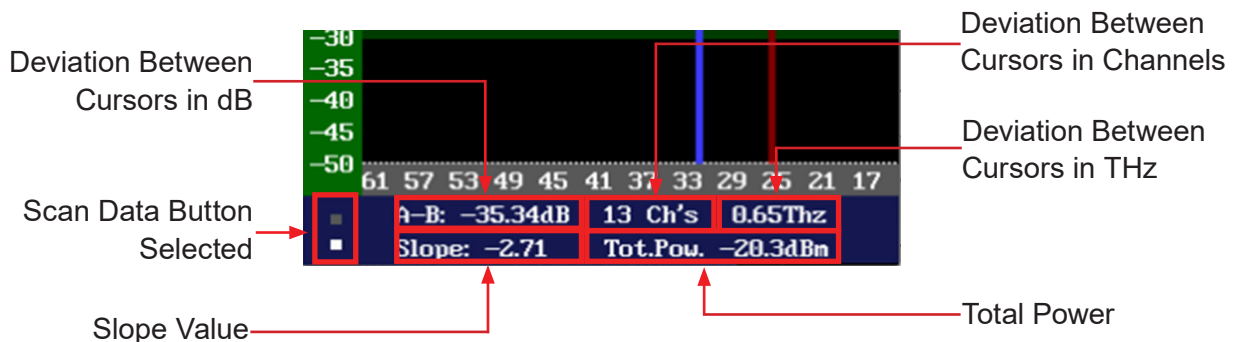
Bar Graph Display With Menu



Bar Graph Display With Cursor Data Information



Bar Graph Display with Icon Data Information



Section 8 OSA Operation

8.5 Working With OSA Scans

dBm Scale

The dBm scale indicates -10 to -50 dBm when in low power mode and -30 to +10 dBm in high power mode. This scale allows for a quick estimate of a channels power, for a highly accurate indication of power use the “A” and “B” cursors. This scale will modify with higher zoom levels. The scale will adjust according to the power associated with the channel highlighted by the active cursor. The OSA will attempt to set that channel power to the center of the screen

Channel Scale

The channel scale displays the channel numbers that may be viewed. This scale is also modified when zoom is selected. It shifts the number of channels as selected with the zoom feature. Zoom will attempt to set the channel associated with the active cursor to the center of the display.

Set Active Cursor

Below the screen with cursor data displayed, There is an arrow next to one of the cursor lines. The arrow next to the cursor indicates the active cursor. Touching the arrow on the active cursor will switch the active cursor. If the arrow is next to cursor “B” and it is selected, the arrow should now indicate “A” as the active cursor. Alternately, if “B” is indicated as the active cursor, selecting the text “Cursor A” will switch active cursors.

Cursor Movement

To move the cursor, touch anywhere on the scale and the active cursor will snap to that location. To drag a cursor, touch the cursor bar and drag it to the desired location. Note that cursors do not cross over, therefore, one will push the other off its current position if moved too far.

Zoom In and Zoom Out

The zoom feature is available while in the menu mode of the bar graph and line graph modes. Zoom factors are 1X, 2X and 4X. Zoom in will display in 2X or 4X and zoom out will display 2X or 1X.

When zoomed in, the unit will attempt to scale the bar graph or line graph to display the active cursor centered horizontally and the power of the channel associated with the active cursor centered vertically as possible.

Section 8 OSA Operation

Channel Pass Zone

The green highlighted area of the display assists with quick evaluation of channels for pass/fail state.

Displaying Cursor and Scan Data Information

By selecting the Menu icon on the bar and line graph screens, when in menu mode, the cursor data or scan data information will be displayed. These are then toggled by the two square buttons on the bottom left of the display.

