FTE5100-CI
Video Inspection System
User's Guide

Revision C
08/2015

Information contained in this manual is believed to be accurate and reliable. However, no responsibility is assumed by Terahertz Technologies Inc. for its use nor for any infringements of patents or other rights of third parties that may result from its use. No license is granted by implication or otherwise under any patent rights of Terahertz Technologies Inc..

The information contained in the publications is subject to change without notice.

Copyright 2015

Chapter PAGE

1. Introduction …….....…….....……..……..……..1

2. Safety.....….....……..…….....……...……2

3. Preparation for Use.....……...……3
   - 3.1 Inspection
   - 3.2 Identification and Configuration
   - 3.3 Power Requirements

4. Description…….…….....…….....….....……4
   - 4.1 Instrument Enclosure
   - 4.2 Physical Description
     - Front Panel
     - Top Plate
   - 4.3 CI1100 Probe
   - 4.4 Display
   - 4.5 Key Pad Operation

5. Video Scope.....….....….....….....7
   - 5.1 Video Scope Display
   - 5.2 Video Scope Icon Menu Operation
     - Quick Save
     - Project Management
     - File Management
     - Tool Box
       - Screen Brightness Adjustment
       - Touch Screen Calibration
     - Help
     - Brightness Adjustment
   - 5.3 Video Scope Operation
     - Video Probe Tips
     - Viewing/Focusing a Connector
     - Pausing Image
     - Zoom Function

Chapter Table of Contents (Continued) PAGE

6. Project Management....10
- 6.1 Project Management Description
  - Project Management Screen
  - Project Management Menu
  - Project Management File Tab
  - Project Management Edit Tab
  - Project Management View and Help Tabs
- 6.2 Project Management Operation
  - Create a New Project
  - Open and Existing Project
  - Delete a Project
  - Upload a Folder/Project to CertSoft
  - Rename a Project
  - Modify Properties
  - Exit Project Management

7. File Management....14
- 7.1 File Management Description
  - File Management Screen
  - File Management File Menu
  - File Management File Tab
  - File Management Edit Tab
  - File Management View and Help Tabs
- 7.2 File Management Operation
  - Save an Image File
  - Open /View an Image File
  - Delete a File
  - Upload a Images to CertSoft
  - Rename a File
  - Exit File Management

8. Specifications....17

8. Repair/Warranty....18
- 9.1 Repair Information
- 9.2 Warranty Information

Chapter 1 Introduction

Dear Valued Customer,

Thank you for choosing Terahertz Technologies Inc. for your fiber optic testing requirements. Our professional staff is available to answer any questions or provide assistance that you require. We, at TTI Inc., strive to provide premier customer care and technical support by providing timely responsiveness and training. We are proud of our quality and high standards and assure you, our customer, the most user friendly and affordable fiber optic solutions to meet individual needs.

Chapter 2 Safety

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

This document contains information and warnings that must be followed by the user to ensure safe operation and to maintain the product in a safe condition.

Warning

Care should be taken when operating this equipment. Even thought the Fiber Optic Video Scope does not itself have a laser source, fibers under test may be active and there fore infrared optical energy may be present. Devices operated in conjunction with the FTE5100 may produce optical radiation that could cause skin or eye damage.

Warning

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 sever personal injury.

Warning

To Prevent Fire or Shock Hazard:

- Do not install battery types other than those specified by the manufacturer
- 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
- Do not use any other charger than the one provided with this instrument.

Failure to follow these warning statements may result in personal injury.

Caution

It is not suggested you view active fibers with very high power even with a video scope. High power such as that being emitted by an EDFA could cause damage to the video probe or scope.

3.0 Preparation for Use

3.1 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. Video Scope with Protective boot and 4-AA NiMH batteries
2. Video Probe
3. Universal AC/DC charger with interchangeable mains
4. USB cable
5. Manual and CertSoft software on CD.

2 Stylus

3.2 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. The unit's serial number is also located on the top plate just above the USB Port.

