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Luxxor®

User Guide

LUXXOR® VIDEO SYSTEM



Gradient Lens Corporation®

gradientlens.com



Luxxor® Video System

The Luxxor® Video System connects to any rigid or flexible Hawkeye® Precision Borescope, as well as most other borescope brands. The benefits of using the Luxxor Video System include the ability to:

- Easily document inspections and store video or still images
- Share inspection images via e-mail or hard copy
- Hold group reviews of inspection images displayed on a video monitor
- Easily and quickly conduct repetitive inspections by relieving the physical and mental fatigue of inspectors



WARNINGS!

If you have purchased the optional USB 2.0 Image Capture Interface (VC-USB2), **INSTALL THE SOFTWARE BEFORE CONNECTING THE VC-USB2 TO YOUR COMPUTER'S USB PORT!**

(Otherwise your computer is likely to automatically install incorrect drivers which will NOT work)

Not for medical use.

Hawkeye® borescopes are not approved for medical use on humans.

All product specifications subject to change without notice.

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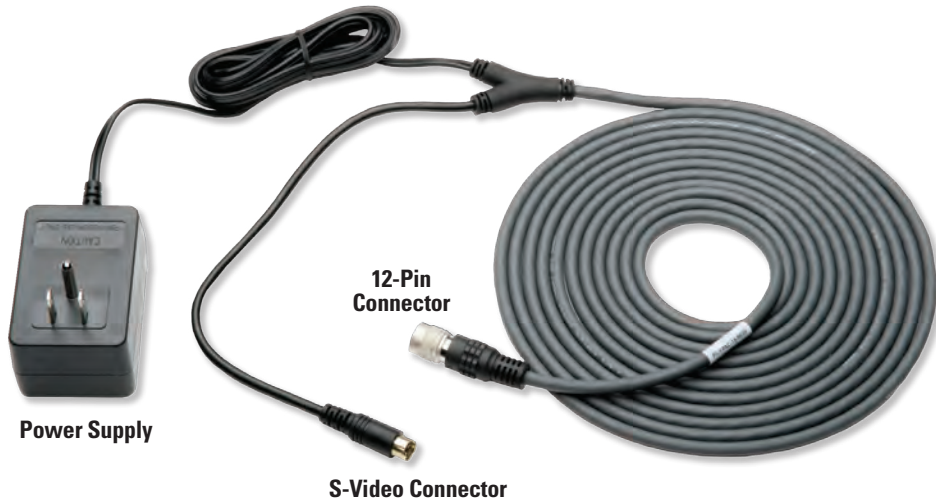
Luxxor® Video System Kit Setup

The Luxxor® Video System is shipped disassembled in a protective case.



The Sony® XC-505 video camera is shipped with the Luxxor® VC-25 coupler lens attached.

One end of the camera cable assembly has a 12-pin connector to attach to the camera. The other end has an S-Video output connector and the camera power supply.



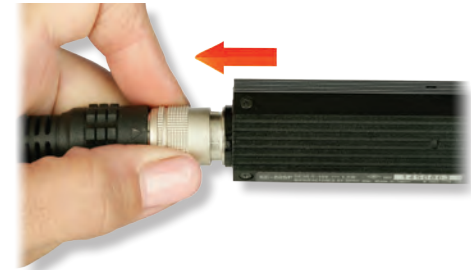
Note the 12-pin connector on the rear of the camera.



Hold the 12-pin cable connector against the camera connector with light pressure. Rotate the cable connector until it lines up with the camera connector and pushes into place with a gentle 'click.'



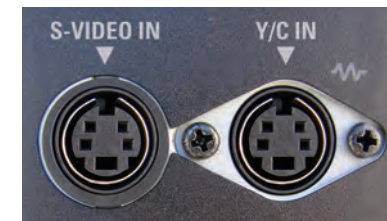
To remove the cable from the camera, grasp the knurled ring on the cable connector and pull away from the camera.



Locate the S-Video connector on the camera cable.