Cursor Data Information

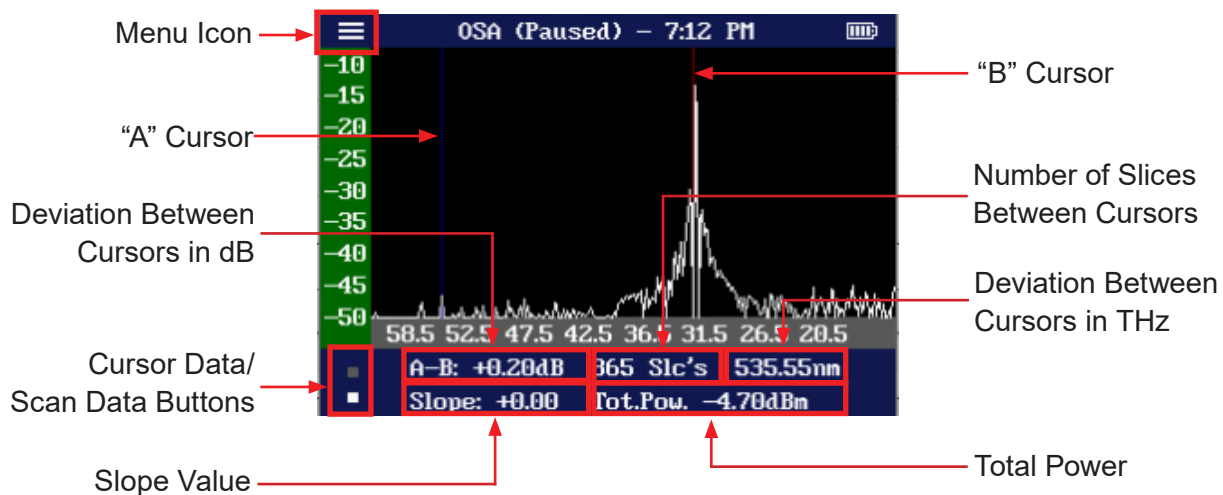
The cursor data information located below the graphs display channel power, channel number and wavelength or frequency associated with the cursor indicated. To toggle between wavelength and frequency, touch whichever one is displayed and it will toggle to the opposite.

Scan Data Information

The scan data information located below the graphs display channel deviation in dB, number of channels between the two cursors and THz value between the two cursors. It also indicates the slope and total power of the scan. The slope feature is use to minimize the reading when setting power of gain flatness.

8.6 6GHz Line Graph

Line Graph Mode with Scan Data Open



Section 8 OSA Operation

Line Graph Scan Information

Selecting the Line Graph icon when in bar graph operation will display the 6GHz line graph with 8 high resolution slices per 50 GHz bar. The line graph is used to examine the laser source channel centering and drift.

Other than the slight difference in data displayed, the operation of cursors and zoom features are the same for the line graph as the bar graph.

The line graph displays the same menu as the bar graph. As with the bar graph, shutting off the menu mode will display scan data and cursor data information.

The scan data mode presents the high resolution slice deviation between cursors instead of channels.

The cursor data on the line graph is the same as that displayed on the bar graph with the exception it does not display in wavelength.