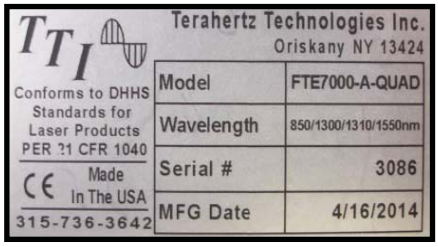


Fig 3.1

3.3 Power Requirements

The FTE-5100 is equipped with a 100-240V - 0.3A input and 9-12V , 0.66A, center positive output universal AC/DC battery charger. This charger is supplied with interchangeable mains for US, Great Britain, Europe and Australia The instrument is shipped with 4-AA NiMH batteries (2700mA hours). Depending on usage, fully charged battery pack will typically enable 4 hrs. of use. Fully discharged batteries require 8 -10 hours of recharging.

To replace the batteries, follow this procedure. Turn off the instrument and ensure the external power supply is unplugged. Carefully remove instrument from protective boot and remove the battery cover by sliding the cover in the direction of the "Open" arrow. Only replace with 4 high quality AA NiMH batteries. Do not use batteries that are rated at less the 2500mAh. If you install NiMH batteries that are dead or less than 1 volt each, charge these batteries for one (1) hour before using the VOA.. When installing new batteries, ensure the battery contacts are engaged sufficiently.

4.0 Description

4.1 Instrument Enclosure

The FTE-5100 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 electrical connectors, and the glass display. Use a mild cleaning agent and damp soft cloth to clean the panel and the outside case. NEVER open the instrument for cleaning. Return to the factory for servicing if necessary.

4.2 Physical

Front Panel

Fig 4.1

Top Plate

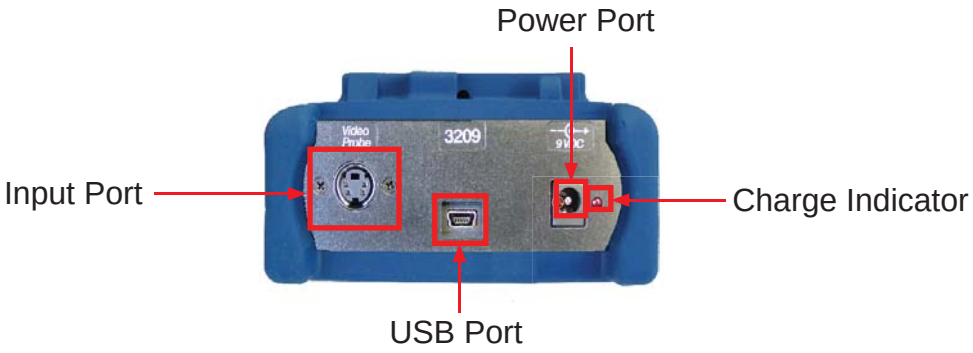
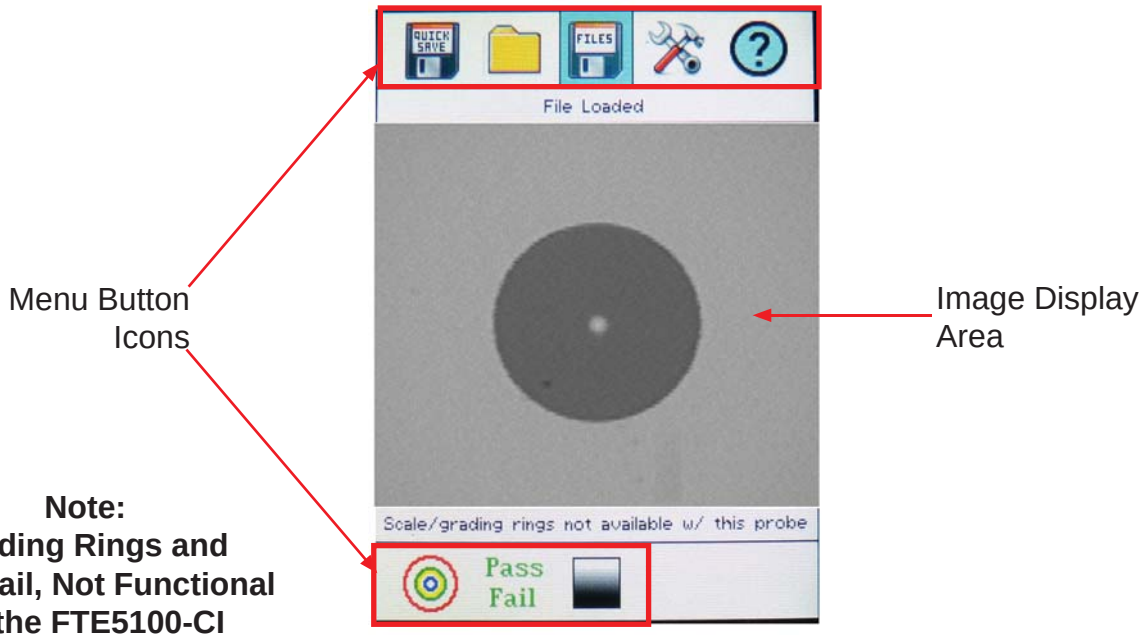


