



Clarus Digital Inspection Scope

Models:











<u>Inspection Control Modules</u>	<u>Inspection Borescope</u>
CD-USB	CB2-60
CD-HDMI	CB2-110
	CB2-200
	CB1-110

Instructions For Use (IFU)

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Symbol Descriptions

	Read this operating manual for additional warnings and instructions for use
	WARNING
	Date of manufacture
	Manufactured by
	Reference Number
	Serial Number
	Non-Sterile
	European Authorized Representative
	Device Power Input: 5 Volts Direct Current, 2 Amperes (10 Watts, HDMI-model only)
	Power On/Off (HDMI-model only)

GENERAL WARNINGS

1. Follow the instructions for cleaning, disinfecting, and sterilizing provided in this document.
2. Do not autoclave the Clarus Digital Inspection Scope.
3. Do not attempt to service any part of this product.
4. To ensure operator safety, read and understand this manual before using the Clarus Digital Inspection Scope.
5. The Clarus Digital Inspection Scope emits visible light energy from its distal end when powered on. Avoid looking directly at this emitted light or directing it toward others.
6. Carefully inspect the external surfaces of the Clarus Digital Inspection Scope and any accessories to ensure they are smooth and free of any protrusions or sharp edges.
7. Light leaks may be common and possibly noticeable when inspecting the flexible portion of the Clarus Inspection Borescope. This does not have an effect on its function, but it should be monitored for light output. If the image on your monitor is too dark to visualize, this may be caused by damaged light fibers and may require repair or replacement of the Clarus Inspection Borescope
8. Do not bend the Clarus Inspection Borescope to a radius less than 0.50" (12.7 mm). This may cause damage.
9. Do not apply excessive force to the Clarus Inspection Borescope. If you feel resistance, or an obstruction hinders its path, you may gently attempt to manipulate or rotate the device to avoid the obstacle. You may also slowly withdraw it a short distance and try advancing again. Applying excessive force to the Clarus Inspection

Borescope can result in damage.

10. Avoid rubbing the Clarus Inspection Borescope against sharp edges. This can cause damage.
11. The Control Module should be set up at a workstation with device mount or on rubber feet on flat and stable table. No other equipment should be stacked or hindering the area where the Clarus Digital Inspection Scope is used. Improper operation could result.
12. Use of accessories or cables other than those specified or provided by Clarus Medical, LLC. could result in increased electromagnetic emissions or decreased electromagnetic immunity of this equipment and could result in improper operation.
13. Portable RF communications equipment (including peripherals such as antenna cables and external antennas) should be used no closer than 30 cm (12 inches) to any part of the Clarus Digital Inspection Scope, including accessories and cables. Otherwise, degradation of the performance of this equipment could result.
14. CD-HDMI: Only use the power source supplied by Clarus. Use of other power sources may damage the device. The CD-USB model uses a standard USB-C cable.

Intended Use

The Clarus Digital Inspection Scope is used for visual inspection of medical devices.

Indications for Use

Visual Inspection of channels, lumens and inner components, during reprocessing of medical devices and endoscopes, to visually verify that they are free of damage, debris or moisture.



Contraindications for Use

The Clarus Digital Inspection Scope is not intended for human use.



Product Description

The Clarus Digital Inspection Scope allows for enhanced visual inspection by providing light, vision, magnification, and the option for documentation in hard-to-see crevices, channels, and lumens in medical devices.

Complete Inspection Scope Workstation


Clarus Inspection Dual Control Module, <u>USB Output</u>	Clarus Inspection Dual Control Module, <u>HDMI Output</u>
	

Contents: Inspection Control Module (USB and HDMI Models)

	CD-USB: Dual Control Module, USB Output	CD-HDMI: Dual Control Module, HDMI Output
		
Control Module	<ul style="list-style-type: none"> Inspection Control Module houses Camera processor and LED illumination. 	
Features	<ol style="list-style-type: none"> Digital Inspection Scope Connection Illumination Control Power Cycle USB (Type C) Out N/A N/A N/A 	<ol style="list-style-type: none"> Digital Inspection Scope Connection Illumination Control Power Cycle N/A HDMI Out Power Input System Power Button
Cables	USB A to USB C Cable	<ul style="list-style-type: none"> HDMI to HDMI Cable Power Supply Cable – 5V DC, 2A
Software	USB Flash Drive (Containing Clarus Medical Scope Viewer Software & Instructions for Use)	N / A






Inspection Borescope

All Clarus Digital Inspection Borescope models work in **both** USB and HDMI Inspection Control Module

	<p>All Borescopes work with BOTH CD-USB and CD-HDMI</p> <ul style="list-style-type: none"> CB2-60: 1.83mm O.D. and 60cm Working Length CB2-110: 1.83mm O.D. and 110cm Working Length CB2-200: 1.83mm O.D. and 200cm Working Length CB1-110: 1.06mm O.D. and 110cm Working Length
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Clarus Digital Inspection Scope Features

The user features of the Clarus Digital Inspection Scope (FIGURE 1) and Accessories (FIGURE 2) are shown in the following illustrations.