Section 8 OSA Operation

9.7 Table Mode

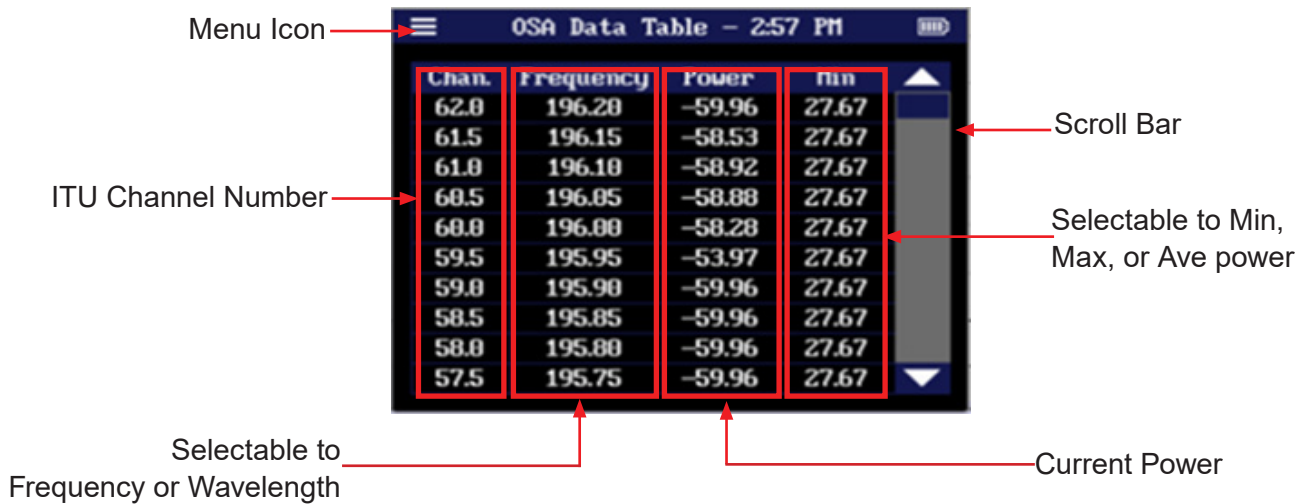


Table Mode Column Data

- Column one indicates the channel number.
- Column two indicates the frequency or wavelength which is toggled by selecting the column header label.
- Column three displays the real time power level or the power at the time the scanning was paused.
- Column four displays the min, max or avg power measured during the scan, again selecting the column header will cycle through the available data.

Table Mode Scroll Bar

On the right edge of the screen is a scroll bar that can be used to display the necessary channels

Table Mode Menu

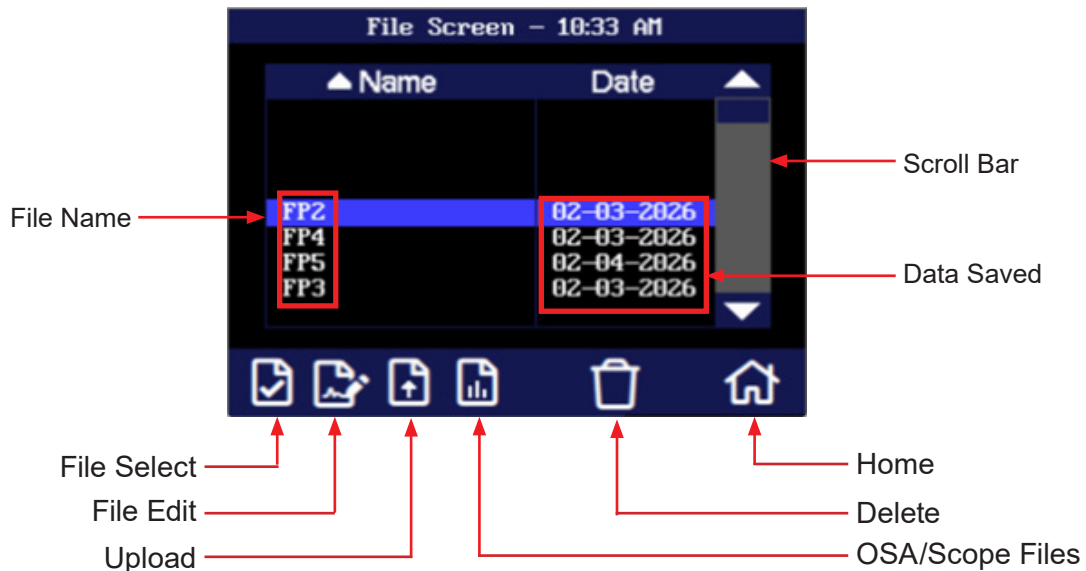
The upper left menu icon will make available the menu at the bottom of the screen, to navigate to other screens.

Section 9 File Management

File Management is accessed through the home screen menu. To open the file management screen, bring up the home screen menu and touch the File System icon.

9.1 File Management Screen

Main File Management Screen



File Management Menu Icons

	File Select	Marks a file for an action/operation
	File Edit	Opens a file to be edited
	Upload	Uploads marked files to FIS Connect software
	OSA Files	Indicates files displayed are OSA files. (Replaced with video scope files icon when selected indicating video scope files are being viewed.)
	Video Scope Files	Indicates files displayed are video scope files. (Replaced with OSA files icon when selected indicating OSA files are being viewed.)
	Delete	Deletes marked files
	Home	Returns to the home screen

Section 9 File Management

File Naming and Editing Screen (QWERTY Keyboard)



9.2 Saving files

To save a file while in the OSA or video scope screen, select the File Save icon and enter the file name (up to 15 characters) then select Save on the QWERTY screen. When powered up, the default file name will be “Default”. After the first file is saved, during that session, the new default will be the last file saved. When the equipment is powered off, the default file name will revert to “Default”. The OSA and video scope are independent and will each store their own file names.