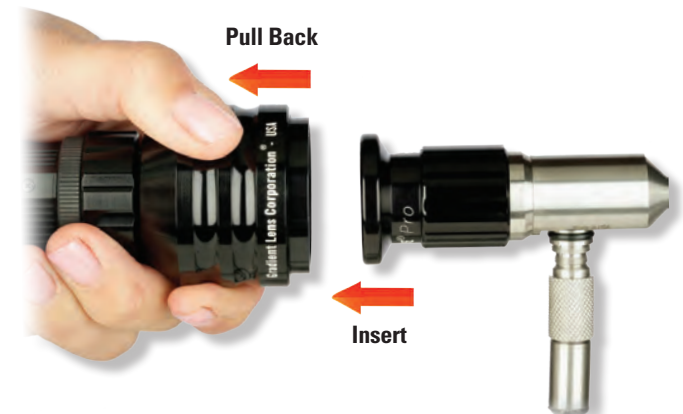
Insert the S-Video connector into the S-Video input of your video monitor. It may be labeled 'Line In', 'S-Video' or 'Y/C'.



IMPORTANT

If you are going to use the optional USB 2.0 Image Capture Interface (VC-USB2) to connect your camera to a computer, SKIP TO PAGE 11 AND INSTALL THE SOFTWARE BEFORE CONNECTING THE VC-USB2 TO YOUR COMPUTER!

Connect the camera to your borescope. Pull back the grooved ring on the coupler lens and insert the borescope eyecup into the coupler lens as far as it will go. Then release the grooved ring.



Unscrew the protective plug from the output receptacle on the front of the Luxxor® 35 LED.



Insert the male end of the Luxxor® Light Guide fully into the output receptacle.



Connect the other end of the Luxxor® Light Guide to your Hawkeye® borescope by pushing it onto the light post of the scope until it clicks into place.



Make sure the Light Intensity/Power knob is set to OFF.



Connect the power supply:



- 1) Plug the output of the power supply into the jack on the rear of the Luxxor® 35 LED light source.
- 2) Plug the small connector on the end of the power supply's AC cable into the power supply.
- 3) Plug the other end of the AC cable into a 100-240 VAC 50/60Hz outlet.

The assembled system will look something like this prior to plugging in the power cords. (Your monitor may look different.)



Plug the camera cable power supply into a 100-240 VAC, 50/60 Hz outlet. Turn your monitor on and make sure the S-Video input is selected.

You should now be able to view images on your monitor.

Rotate the Power/Intensity knob on the Luxxor® 35 LED clockwise to turn the light ON and set the intensity. Full intensity position is shown here.



The Luxxor® 35 LED emits extremely bright light. DO NOT LOOK DIRECTLY INTO THE OUTPUT RECEPTACLE OF THE LIGHT SOURCE, OR INTO THE OUTPUT END OF AN ATTACHED LIGHT GUIDE.

Light Intensity

Light intensity can be varied electronically, with the power/intensity knob, or mechanically, with the sliding shutter. Maximum intensity is delivered with the shutter slide in the OPEN position, and the power/intensity knob rotated fully clockwise. Users may find it convenient to set a maximum output limit with the shutter, and fine-tune the output with the power/intensity knob.

Shutter OPEN



Shutter CLOSED



CAUTION!

Do not obstruct air intake and outlets.

Unrestricted airflow is necessary for cooling. Keep at least 1.5 inches of space around sides and rear of the unit.

Place the bottom on a flat, hard surface. Do not cover with cloth or other materials while in use.

