Optical Wavelength Laboratories

OPERATIONS GUIDE

400x USB Video Inspection Scope
Model Number:
VS-400-U

INTRODUCTION

TABLE OF CONTENTS

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INTRODUCTION

BEFORE YOU BEGIN

All personnel testing optical fibers should be adequately trained in the field of fiber optics before using any fiber optic test equipment.

If the user is not completely familiar with testing fiber optics, they should seek competent training. Such training can be acquired from a variety of sources, such as local hands-on training classes.

Valuable information about fiber optic testing can also be gathered from reading printed literature carefully or by thoroughly reading supplied operations manuals.

Fiber optic testers vary from other types of test equipment due to issues such as:

1) standards-based testing
2) proper fiber optic test procedures (FOTPs)
3) "zeroing" or referencing of power levels
4) determining the correct link budget to pass or fail by

Complete understanding of each of these issues is critical for performing proper fiber optic tests.

ABOUT THIS MANUAL

Throughout this manual you will find various symbols that assist with understanding the procedures outlined in this manual. Below is a list of these symbols and a short description of their purpose:

Shows a helpful tip that will make a procedure go more smoothly

Tells the user some useful information about the successful completion of a procedure

Warns the operator of a potentially dangerous condition

INTRODUCTION

DESCRIPTION

The VS-400-U is a USB-based video microscope with 400x magnification, allowing for inspection of both multimode and singlemode fiber connector endfaces and optical ports for cleanliness and quality.

REQUIREMENTS

A PC or laptop equipped with a USB port is required for viewing endfaces and ports with the VS-400-U.

ADVANTAGES

Video microscopes offer three distinct advantages over traditional direct-view microscopes:

Eye safety. Even with IR filters and other eye safety precautions, viewing endfaces and ports through a direct-view scope can be harmful to the eyes, due to high-intensity optical radiation directly entering the eye. Video microscopes completely isolate the eye from potentially dangerous incoming light, which instead falls upon a small video camera.

Large viewing area. Images on a video screen are much larger than when viewed through a direct-view scope, and thus easier to see. Images can also be zoomed in on.

Larger viewing area also reduces eye strain caused by squinting through a viewfinder.

Image capture. Digital images of fiber endfaces/ports can be captured through software, and stored on hard disk for later retrieval.

INSTALLING THE VIDEO MICROSCOPE

INSTALLING USB DRIVERS

Connect the VS-400-U to a working USB port on a PC or laptop.

✓ **Most Windows operating systems already include a USB driver for the VS-400-U, so the USB driver may install automatically without the need for user intervention. In this case, "balloons" will appear near the System Tray showing installation status information.**

If prompted to install USB drivers manually, a "Found New Hardware Wizard" dialog box will appear.

Select **"No, not this time"**, then click **Next**.

At the next dialog box that appears, select **"Install the software automatically (Recommended)"**.

If necessary, insert the included CD into the PC/laptop CD-ROM drive. The installation wizard should be able to find the appropriate driver file on the CD.
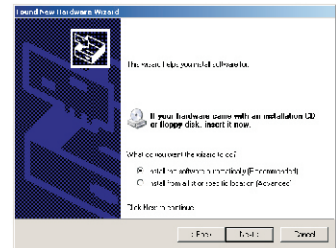
INSTALLING THE VIDEO MICROSCOPE

VERIFYING INSTALLATION OF THE USB DRIVER

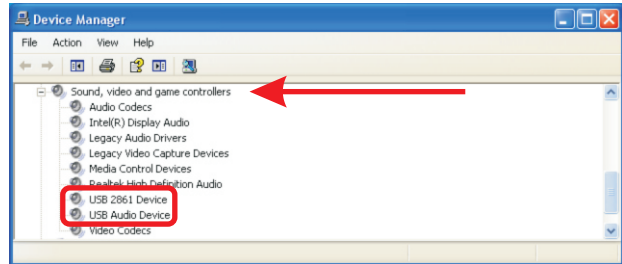**The following information applies to a PC/laptop running Windows XP or later.**

USB driver installation can be verified by accessing the Device Manager through Control Panel.

Device information for the VS-400-U can be found under the section titled **"Sound, video and game controllers"**.