<ul style="list-style-type: none"> • Light / Illumination settings: 5 light settings <ul style="list-style-type: none"> ○ Light on Control Module indicates setting level ○ 5th setting is OFF • Press Light button to advance to next setting • 5th setting turns the light OFF 	
<p style="text-align: center;"><u>Power Cycle Button</u></p> <ul style="list-style-type: none"> • Press button to RESET camera 	
<p>1. Clarus Inspection Borescope Connector</p> <ul style="list-style-type: none"> • Contains camera video connection as well as LED Light for illumination 	
<p>2. Flexible Working Length</p> <ul style="list-style-type: none"> • The portion of the Clarus Inspection Borescope that is inserted into a device during visual inspection. The measuring scale markings on the Flexible Working Length are in centimeters (accuracy = ± 0.5cm). Each dot represents 1cm, each dash represents 5cm. 	
<p>3. Distal Camera</p> <ul style="list-style-type: none"> • Distal portion of Clarus Inspection Borescope that contains the digital camera. 	

Digital Inspection Scope Accessories

Accessory	Image	Description
USB Camera Cable		Plugs into USB port on computer. *(USB Control Module ONLY)
HDMI Cable		Plugs into HDMI Port on monitor. *(HDMI Control Module ONLY)
Power Adapter Cable		Power source – 5V DC, 2A *(HDMI Control Module ONLY)
USB Flash Drive		Plugs into a Computer USB Port (contains) <ul style="list-style-type: none"> • Clarus Medical Scope Viewer Software • Instructions for Use
Rubber Cord Holders		Rubber cord holders may be attached to Control Module to manage the working length of the inspection borescope
Flexible Mount-Control Module		(Sold Separately) Connects the Inspection Control Module to external surface (Shelf, Pole, etc)
HDMI International Power Adapters		(Sold Separately) Control Module-HDMI International Power Adapter Kit (Type C, Type I, Type G)


Unpacking the Device

The Clarus Digital Inspection Scope has been thoroughly inspected and carefully packaged before shipping. Once the device is removed from its container, it should be carefully inspected for shipping damage. If there is any damage, contact the shipping carrier and Clarus Medical immediately.

	WARNING: Do not attempt to use the Clarus Digital Inspection Borescope if it appears to be damaged.
	WARNING: The Clarus Digital Inspection Scope is NOT STERILE as supplied from Clarus Medical, LLC. The user must follow the protocol for cleaning and disinfecting or sterilizing described in the <u>Instructions for Cleaning and Disinfecting or Sterilizing</u> section.

Unpacking Inspection

Prior to use, inspect the Clarus Inspection Borescope for signs of wear or damage. Operation can be verified by following the steps in the Verifying Operation section of this manual.

	WARNING: Carefully inspect the external surfaces of the Clarus Inspection Borescope and any accessories to assure they are smooth and free of any protrusions or sharp edges.
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Routine Maintenance

There are no user serviceable parts within the Clarus Digital Inspection Scope. No user maintenance beyond cleaning is required. Refer all service or replacement needs to Clarus Medical, LLC. The contact information is listed at the end of this document.

Startup Procedure

CD-USB	CD-HDMI
1. Open the Windows PC viewer software	1. Plug the Control Module into a source of AC power using Power Adapter.
2. Connect the Control Module to PC using USB Cable	2. Connect Control Module to ANY HDMI Monitor using HDMI cable
3. Plug the Clarus Inspection Borescope into Control Module	3. IF NEEDED-Select correct monitor input on monitor
4. In the viewer software, click “Settings” and select “USB Video Device”	4. Power button set to ON (Green Light Present)
5. Press the Power Cycle Button	5. Plug Clarus Inspection Borescope into the Control Module
	6. Press Power Cycle Button