Fig 4.2

4.3 CI1100 Probe

Fig 4.3

4.4 Display



Note:
Grading Rings and Pass/Fail, Not Functional on the FTE5100-CI

Fig 4.4

4.5 Key Pad Operation

Power button turns the instrument On and Off. (Hold for 1 second)

Fig 4.5

The Menu Button is toggles the focus of the LRUD buttons between file management or the icons.

The Save button is used to save the current image to the next storage position.

The Recall button is used to load the next stored image to the display.

The Zoom button is used to toggle the live image between 200X class image to the 400X class image. When zoomed to 400X use the Left/Right/Up/Down button to center the image

The Capture button toggles between live images and paused image.

Select button and the Directional buttons will move through file management or activate and adjust icon functions, depending on how the focus is set with the menu button. Also used to center image in zoomed in mode.

5.0 Operation

5.1 Video Scope Display

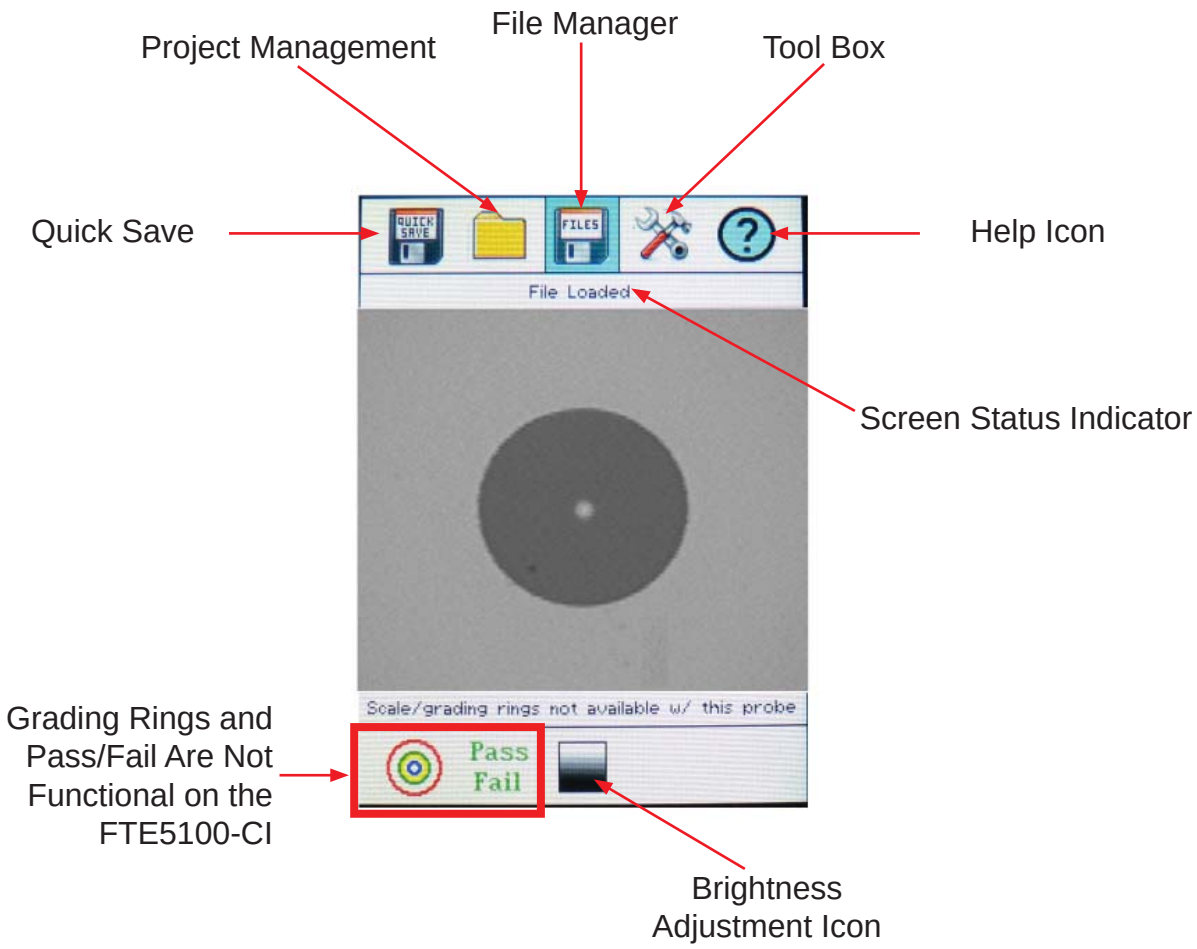


Fig 5.1

Touch Screen Tip

The majority of function and features in the Video Scope are operable with the touch screen. It is not necessary to enter the menu mode when using the touch screen. The menu mode needs to be entered when the focus of the LRUD buttons needs to be taken off the positioning feature and moved to the icon cursor.

5.2 Video Scope Icon Menu Operation

The Icons at the top of the display are file save, project management, file management Tool Box and Help.

Quick Save

Press the menu button, use the left or right buttons to highlight the quick save icon and press the select button to store a file image of the scope screen in the file folder within an active project. Scope files will be preceded by a target icon.

Project Management

To open project management, press the menu button, use the left or right buttons to highlight the project management folder icon and press select. Use the project management folder to open the project that the scope images are to be stored.

File Management

To open file management, press the menu button, use the left or right buttons to highlight the file management icon and press select. Use File management to view a list of saved files or to open a stored image.

Tool Box

The tool box includes the brightness adjustment and touch screen calibration.

Screen Brightness Adjustment