Two devices will appear:
> **USB 2861 Device**
> **USB Audio Device**

NOTE: USB Audio Device is not critical to the image viewing function of the VS-400-U.

If the USB 2861 Device has an error, un-install the device from Device Manager, and re-install using the USB driver found on the CD.
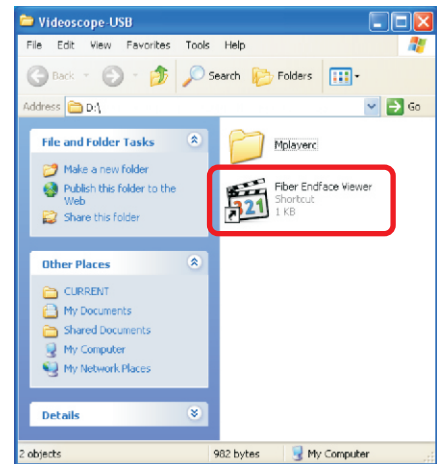
ENDFACE VIEWER SOFTWARE

LAUNCHING FIBER ENDFACE VIEWER SOFTWARE

Fiber endface and port images can be viewed with the fiber endface viewer software included on the CD.
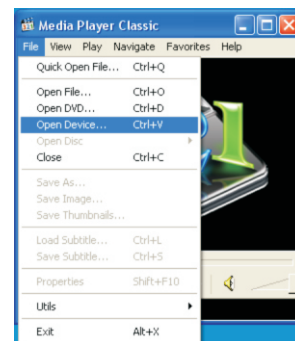
If necessary, insert the CD into the PC/laptop CD-ROM drive.

1 Double-click the **Fiber Endface Viewer** shortcut to launch the program.

NOTE: this software program can also be copied to the PC/laptop hard drive in order to run the program without having the CD inserted.
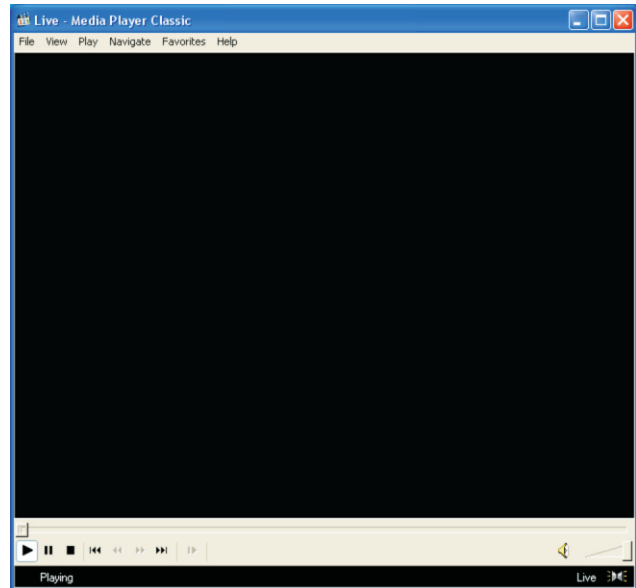
2 Click **File, Open Device...**

3 Select USB 2861 Device from the dropdown menu, then click OK to continue.

ENDFACE VIEWER SOFTWARE

VIEWING FIBER ENDFACES

4 If no fiber is connected to inspection probe, the viewer window will be black.

5 Insert a fiber connector into the probe, or insert the probe into an optical port.

At first the endface image may be blurry, so it must be focused.
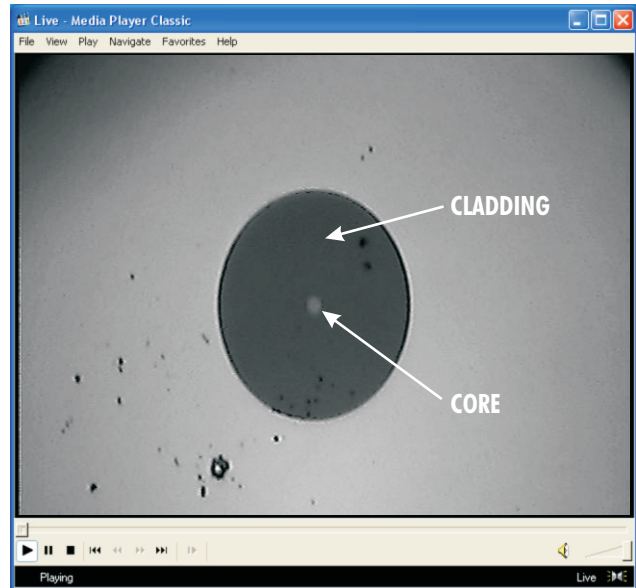
ENDFACE VIEWER SOFTWARE