Connecting or Switching a Clarus Inspection Borescope with the Control Module

<ol style="list-style-type: none"> 1. Unplug the Clarus Inspection Borescope from the Control Module 2. Connect a new or different size Clarus Digital Inspection Borescope 3. Press Power Cycle Button 	
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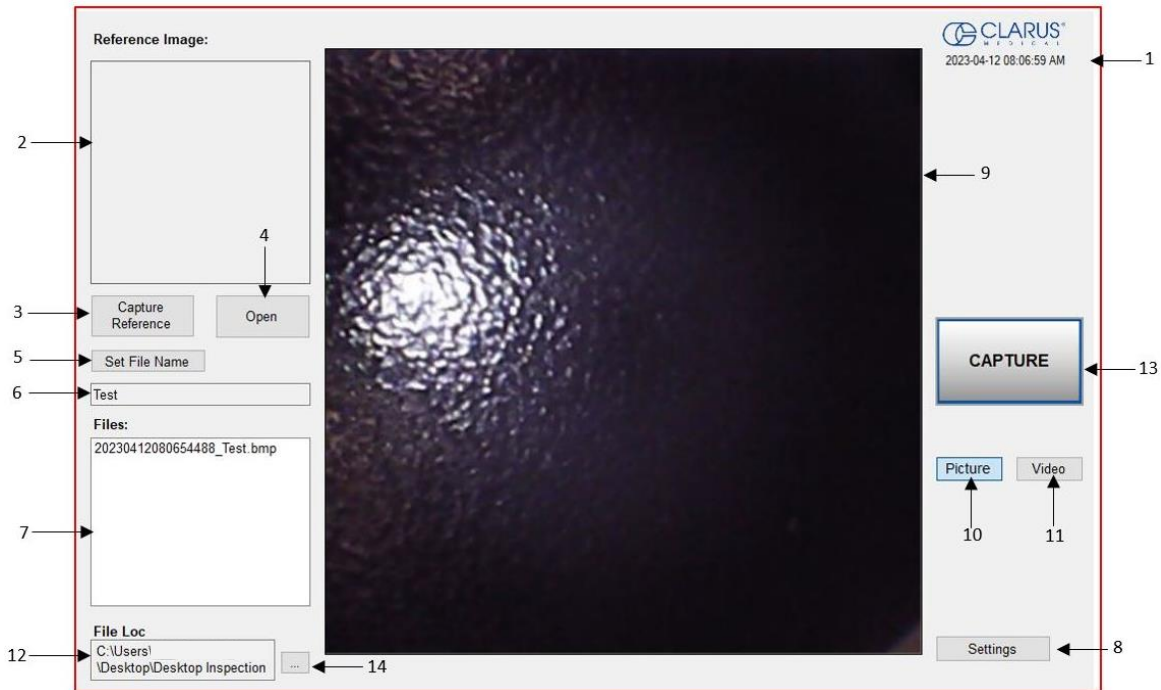
Clarus Medical Scope Viewer Software *CD-USB ONLY

Installing Clarus Medical Scope Viewer Software

- System Requirements: MS Windows version 10.
- Install the Clarus Scope Viewer Software from the USB flash drive on a computer

Using Clarus Medical Scope Viewer Software

#	Name	Function
1	Date & Time	Date and time display
2	Reference Image Window	Displays a Reference Image
3	Capture Reference Image Button	Captures still image being displayed in the Main Image Window
4	Open Button	Opens the file location where images are being saved and allows you to select image that is displayed in Reference Image Window
5	Set File Name Button	Click to set a file name that will appear when capturing images
6	File Name Box	Text box for creating a File Name
7	Files Box	Displays captured images that are stored in the File Location folder
8	Setting Button	Click to select the video camera settings
9	Main Image Window	Displays the image from the camera
10	Picture Button	Click to select the picture option when capturing still images
11	Video Button	Click to select the video option when capturing video
12	File Location Box	Location where captured images and videos are being saved
13	Capture Button	Option to click for capturing images. Also used to start/stop videos
14	Elipse Button	Opens window for browsing file locations to save images



Selecting the Video Device or Camera

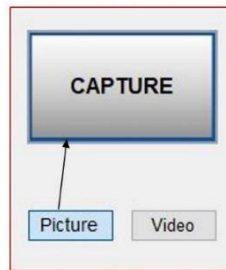
Follow the directions below to select the video device or camera used to capture images using the Clarus Medical Scope Viewer Software.

1. Click the **'Settings'** Button in the lower left of the Clarus Medical Scope Viewer Software to display a list of video devices or cameras that are being detected by your computer.
2. Select a device for capturing images using the Clarus Medical Scope Viewer.
 - a. The example below shows an Integrated Webcam and USB Video Device on the computer. **Select the USB Video Device** for the Clarus digital Inspection Borescope.
3. Click **'OK'** to view the selected Video Device.