Touch the screen brightness button to adjust the brightness of the display to high or low.

Touch Screen Calibration

Touch the touch screen calibration button and follow the instructions on the screen.

Help

Press the menu button, use the left and right buttons to highlight the help icon and press select to view the help information.

Brightness Adjustment

Press the menu button, use the left and right buttons to highlight the brightness icon, use the up and down buttons to adjust the brightness level of the display or cycle through the brightness levels by pressing the select button.

5.3 Video Scope Operation

Video Probe Tips

There are a number of video probe tips available. To remove a tip from the Probe, unscrew the tip retention nut, back it down away from the tip and pull the tip straight away 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 5.2

Viewing/Focusing a Connector

With the video scope turned on and the video probe plugged in, insert a connector in to universal tip or insert the panel adapter tip into the appropriate port. The scope must be in the Live Scanning mode to make focus adjustments. Use the focus knob to get the connector image as sharp as possible.

Pausing Image

To freeze an image in position and focus level for inspection, press the Capture button. This will pause the at the current position and focus level. Simply press the Capture button again to set the operational mode back to live mode for focus and position adjustments

Zoom Function

Zoom in on a live image by pressing the zoom button. When zoomed to 400X use the Left/Right/Up/Down button to center the image

6.0 Project Management

6.1 Project Management Description

Project Management allows the user to save a set image files to a project folder, for easy management of files and easy download.

Project Management Screen

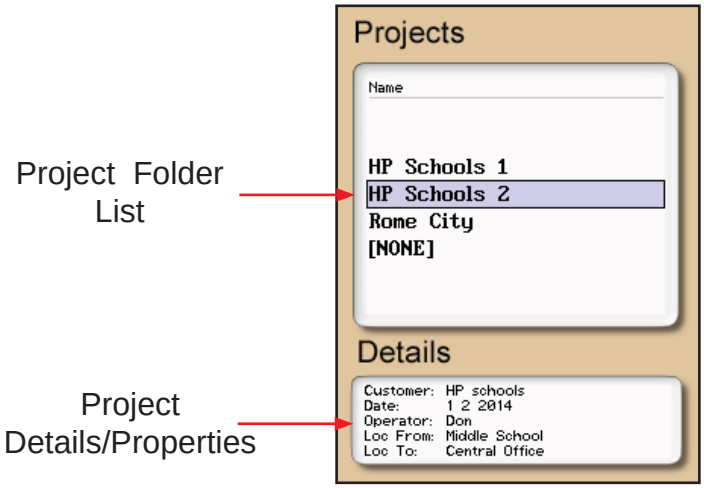


Fig 6.1

Project Management Menu

The menu for project management may be operated with the touch screen, however, this manual describes the manner of operation with the keypad. To open the menu press the menu button. There are four tabs available, File, Edit, View and Help. Use the left or right buttons to move to a desired tab and use the select or the down button to open the drop-down menus. Pressing the menu button again or the up button will hide the operations menu.