VIEWING FIBER ENDFACES

6 Once the image is focused, the endface can be analyzed.
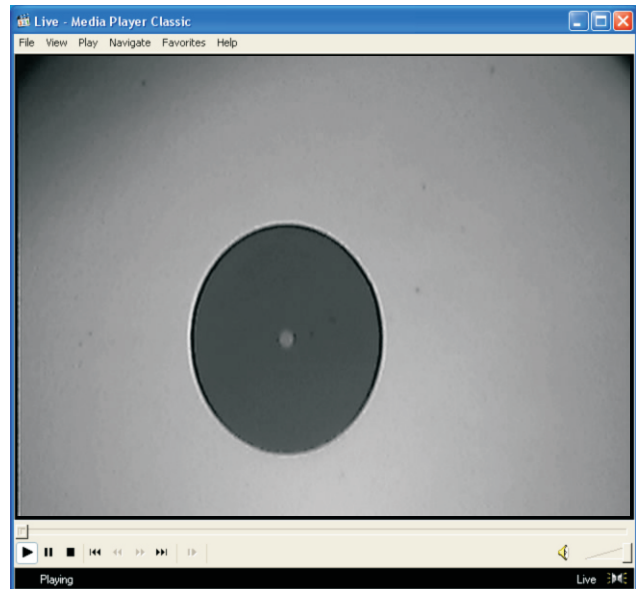
Light area is the connector ferrule.
Dark area is the cladding.
Small spot in middle of image is the core.

There are a few spots of debris on the ferrule and cladding. It is recommended to clear off this debris so it does not shift to block the core.
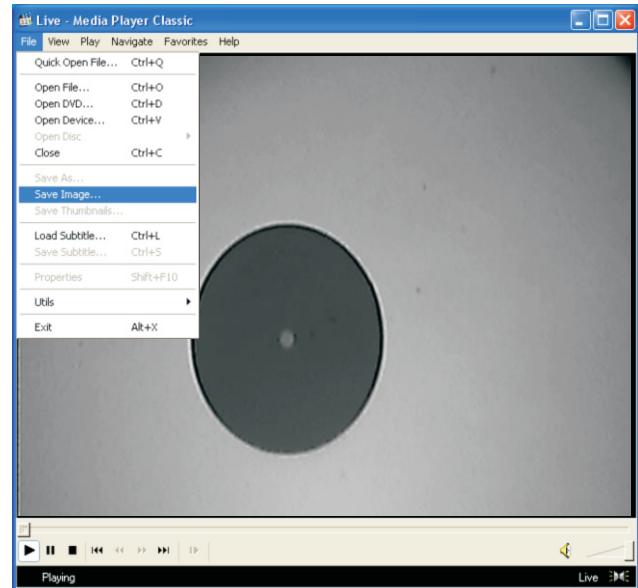

6 Image of endface after cleaning.

ENDFACE VIEWER SOFTWARE

CAPTURE/STORE FIBER ENDFACE IMAGES

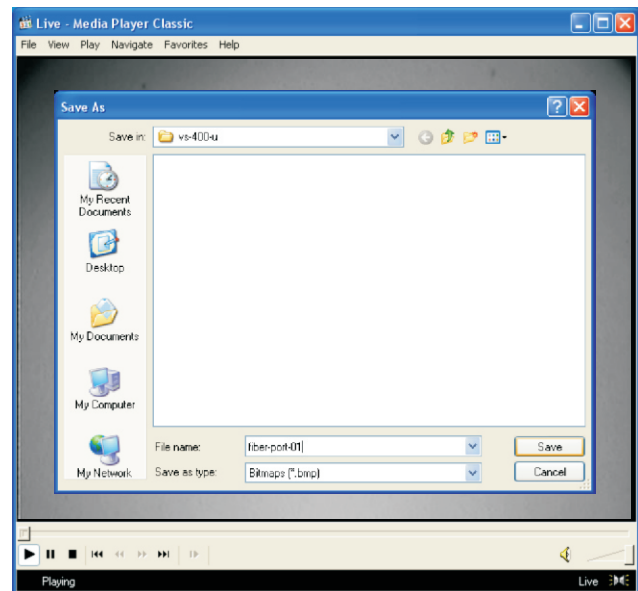**7** To capture the image file and store it on the PC/laptop, click **File, Save Image...**

8 Browse to the folder you want to save the image file in.

In the File name box, type the name of the image file.