Intake



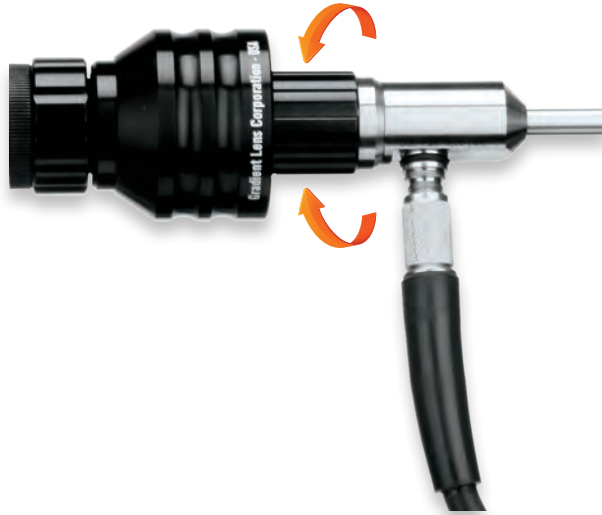
Outlets



1/4-20 UNF Mounting Hole

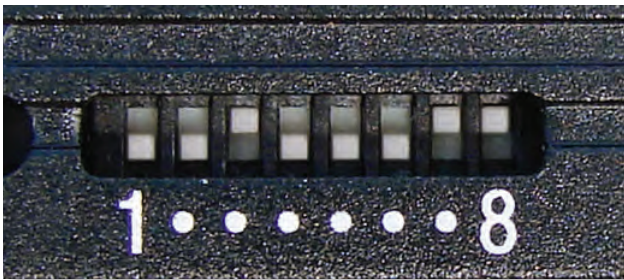
Focusing

Adjust the focus of your Hawkeye® Pro borescope by rotating the focus ring. (Other scopes may have different focusing mechanisms, or non-adjustable focus.)



Camera Configuration

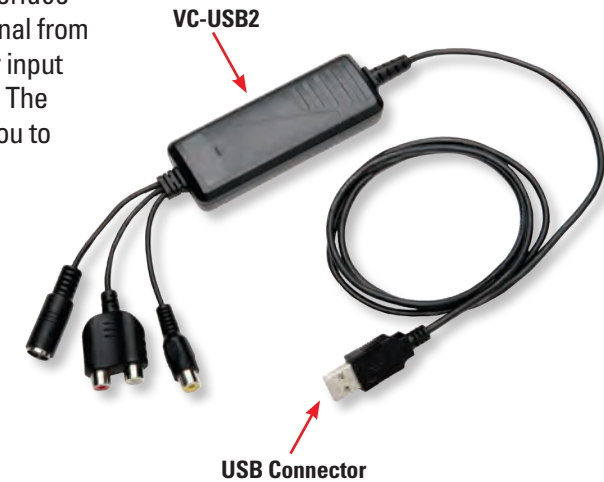
The Sony® XC-505 video camera's configuration is set with eight DIP switches on its side. The factory configuration has switches 3, 7 and 8 UP, and the rest DOWN, as shown here. This configuration sets White Balance to Automatic, Shutter Speed to 1/60 second, Automatic Gain Control (AGC) ON and Output Signal to Y/C (S-Video).



If you find that the image is too bright regardless of how low the lighting intensity is set, the camera shutter speed can be increased to 1/1000 second to darken the image. This is accomplished by using a small tool, such as a toothpick or fine-pointed tweezers, to move switch number 6 to the UP position, making sure switch 5 remains DOWN.