Capturing Still Pictures

Follow the instructions below for capturing still pictures from the Main Image Window.

1. Select the 'Picture' Button on the software

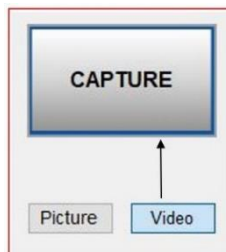


2. Use any of the following options to capture an image:
 - a. Click 'Capture' on the Clarus Medical Scope Viewer Software (FIGURE above).
 - b. Press the space bar on your computer keyboard.
 - Note: When an image is captured, "Picture Captured" in red text will flash on the lower portion of the screen and a new file will appear in the Files Box.

Capturing Video Images

Follow the instructions below for capturing video from the Main Image Window.

1. Select the 'Video' Button on the software



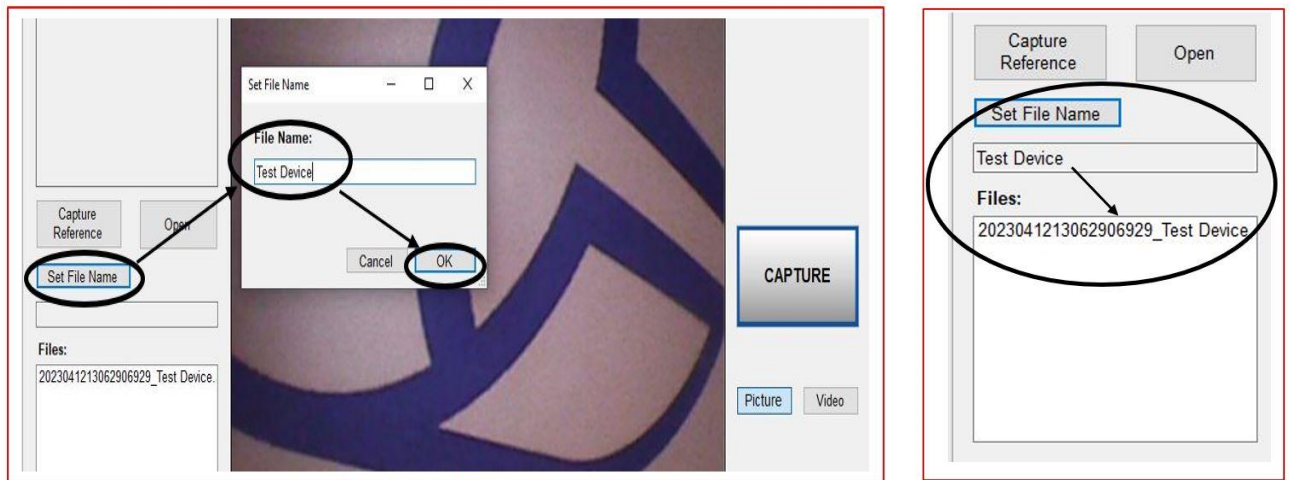
2. Use any of the following options to start and stop the video:
 - a. Click the 'Capture' Button on the Clarus Medical Scope Viewer Software (FIGURE above).
 - b. Press the space bar on your computer keyboard.
3. When the video is recording, "Recording" in red text will appear toward the bottom of the software window.
4. To stop recording, use any method as described in Step 2 above for starting the video.
 Note: The Image Capture Button will now read 'Stop Video' while recording.



Setting File Name

Following the steps below allows you to create a file name that will appear after the underscore when capturing images using the Clarus Medical Scope Viewer Software.