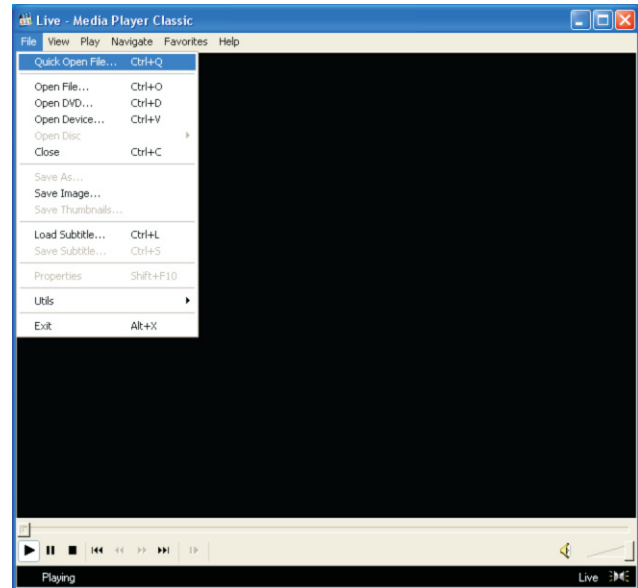**NOTE: the image file can be stored in either BMP or JPG file format.**

Click Save to store the image on the hard drive.
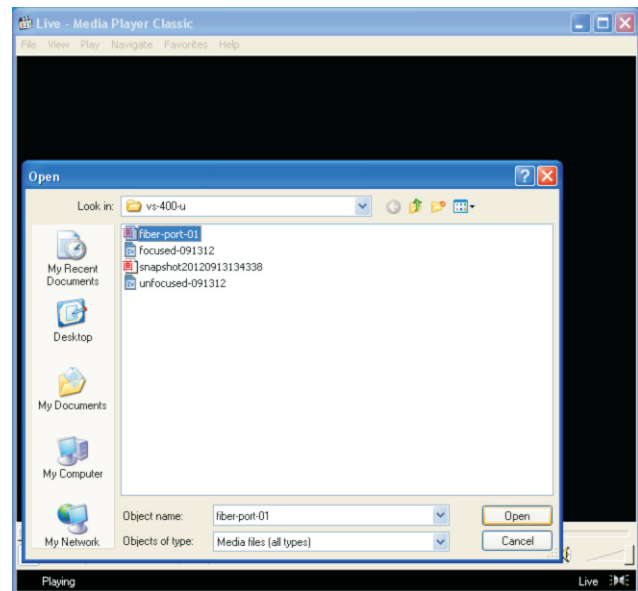
ENDFACE VIEWER SOFTWARE