(Optional) USB 2.0 Image Capture Interface (VC-USB2) Software Installation

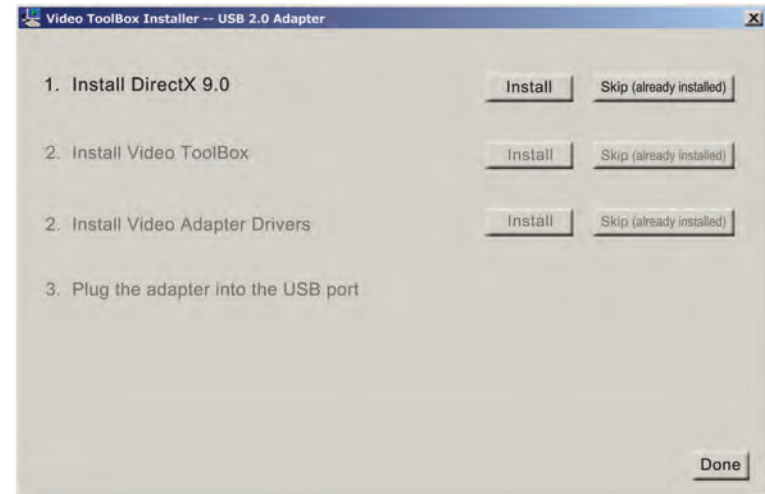
The VC-USB2 image capture interface converts the analog S-Video signal from the camera to a digital signal for input to your computer's USB 2.0 port. The VideoToolbox software allows you to display, capture and annotate images on your computer.



The included software drivers MUST be installed BEFORE the VC-USB2 is connected to your computer's USB port.

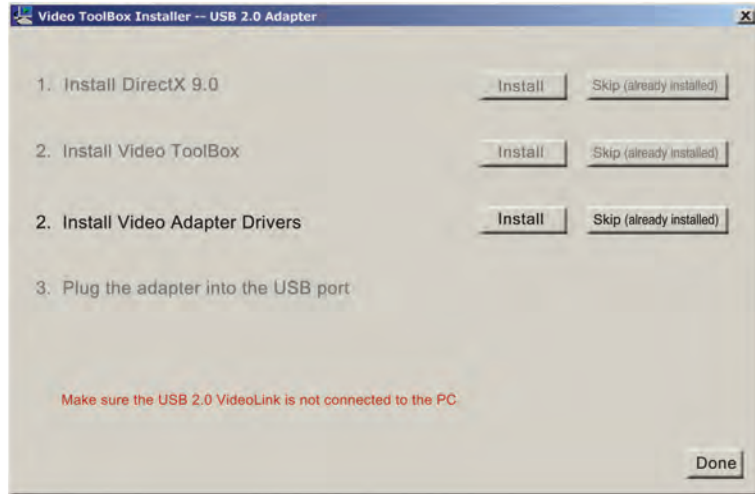
TO INSTALL THE SOFTWARE:

1. Insert the included CD into your computer's CD-ROM drive.
2. Open the My Computer window and double-click on the CD-ROM icon.
3. Double-click on the installer program: Video ToolBox Installer USB2b.exe
4. The program will display the following:



If you are not sure that DirectX 9.0 or later is already installed, press the Install button. The software will not load if a newer version already exists on your computer.

- The installer will now move to the Install Video ToolBox step. Click Install to install the Video ToolBox software.
- After all the Video ToolBox software has been installed you will see the following window. Press the Install button to install the USB 2.0 adapter drivers. If the drivers were already installed then press the skip button to continue.



NOTE: There may be a delay after you press the Install button but before the Windows Installer window opens. Wait for the InstallShield window to open.



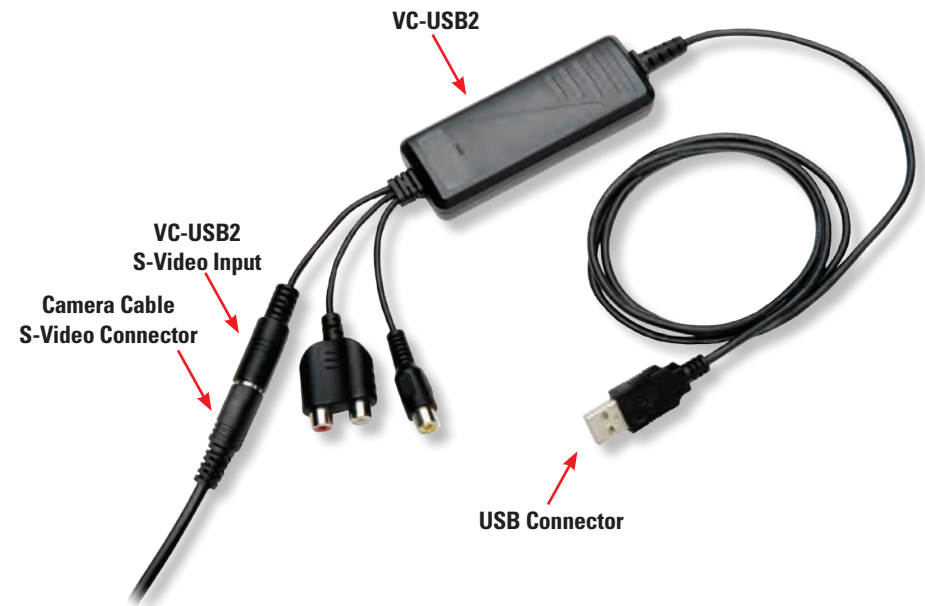
Click Next and then Finish in the next window.