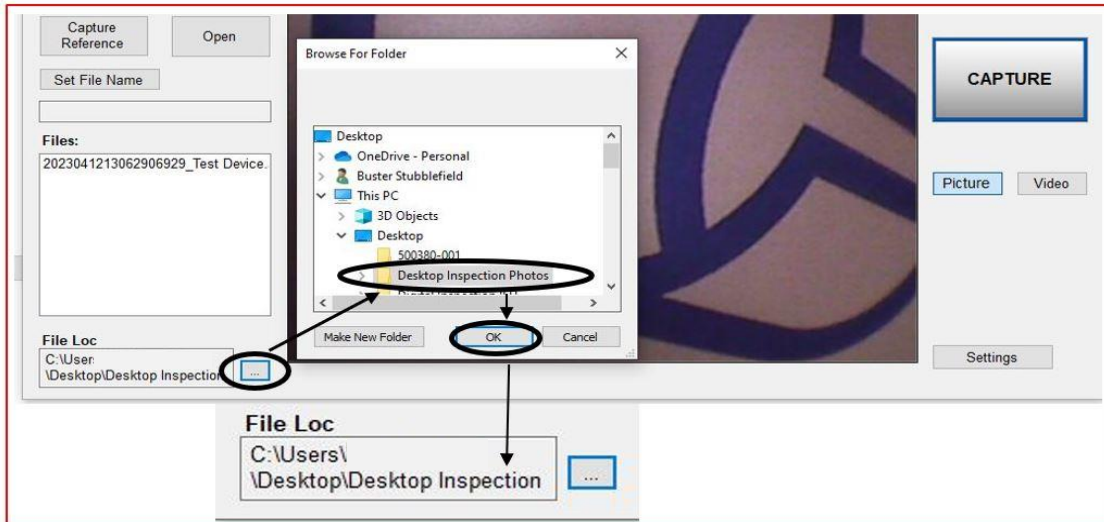
1. Click 'Set File Name' Button.
2. Enter the characters that you would like to be included in file name.
3. Click the 'OK' Button to set as default name.



Setting Location for Saved Files

Following the steps below allows you to set the file location of saved images using the Clarus Medical Scope Viewer Software.

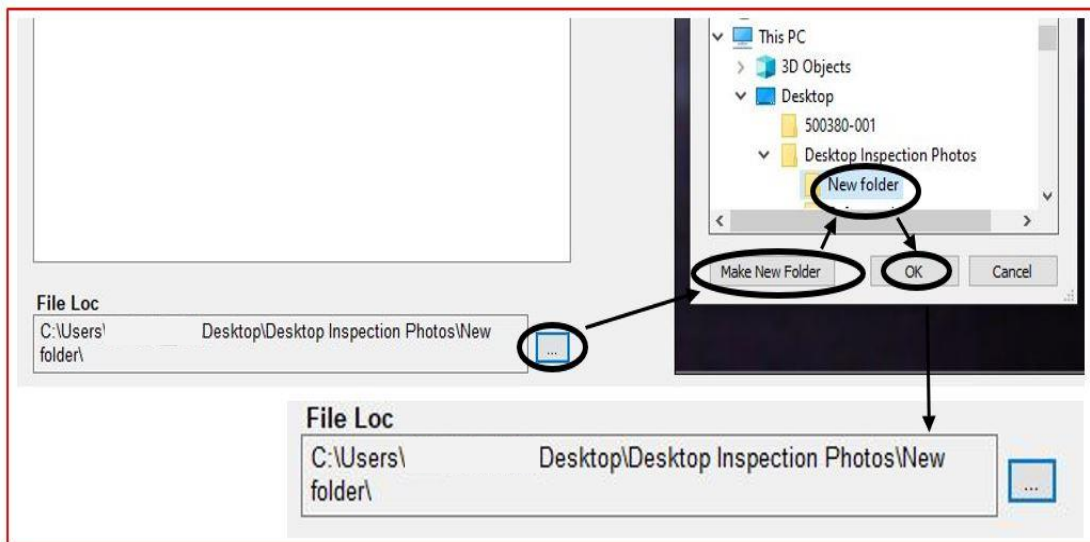
1. Click the Ellipse Button
2. Select the file location where you would like to save captured images.
3. Click 'OK' to set the File Loc for saved files.



Creating New Folder Location for Saved Files

Following the steps below allows you create a new file location for saved images using the Clarus Medical Scope Viewer Software.

1. Click the Ellipse Button
2. Click the 'Make New Folder' Button.
3. Create a name for the new folder.
4. Click the 'OK' Button to create the new file in File Loc.