9.3 File Management Operations

File Select

Multiple files may be uploaded (copied) to a computer, or deleted at a time. To mark the files for these operations, highlight a file to be included in the operation and touch the File Select icon. The highlighted filename will now be displayed in yellow and the next file will be in the highlighted position. Continue selecting files by touching the select icon. To skip files simply move down the file list until the next file to be marked is highlighted and touch File Select again. The file select is a toggle and to unmark a file, place it in the highlighted position and touch File Select again and it will be unmarked. Once the files are selected touch the icon for the delete or upload functions.

Note: If files have been marked for batch processing, only the marked files are process not the highlighted file as in single file processing. (The last file in a list may be marked when in the highlighted position) If only one file is to be process, having it in the highlighted position will be sufficient.

Section 9 File Management

File Edit

With a file highlighted, select the File Edit icon and the file will be opened in the QWERTY keyboard screen. Make file name changes as necessary and select Save.

Upload Files

The upload files icon is used to send files to the computer for use with the FIS Connect software suite. One or more files may be uploaded at a time. Use the mark (select) feature to select multiple file or have the file to be uploaded in the highlighted position. With the OSA connected to the computer with the USB cable, and the FIS Connect software running touch the upload icon and the files will transfer to the selected folder on the computer.

View Files

The OSA file icon will be displayed when OSA files are being viewed, to switch to video scope files, select the OSA file icon and the video scope file icon will now be displayed with the video scope files. Double tap on a file name to view it in the OSA/scope screen.

Delete Files

To delete a single file, with the file name in the highlighted position, touch the delete icon. To delete a group of files, mark all files to be processed and press the delete icon.

Note: Once the delete icon is selected, files are immediately deleted and they can not be recalled.

Exit

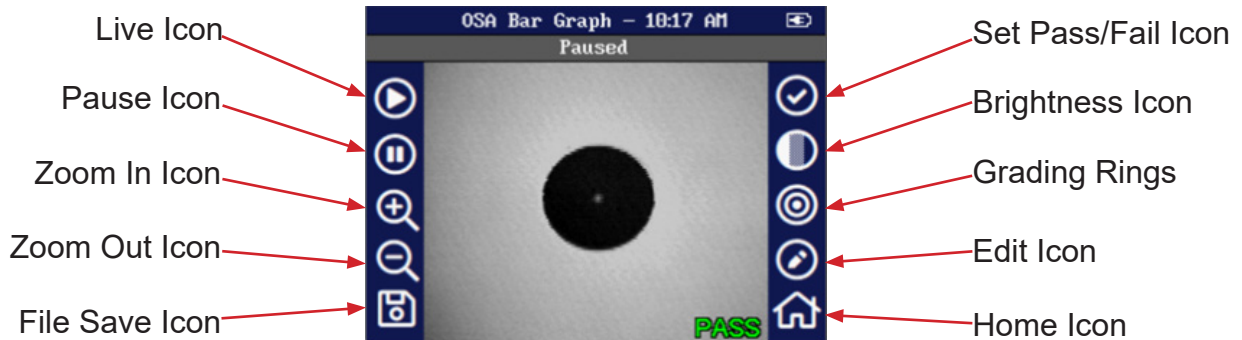
Select the Home icon to return to the home screen.

Section 10 Video Scope Operation

Select Video Scope icon from the home screen.