Do not plug the VC-USB2 capture device into the computer until the driver installation is completed.

- When the driver installation has completed, you will see the following window.



Now, with the software properly installed, connect the S-Video output from the camera cable to the S-Video input of the VC-USB2.



Now plug the USB connector of the VC-USB2 capture device into the USB port you plan to use. (NOTE: If you later plug the VC-USB2 into a different USB port on your computer, the Found New Hardware wizard will run again. In some versions of Windows you will see a warning screen that the device driver has not passed Windows Logo testing. If this appears, click Continue Anyway.)

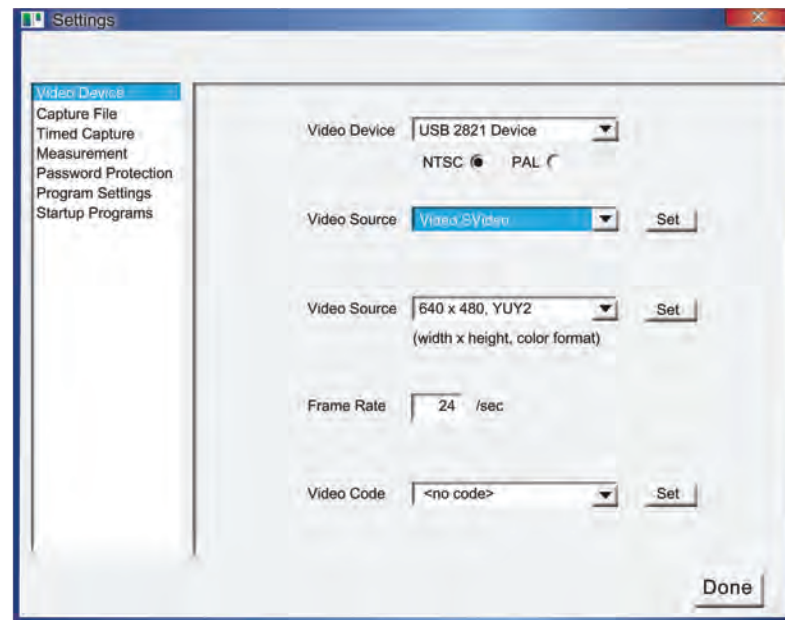
The assembled system will look something like this prior to plugging in the power cords. (Your computer may look different.)



Plug the camera cable power supply into a 100-240 VAC, 50/60Hz outlet. Do the same with the Luxxor® 35 LED light source power cord if you haven't already.

Installation is now complete. Double-click the Video ToolBox icon on your desktop to start the program. When the program starts up, you should have a live image on your screen.

If you have no live image, click the Settings button and choose Video Device in the left-hand column of the window that appears. Make sure that the Video Source box is set to S-Video as shown below.



Also check to make sure the protective cap has been removed from the scope's insertion tube.

The Video ToolBox Help file has a complete description of all the features of the program as well as hints on how to capture the best quality images and videos.