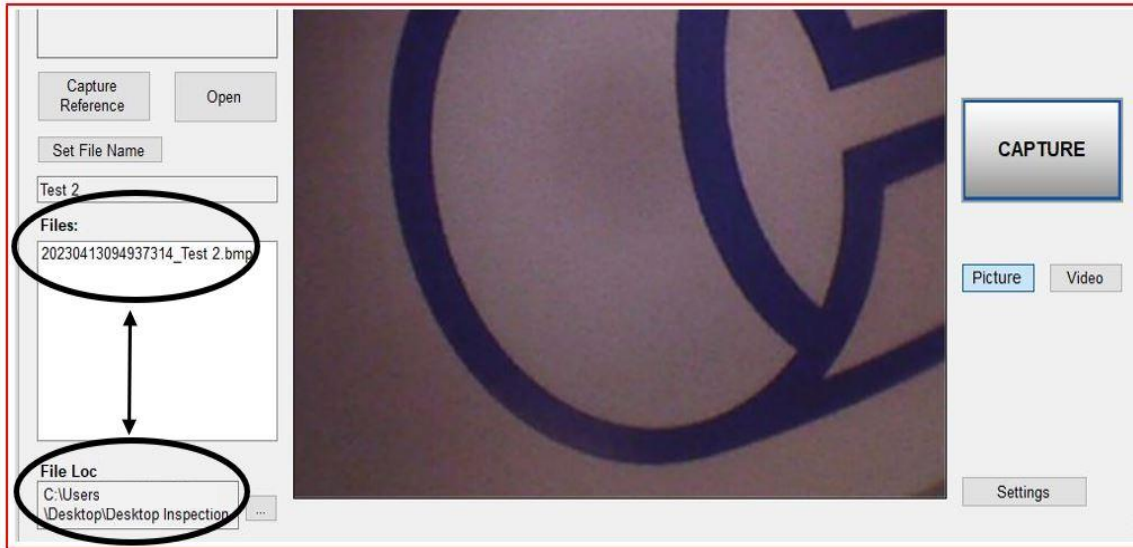
Renaming Saved Files

1. Right Click on file name within Clarus Viewing Software and select "Rename"

Deleting Saved Files

The Files Window in the Clarus Medical Scope Viewer displays image files that are being stored in the File Loc. To delete files, either:

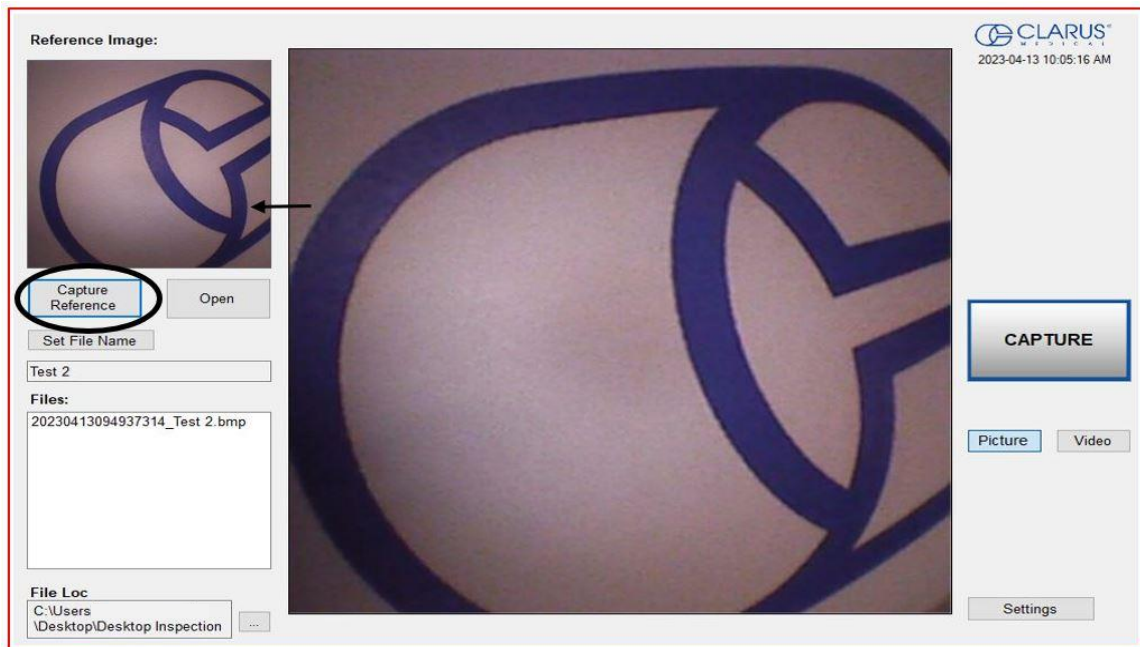
1. Right Click on file name within Clarus Viewing Software and select "Delete"
2. Navigate to the location (shown in the File Loc) on your computer, outside of the Clarus Medical Scope Viewer software.