10.1 Video Scope Screen

Video Scope Screen



Video Scope Icon Function

	Live	Selecting the live icon turns on live or running mode
	Pause	Selecting pause freezes an image in position and focus level for inspection, also runs auto pass/fail when set to auto.
	Zoom In	Toggles image to 250x
	Zoom Out	Toggles image to 125x
	File Save	Selecting this icon opens file save to the QWERTY keyboard
	Set Pass/Fail	Sets pass, fail and auto grading markers
	Brightness	Selecting the brightness icon will cycle through the brightness levels available
	Grading Rings	Selecting this icon will toggle the grading rings off and on
	Edit	This is used to mark the points of contamination on image
	Home	Returns to the home screen

Section 10 Video Scope Operation

10.2 Video Probe Operation

To operate the video scope, touch the Scope icon on the Home Screen. If a probe is not connected already, connect the Video Probe to the video probe port on the top of the unit.

Video Probe Tips

There are a number of video probe tips available. To remove a tip from the Probe, grasp the probe tip and unscrew the tip retention nut from the tip. Pull the tip straight up from the probe. To place a tip on the probe, ensure the lens is clean, slide the tip on to the end of the probe and tighten the tip retention nut. Do not overtighten the retention nut.

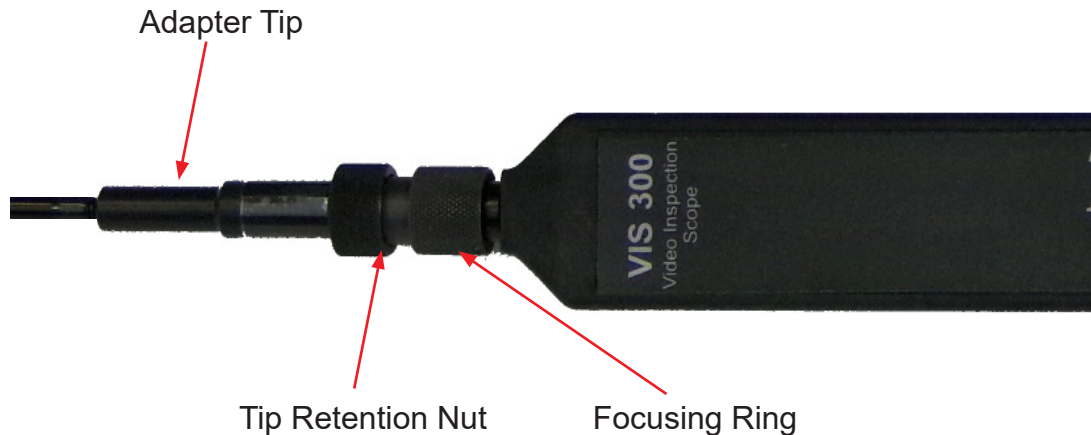


Fig 11.1

Viewing/Focusing a Connector

With the video scope turned on and the video probe plugged into the unit, insert a connector in to the tip or insert the panel adapter tip into the appropriate port. The scope must be in the live scanning (“Running” noted at the top of the display) mode to make focus adjustments. Use the focus ring to get the connector image as sharp as possible. When using panel adapters it is possible to turn the body of the probe while the adapter is inserted into the panel to make focus adjustments.

NOTE:

To auto center the image, touch the center of the connector core image and the connector will move as close as possible to the center of the display.

11.3 Video Scope Operation

Live / Pause

The scope starts up in live (Running) mode. To pause or freeze the image, select the Pause icon. Live is a real time viewing of the connector end face. Most features are available in live mode, however editing (marking contamination) is not.

Zoom In - Zoom Out

Select the Zoom In icon to increase the magnification to 250x. Selecting the Zoom-Out icon will return the image to 125x.

File Save

Selecting the File Save Icon opens the file save/naming screen with QWERTY keyboard. Enter the file name as desired, upon starting the unit, the default file name is "Default". This will be the case every time the unit is powered on. Once a file is saved, the default file name is the previous saved name. There is a limit of 15 characters to file names. Once the file name is entered, select the Save (check mark) button. To back out without saving, select the Cancel (X) button

Pass/Fail Icon

Use the pass/fail icon to mark the connector image in live mode (running). Selecting the icon will cycle through fail, pass and auto. If set to auto, this allows the smart grading system to evaluate the connector. To start the auto pass fail process, with the image as close to centered as possible, select the Pause icon. The video scope will attempt to auto center then run the test and display a pass or fail label.