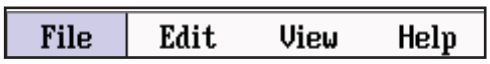


Fig 6.2

Touch Screen Tip

The menu may be pulled down with the stylus the same as the menu on the main trace screen. Once the file menu is open, it is fully operable with the touch screen function.

Project Management File Tab To open the drop down menu under file, with file tab highlighted, press select or the down button. Use the down or up buttons to move through the drop down menu and select to choose and operation. Selecting new will open a new project folder using the current parameter settings. Open will open the highlighted project, dual is not operational in the project management and therefore greyed out, delete permanently removes the highlighted project. (The delete button must be held for at least one second to remove projects.) Once delete is selected, the project and all files associated with that project are deleted. Use exit to leave the project manager and return to the trace screen.

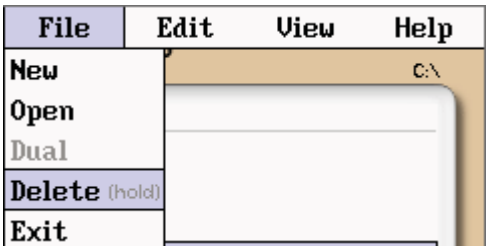


Fig 6.3

Project Management Edit Tab

To open the drop-down the menu under edit, with the edit tab highlighted, press select or the down button. Use the down or up buttons to move through the drop down menu and press select to choose an operation. Upload is used to transfer files to the CertSoft software. Rename allows the highlighted folder name to be modified while maintaining all settings and associated files. Properties allows the user to edit the properties displayed at the bottom of the project window.

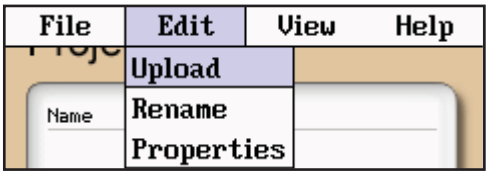


Fig 6.4

Project Management View and Help Tabs

View offers the user the opportunity to move to the file manager from the projects page. With view highlighted, press select or the down button to open the drop-down menu, with the files tab highlighted, press select to move to the file management page. For onboard help pages, highlight the help tab and press select.

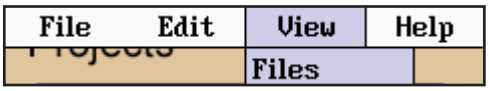


Fig 6.5

6.2 Project Management Operation

Create a New Project

Press the menu button, highlight the project folder icon and press select. With the file tab highlighted, press select or the down button to open the drop down menu. Use the down or up buttons to highlight new and press select again. Use the on screen QWERTY keyboard to name the folder and touch save. The folder names are limited to 16 characters.

To enter details about the project, use the up and down buttons to highlight the project that was just created and press the menu button. Use the left or right button to highlight the edit tab, use the down button to highlight properties and press select. Use the up and down buttons to select the desired field to be entered or modified and press select. Use the QWERTY keyboard to enter the information and touch save when complete. Up to 24 characters may be entered for these fields. To exit the project screen, press menu, press select, use the down button to highlight exit and press select again.

Open an Existing Project

To open a project, press the menu button, highlight the project folder and press select. Use the up or down buttons to highlight the desires project folder and press select. This will open the file management screen listing all the files previously stored in this project. All saved traces will now be stored to this project ,until a new project is created or another project is opened.

Delete a Project

To delete a project, with the project to be deleted highlighted, open the file drop down menu, highlight delete and press and hold select. Ensure the proper project is selected as once deleted, the folder and files cannot be recalled.

NOTE:

Delete must be held for approximately 1 second to complete the delete function.

Upload a Folder to CertSoft

To upload a folder and all it's associated files from the OTDR to the computer, open the CertSoft software and ensure the OTDR is connected to the computer with the USB cable.