Cleaning - Borescope

The most likely surface to need cleaning is the tip of your borescope's insertion tube. Hawkeye® borescope tips may be cleaned by first blowing with canned air, or brushing with a soft brush. If this is not sufficient, a cotton swab, moistened with rubbing alcohol (isopropyl) or acetone may be used. Make sure the swab is moist and wipe gently to avoid dragging potentially abrasive particles across the optical surface. Blow dry with canned air.

The rear window of your Hawkeye® borescope may be cleaned in a similar manner.



Cleaning - Luxxor® 35 LED

Clean the exterior of the light source, power supply, and cables by wiping with a cloth dampened with mild soap and water.

- DO NOT IMMERSE.
- KEEP WATER OUT OF THE INTERIOR OF THE UNIT.
- Allow to dry.
- DO NOT RECONNECT TO POWER WHEN WET.

Solutions to Common Problems

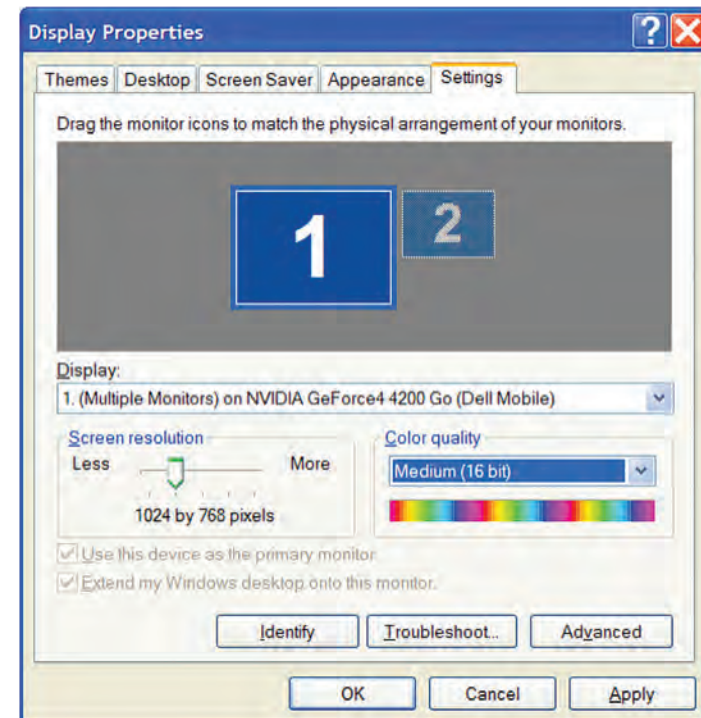
Problem: Video image is slow or jerky when using the VC-USB2 to view images on a computer.

The video speed on the computer monitor is related to the speed of the computer, the speed of the video card, and the amount of video memory. A minimum Pentium III 1 GHz with a 16MB video card is recommended. There are other ways to increase the speed of the video display:

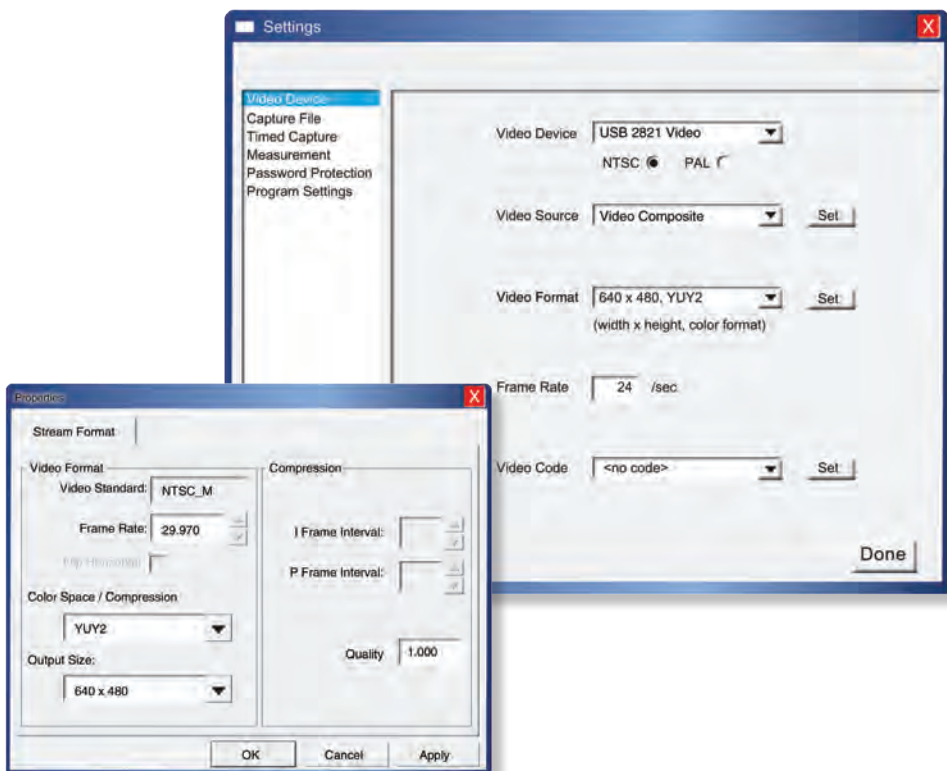
1. Reduce the color resolution.