RETRIEVE PREVIOUSLY STORED ENDFACE IMAGES

To retrieve a previously stored endface image, click **"Quick Open File..."**

Browse to the folder where the stored image file resides.
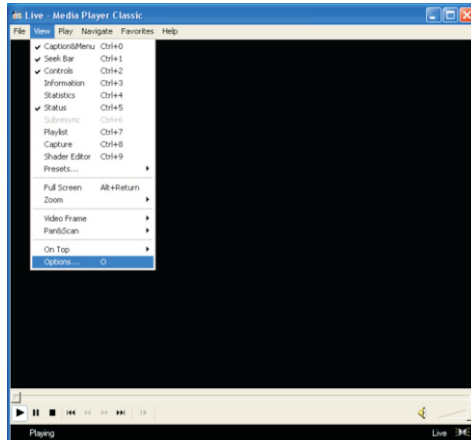
Click the desired file name, then click **Open**, or simply double-click on the desired file name.
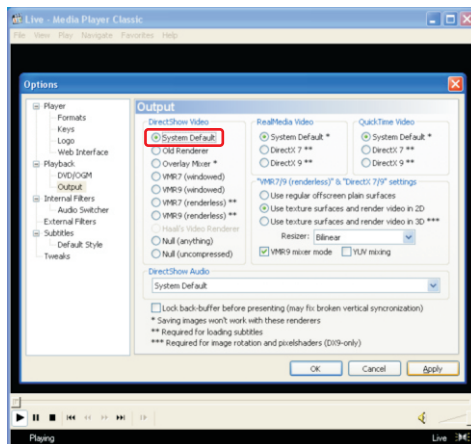
ENDFACE VIEWER SOFTWARE
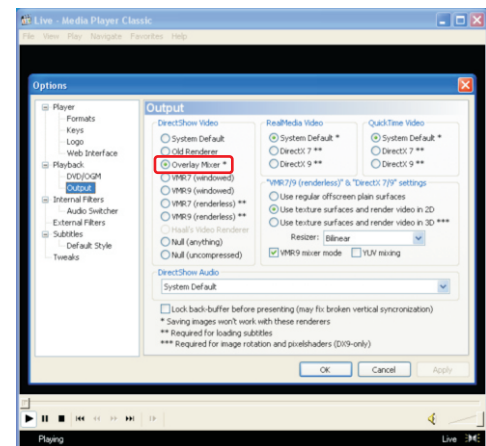
ENDFACE VIEWER "GetCurrentImage failed, hr = 8000ffff" ERROR

Use the following steps to correct the "GetCurrentImage failed, hr = 8000ffff" error message:
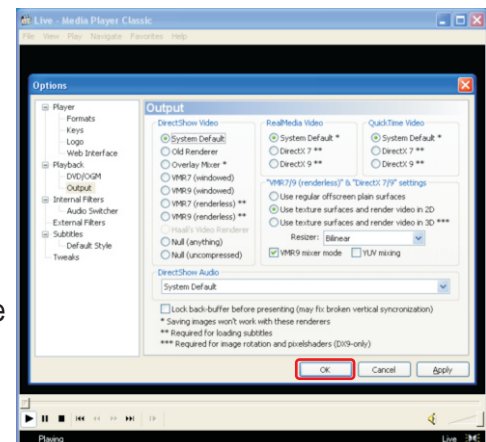

1   Click **View, Options...**

2   Overlay Mixer is selected by default

3   Click **System Default** radio button.

4   Click **OK** to continue.

5   Reboot the PC for the changes to take effect.

MAINTENANCE

CLEANING OPTICAL PORTS

Required Accessories:

› Isopropyl alcohol (91% or better)
› In-adapter fiber optic cleaning accessories, such as 2.5mm cleaning swabs or other in-adapter ferrule connector cleaner such as OWL OC-2
› Compressed Air (optional)

Below are procedures for "wet" cleaning and "dry" cleaning. For best results, a combination of these cleaning methods is recommended.

"WET" CLEAN PROCEDURE

1 Wet the tip of a 2.5mm cleaning swab with isopropyl alcohol.

2 Carefully insert the wet tip of the swab into the optical port.

3 Clean out the optical port according to the directions provided with the swabs.

4 Blow dry the optical port with the compressed air. If compressed air is not available, allow 2 minutes for the alcohol to evaporate.

5 Inspect the optical port with the fiber optic inspection probe to ensure the port is clear of obstructions.

If the port is still dirty, another round of cleaning will be necessary. You may also want to use a combination of "wet" and "dry" cleaning to achieve best results.

"DRY" CLEAN PROCEDURE

1 Carefully insert a dry 2.5mm cleaning swab or a 2.5mm in-adapter ferrule connector cleaner into the optical port.

2 Clean out the optical port according to the directions that came with the cleaning accessories.

3 Inspect the optical port with the fiber optic inspection probe to ensure the port is clear of obstructions.

If the port is still dirty, another round of cleaning will be necessary. You may also want to use a combination of "wet" and "dry" cleaning to achieve best results.

CLEANING CONNECTOR ENDFACES

Required Accessories:

› Isopropyl alcohol (91% or better)
› Connector cleaning tape such as OWL FCC-2 cleaning tape reel
› Compressed Air (optional)

For best results, a combination of wet and dry cleaning methods is recommended.