NOTE:

The two plugs in the top right corner of the OpTrace screen should show as connected and green.

Highlight the project to be uploaded, press menu to open file manager menu, use the right button to highlight edit tab, press select or the down button to open the drop down menu and with upload highlighted, press select. The folder with all files will be uploaded to the target folder selected on the computer.

Chapter 6 Project Management

Rename a Project

To rename a project, have the project to be renamed highlighted, press menu, to open the project management menu. Use the left and right buttons to highlight edit tab and press select or the down button to open the drop-down menu. Use the down button to highlight rename and press select. The project name will be displayed with the onboard QWERTY keyboard. Use the keyboard to rename the project and touch save.

Modify Properties

To modify the properties, have the project to modified highlighted. Press menu, highlight edit/properties and press select. The project properties will be displayed, use the up/down buttons to highlight the field to be changed, use the onboard QWERTY keyboard to make the change and touch save. Continue with the changes needed, when compete highlight close and press select.

Use the left and right buttons to highlight edit tab and press select or the down button to open the drop-down menu. Use the down button to highlight properties and press select. The properties list will be display, use the up or down buttons to highlight the property to be modified and press select. The QWERTY keyboard will be displayed with the property information. Press save when done with the change. Continue with the changes needed, when compete highlight close and press select.

Exit Project Management

To exit the project management, press menu, use the left or right buttons to highlight the file tab, press select or the down button to open the drop down menu. Use the down button to highlight Exit and press select.

7.0 File Management

7.1 File Management Description

File Management is use to save and recall traces. It operates in conjunction with the projects manager in that if a project folder is open, the files saved to and listed in the file manager are associated with the open project. When the unit is turned on, the default folder is [NONE], therefore, any files save without opening a project will be save to the [NONE] folder. Any files saved in the scope function will also be associated with the open folder.

File Management Screen

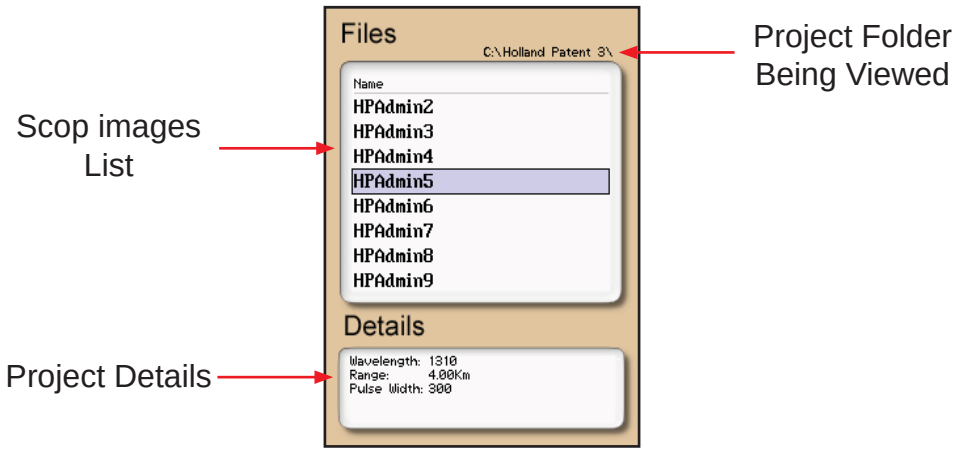


Fig 7.1

File Management File Menu

The menu for file management may be operated with the touch screen, however, this manual describes the manner of operation with the keypad. To open the file management menu press the menu button.

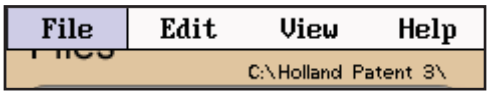


Fig 7.2

Touch Screen Tip

The file menu may be pulled down with the stylus the same as the menu on the main trace screen. Once the file menu is open, it is fully operable with the touch screen function.

Chapter 7 File Management

File Management File Tab

To open the drop down menu under file, with file highlighted, press select or press the down button. Use the down or up arrow to move through the drop down menu and press select to open the highlighted operation. The operations are Save, Open, Dual, Delete and Exit. Save stores the current trace, Open displays the trace that is currently highlighted, Dual opens a secondary trace, Delete permanently removes a file and Exit closes the file management screen.