Some versions of Windows allow you to choose the color resolution of your display. Open the Control Panel and select the Display icon. Look for a choice to change your color resolution to a lower number of bits per pixel, such as 16 instead of 24 or 32, for example.

2. Reduce the screen resolution (if step #1 didn't solve the problem). In the same Display Properties window, change the Screen Resolution setting to **1024 x 768 pixels** or to **800 x 600 pixels**. Press the Apply button to change the screen resolution.



- Reduce the quality setting for the transferred video image. Open VideoToolbox, press the Settings button and select "Video Device" from the list on the left. Find the Video Format menu and press the Set button to open the Video Format Properties window. Within the window will be the Quality control. Reduce the quality value to increase the display speed.



Problem: No image at all using the VC-USB2 even though everything is installed correctly.

Make sure your computer has a USB 2.0 port. The VC-USB2 must be connected to a USB 2.0 port – the older USB 1.1 port will not work. Most computers made since 2002 or so have them. If your computer has a USB 2.0 port, it must also be configured properly. Early versions of Windows 2000 and Windows XP did not install the USB 2.0 drivers properly in all cases. Service Packs and HotFixes are the mechanism that Microsoft provides to update the operating system. For Windows 2000, make sure that Service Pack 4 or later has been applied. For Windows XP, make sure that Service Pack 1a with HotFix KB822306 or Service Pack 2 (or later) has been applied. Check the Microsoft web site for more information on Service Packs and how to install them.

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30-Day Customer Satisfaction Guarantee

Gradient Lens Corporation offers its direct customers a money-back guarantee. If, for any reason, you are not completely satisfied with your purchase within 30 days, call our customer service department. A Return Material Authorization (RMA) number will be issued allowing a refund of the original purchase price from Gradient Lens Corporation (excluding shipping and handling charges), provided that the product is in original, saleable condition with all packaging.

Limited Warranty

Gradient Lens Corporation warrants that all Hawkeye® borescopes and accessories manufactured by Gradient Lens Corporation will be free of defects in materials and workmanship for one year from the date of first retail purchase. Gradient Lens Corporation warrants that the Luxxor® 35 LED light source will be free of defects in materials and workmanship for two years from the date of first retail purchase.

The entire Hawkeye® Borescope Warranty is available online at - <http://warranty.gradientlens.com>.

Video, lighting and some accessory products come with their manufacturer's warranty.

Warranty Claims and Non-Warranty Repairs

Whether you have a warranty claim, an out-of-warranty repair, or you don't really know which, call our customer service department at the number(s) listed above to talk about it. If necessary, we will issue you an RMA number and shipping instructions, allowing you to send the product back. Please do not return any product without calling for an RMA number first. You are responsible for shipping and insurance on any returns.