Displaying Reference Image

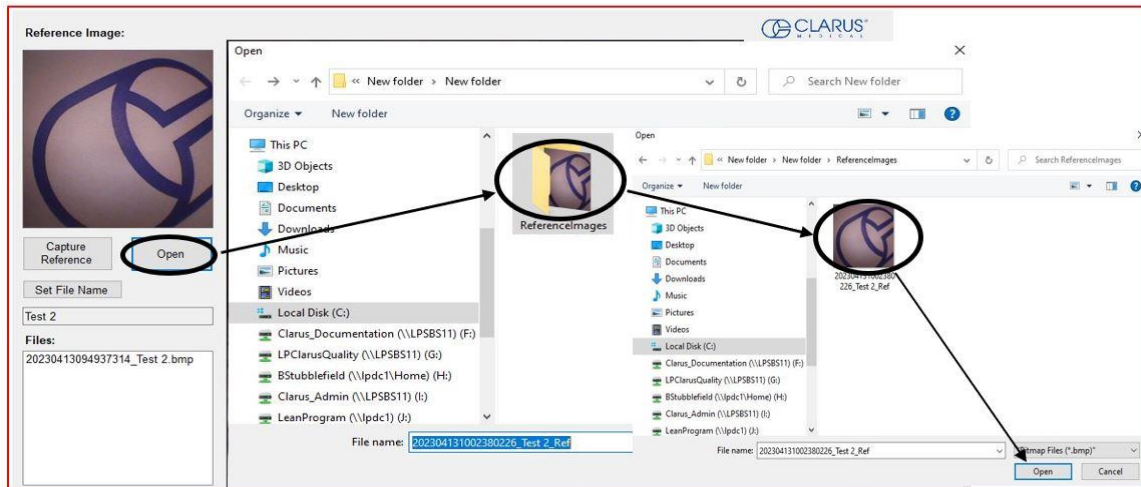
There are two ways to display a still image in the Reference Image Window on the Clarus Medical Scope Viewer Software.

- To display an image currently being displayed in the Main Image Window, click 'Capture Reference Image' Button. NOTE: The images will be saved in a file folder titled "Reference Images" in the designated File Loc.



- To display a saved image in the Reference Image Window from your File Loc:
 - Click the 'Open' Button





- b. Click on the Reference Images Folder.
- c. Select the file that you would like to display.
- d. Click the 'Open' Button, to display the image in the Reference Image Window.



Performing Inspection

Following the steps listed below will ensure the proper use and best performance of the Clarus Inspection Borescope. Follow these steps prior to inspection.

1. Secure the Digital Inspection Scope into an arm fixture (optional).
2. Grasp the Clarus Inspection Borescope near its distal end and gently insert the Flexible Working Length into the intended device as shown in.
3. Adjust light with the Illumination button for ideal lighting.
4. Use short advancements while keeping your fingers close to the device's opening. View the monitor while inserting into the device. If an obstruction hinders the path of the Clarus Inspection Borescope, gently attempt to manipulate, or rotate it to avoid the obstacle.

<i>Inserting Borescope in Device</i>	<i>Rotating Device to Avoid Obstacle</i>
	
	<p>WARNING: The minimum bend radius of the Clarus Digital Inspection Scope is 0.50" (12.7 mm). Do not bend the Clarus Inspection Borescope into a sharper bend or damage could occur.</p>
	<p>WARNING: Do not apply excessive force to the Clarus Inspection Borescope. If you feel resistance, or an obstruction hinders the path of the Clarus Inspection Borescope, gently attempt to manipulate, or rotate the device to avoid the obstacle. You may also slowly withdraw a short distance and try advancing again. Applying excessive force to the Clarus Inspection Borescope past an obstacle could result in damage to the device.</p>

Once the device has reached the end of the area you are inspecting, retract the scope slowly while looking for debris or damage.







Verifying Operation

Following the steps listed below will ensure the proper use and performance of the Clarus Inspection Borescope. The Clarus Inspection Borescope can be checked for normal operation by connecting it as described in the Startup section of this manual.

Normal operation includes:

- An image appearing on your computer monitor or HDMI Monitor.
- A blinking light on Control Module near the 'Power Cycle" button indicates the image feed is transmitting.
- White light will emit from the distal end of the Inspection Borescope.
- An LED light on the Control Module front panel will indicate the light intensity setting of the device.

Compatible Cleaning, Disinfecting and Sterilization Methods

	WARNING: The Clarus Digital Inspection Scope system is provided non-sterile. Before initial use and after each use, the external surfaces of the Inspection Borescope should be cleaned.
	WARNING: The Control Modules provided for the Clarus Digital Inspection Scope system are not waterproof. The Control Modules are to be wiped only. Do not soak or submerge the Control Modules.
	WARNING: Cleaning does not disinfect or sterilize the Clarus Inspection Borescope. Be sure to follow your institution's specific cleaning and disinfecting or sterilizing procedures in consultation with this manual. The user is responsible to ensure that their procedures result in disinfection or sterilization, whichever is required.
	WARNING: Do not clean, disinfect, or sterilize the Clarus Digital Inspection Scope system or its accessories using an ultrasonic cleaner, washer sanitizer, washer pasteurizer, washer sterilizer, steam autoclave, or any method with a processing temperature above 60°C (140°F). Use of these processes will result in damage to the instrument and void its warranty.
	WARNING: Follow the disinfectant manufacturer's instructions for disinfecting.
	WARNING: High level disinfecting does not result in terminal sterilization. Bacterial endospores may still remain viable after high level disinfecting.