Note: If the connector shows all red or the test fails to complete, maneuver the probe tip to allow for centering of the image and retry the test.

Brightness

Touch the Brightness icon to cycle the brightness levels for best image quality. The brightness could affect the auto analysis.

Grading Rings

Turn on and off the grading rings when in live (running) mode. by selecting the Grading Rings Icon. These are use to indicate the IEC61300-3-35 grading zones. These pass/fail grading rings are used to assist with manually grading a connector. The rings represent 25um, 120um, 130um and 250um. Use Pass/Fail Criteria Tables on the following page to help grade the connector end face. 2, 3, 5 and 10 micron contaminant examples are displayed when the edit icon is active.

Edit (marking contamination points)

To mark the points of contamination the unit must be in paused mode. Pick up the contamination marker by using the stylus and touching the contamination sample size that is required. Touch the image to place the marker. The marker may be fine-tuned with the stylus to cover the contamination point on the image to be marked. Once the marker is positioned properly, touch the area just above the image that states “Place marker, touch here to apply” to lock the marker in place. Repeat this as necessary to mark all the points that need to be indicated for the pass/fail status. At this point the image should be saved, the markers will be cleared with the next scan.

10.5 Pass/Fail Criteria Tables**Fiber End Face Criteria Table**

Zone	Description	Diameter	Allowable Scratches (Width)	Allowable Defects (Diameter)
A	Critical Zone	0 μ m to 25 μ m	None	None
B	Cladding Zone	25 μ m to 120 μ m	No limit \leq 3 μ m None > 3 μ m	No Limit < 2 μ m 5 from 2 μ m to 5 μ m None > 5 μ m
C	Adhesive Zone	120 μ m to 130 μ m	No limit	No limit
D	Contact Zone	130 μ m to 250 μ m	No limit	None \geq 10 μ m

11.1 VFL Safety



Caution

This Visual Fault Locator is classified as a Class II laser system and must be used with all commensurate safety precautions. Never view the light emanating from the fiber directly. Place a white piece of paper at the end of the fiber and look for the presence of a red spot on the paper.

11.2 VFL Description

The Visual Fault Locator emits visible (red) light at the 650 nm wavelength. Its intended function is to allow an operator to identify the exact location of a break, micro bend, or other discontinuity in a fiber optic cable. As the radiation is visible, light emanating from a break or micro bend enables the user to locate the exact position of a fault even at very short distances that would not be detectable by conventional means such as an Optical Time Domain Reflectometer, (OTDR). It is also useful for identifying a particular fiber in a cable by exciting the fiber to be located with visible radiation.

11.3 VFL Operation

The Visual Fault Locator is accessed from the Home screen.

The fiber to be tested is connected to the VFL port by means of a standard 2.5 mm fiber optic connector. The source may be used in one of its two modes, modulated or continuous. In the modulated mode the laser is turned on and off at a 2 Hz rate. This mode is helpful in permitting the user to identify the source radiation in the presence of high levels of ambient light. It also aids in conserving battery life.

The usable range for fault location depends on many factors, the type of fiber, the type of cable, the overall loss. To activate the VFL, tap the VFL icon to cycle through the available states of off, continuous and modulated. An active laser symbol is displayed next to the battery indicator, steady illumination for CW mode and flashing indicator for modulated mode.

Section 12 Maintenance

12.1 Battery Replacement

The battery of the OV350-DW96 is not field replaceable please call the factory for an RMA to replace the battery.

Warning

To Prevent Fire or Shock Hazard:

- Batteries are not field replaceable, equipment must be returned to the factory for battery replacement
- Do not use the charger without the batteries installed
- Do not expose the battery charger to rain or excessive moisture
- Do not use the AC adapter when there are signs of damage to the enclosure or cord
- Ensure that you are using the correct charger for the local line voltage

12.2 Calibration and Verification

Periodic verification of the OV350-DW96 is recommended to ensure that your instrument remains within specification. Although not imperative, we recommend a calibration and verification once a year to make certain the instrument is functioning properly and performing to its rated specifications. Consult the factory for service.