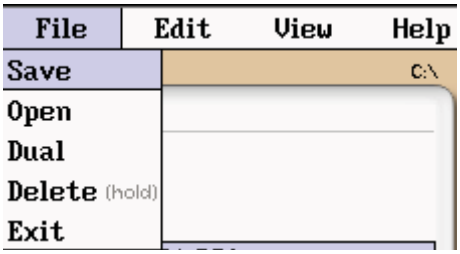


Fig 7.3

File Management Edit Tab

To open the drop down menu under edit, with edit highlighted, press select or press the down button. Use the down or up arrow to move through the drop down menu and press select to choose a highlighted operation. Upload is used to transfer the highlighted file to the CertSoft software. Rename allows the highlighted file name to be modified. Properties is grayed out and not accessible from this location.

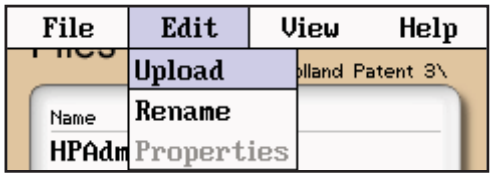


Fig 7.4

File Management View and Help Tabs

View offers the user the opportunity to move to the projects management page from the file management page. With view highlighted, press select or the down arrow to drop down the view tab and press select to move to the file management page. For onboard help pages, highlight the help tab and press select.

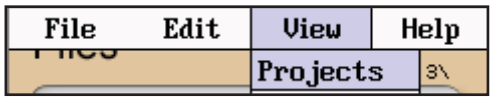


Fig 7.5

7.2 File Management Operation

Save an Image File

To save a image, press menu, highlight the file manager icon and press select. Press select or the down button to open the drop down menu and with save highlighted, press select again. The file naming window will open and the onboard QWERTY key board will be available. Use the touch keyboard to name the file and touch save. The file names are limited to 16 characters. This method should be used to set the base file name for a group of images. These file names are save exactly as entered. To save files with a chronologically numbered suffix, use the quick save. Quick Save uses the last enter base file name.

Open/View an Image File

To open an image file, press the menu button, highlight the file folder and press select. Use the up or down buttons to highlight the image to be viewed and press select.

Delete a File

To delete a file, with the file to be deleted highlighted, press menu or the down button to open the file drop down menu, use the down or up buttons highlight delete and press select for at least one second. Ensure the proper file is selected as once deleted, the file cannot be recalled.

> **NOTE:**
> Delete must be held for approximately 1 second to complete the delete function.

Upload a Images to CertSoft

To upload a images from the video scope to the computer, Open the CertSoft software and ensure the scope is connected to the computer with the USB cable.

> **NOTE:**
> The two plugs in the top right corner of the OpTrace screen should show as connected and green.

Highlight the file to be uploaded, press menu to open file manager menu, use the right button to highlight the edit tab, press select or the down button to open the drop down menu and with upload highlighted, press select. The file will be uploaded to the target folder on the computer .

Rename a File

To rename a file, have the file to be renamed highlighted. Press menu, use the left or right button to highlight edit, press select, or the down button to open the drop-down menu, press the down button to highlight rename and press select. The file name will be displayed with the onboard QWERTY keyboard. Use the keyboard to rename the project and touch save.

Exit File Management

To exit the file management, press menu, use the left or right buttons to highlight the file tab, press select or the down button to open the drop down menu. Use the down button to highlight Exit and press select.

Chapter 8 Specifications

GRAPHICAL DISPLAY	4 in Touch Color TFT
DIMENSIONS W/O BOOT	7.62” L x 3.88” W x 1.56” H
WEIGHT	2 lbs
BATTERY	Rechargeable NiMH - 4 hours operating time
POWER	100-240 universal US, GB, EU, AU Mains
ENVIRONMENTAL	Operation -10°C to + 40°C
ACCESSORIES INCLUDED	Universal power supply. 2.5mm and 1.25mm adaptors, Windows™ Compatible Software for downloading images, USB Cable and Manual on CD

Chapter 9 Repair/Warranty

9.0 Repair/Warranty

9.1 Repair Information

If repair is required, simply call the factory at 1-888-U.S.-OTDRS (876-8377) for return instructions and a RMA number.

9.2 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 one (1) year 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.