12.3 Adapter Replacement

The OV350-DW96 is supplied with easily interchangeable port adapters SC and optional FC. To change an adapter, remove the two screws that hold the adapter in place, pull the adapter straight up from ferrule. It is suggested that you clean the exposed ferrule with appropriate cleanser and lint free wipe anytime you replace the ferrule.

Note

In order to maintain a low loss fiber connection, care should be taken to adequately clean the ferrule of any connector to be connected to the OSA. We recommend the use of the Video Inspection Scope accessory for inspection before every optical connection.

In the event that the port needs to be cleaned, first step is to be certain the instrument is off. We suggest the use of isopropyl alcohol and foam swabs specifically designed for cleaning connectors accepting 2.5mm ferrules.

Section 13 Specifications

SPECIFICATIONS	
Wavelength Range	Channels 14.5 - 62.0 (196.20THz - 191.45THz) (1527.99 -1565.90nm)
Channel Spacing	50GHz, 100GHz
Wavelength Accuracy	±0.1nm
Channel Power Range	High Power: -30dBm to +10dBm Low Power: -50dBm to -10dBm
Absolute Accuracy	±1 dB
Max Composite Power	+29dBm
PDL	±0.15dB
Optical Rejection Ratio	40dBc (@50GHz)
Measurement Time	< 1/2 Second
Readout Resolution	0.01dB
Return Loss	>40dB
Optical Interface	SC/APC or SC/UPC
Graphical Display	Bar graph, 6GHz line graph and table view
Display	4 in Color TFT
Dimensions	5.25" H x 6.125" W x 2.5" D (133mm H x 156mm W x 64mm D)
Weight	1.5 lbs (0.7 kg)
Battery	Li-pol, 10hr typ.
Power Requirement	USB 5V, 2A
Operating Temperature	-10°C to 40°C
Storage Temperature	-20°C to 60°C
Accessories Included	5V, 3.4A USB Wall Charge with USB cable, SC/APC or SC/UPC Adapters, 2 stylus, FIS Connect PC Software, Quick Reference Guide
VFL SPECIFICATIONS	
Emitter Type	Laser
Wavelength	650nm ± 5nm
Laser Safety Class	Class II FDA21 CFR1040.10 & 1040.11 IEC 825-1: 1993
Connector Type	2.5mm Universal
Output Power	1mW Max.

Section 14 Warranty and Repair

14.1 Warranty Information

This product, including all mechanical, electrical, and optical parts and assemblies are unconditionally warranted to be free of defects in workmanship and material for a period of two (2) years from the date of delivery.

This warranty does not apply to expendable parts such as batteries or optical panel connectors, nor to any instrument or component which has been subjected to misuse, alteration, or fiber connector damage. It is the customer's responsibility to understand all the instructions and specifications prior to operating this instrument. This warranty does not extend to any loss or damage consequent to the failure of the warranted product.

14.2 Repair Information

If repair is required, simply call the factory for return instructions and a return authorization number (RMA).

Section 15 Troubleshooting Guide

Symptom	Possible Cause	Solution
LCD dark	Power not on	Press ON/OFF key
	Batteries require recharging	Recharge batteries
LCD white	Power cycled too quickly	Turn off wait 10 seconds – turn on
Instrument locked Up	Unexpected Operational Mode	Turn off (hold ON/OFF button in for 1 second) wait 10 seconds – then depress On/Off to turn the unit on.
Low or no power being displayed	Defective cord or dirty connector	Replace or clean cord
	mismatch in connector Polish	Examine connector ends for damage. Use UPC Connectors ONLY!
USB hookup to PC not functioning properly	USB connection fault between unit and PC	Reset FIS Connect
	PC drivers not set properly	Un-install & re-install FIS Connect software and drivers

Section 16 Version Control

Through a program of continuous improvement, we upgrade the features and performance of the instrument in an on going process. The instrument firmware version is accessible at “turn-in the bottom right-hand corner of the display. The version changes and approximate release dates are as follows.

OV350-DW96

V1.0.0.0 – Original Release

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