Cleaning

The **Inspection Borescope** has fluid ingress protection rating of IPX7 (Waterproof) and can withstand immersion in fluid up to 1 meter in depth for up to 30 minutes.

The Clarus Inspection Borescope is made of the same material as other common endoscopes. Any wipe, solution or low-temperature ($\leq 60^{\circ}\text{C}$ (140°F)) method intended for the reprocessing of endoscopes is likely compatible with the Clarus Inspection Borescopes if used according to the product labeling. See below chart for details.

The Clarus Inspection Borescope is manufactured with materials known to be compatible with the STERRAD[®] Systems listed below in the table.

The **Control Module** has a fluid ingress protection rating of:

- **USB: IPX5** (Water resistant) and can withstand a sustained, low pressure water jet spray for up to three minutes.
- **HDMI: IPX4** (Water resistant) can withstand splashing water from any direction. See below chart for details.

The Control Module and cables are not waterproof and should not be immersed. It may be cleaned with wipes containing solutions in the table below. Do not soak the Control Modules or cable accessories.

Compatible agents to clean, disinfect or sterilize the are listed in the below charts. Follow the cleaning agent manufacturer's Instructions for Use.

Wipes and Solutions Containing (Inspection Borescope AND Control Module):	
Hydrogen Peroxide	Isopropyl Alcohol (IPA)
Sodium Hypochlorite (bleach)	Ortho-Phenylphenol
Quaternary Ammonium	


Low Temperature Sterilization Systems (Inspection Borescope ONLY):	
Ethylene Oxide (EtO)	
STERIS [®] Liquid Chemical Sterilization Systems	STERIS V-PRO [®] Low Temperature Sterilization Systems (Non-Lumen Cycle)

Solutions Containing (Inspection Borescope ONLY):	
Alcohol Ethoxylates	Neutral or Near-Neutral pH Detergents
Enzymatic Cleaning Solutions	Enzymatic Detergents
Glutaraldehyde	Hydrogen Peroxide (7.35%) with Peracetic Acid (0.23%)
Accelerated Hydrogen Peroxide (AHP)	Ortho-phthalaldehyde (OPA)
Peracetic Acid	Sodium Borate, Decahydrate
Sodium Xylene Sulfonate	Tetrapotassium Pyrophosphate
Trisodium Nitrilotriacetate	

Manual Cleaning

- Follow the cleaning agent manufacturer's Instructions for Use and precautions regarding health hazards, dispensing, measuring and storage of cleaning agents.

Cleaning Between Uses

<ul style="list-style-type: none"> Wipe down the Clarus Inspection Borescope system with a compatible wipe. Follow the wipe manufacturer's Instructions for Use. 	
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High-Level Disinfecting (Inspection Borescope ONLY)

- Select only the disinfecting solutions listed in the compatible disinfecting methods section.
- Follow all recommendations regarding health hazards, dispensing, measuring and storage from the manufacturer of the cleaning and disinfecting agents.
- Soak the Clarus Inspection Borescope in the selected disinfecting solution per the solution manufacturer's Instructions for Use
- Rinse the Clarus Inspection Borescope with critical (sterile) water, again, following the instructions of the disinfecting solutions manufacturer.
- Dry with a sterile, soft, lint-free cloth or sponge. Ensure that the distal tip and proximal end are dried. Air drying could leave deposits on the optical surfaces which could result in a degraded image.

Preparation for Returning Device to Clarus Medical

If the Clarus Inspection Borescope is not working properly and needs to be sent for service, please follow the below instructions:

- Obtain an RMA # (Return Material Authorization) and shipping instructions from Clarus Medical
- Clean the system and its accessories using the recommended cleaning methods
- Disinfect the system and its accessories
- Pack the Clarus Inspection Borescope system and its accessories in the original box and packaging
- Ship to Clarus Medical per the instructions with the RMA
- Contact Customer Service if you have questions or concerns. They can be reached at: (763) 525-8450 or inspection@clarus-medical.com

Complete the previously described INSTRUCTIONS FOR CLEANING section of this manual before proceeding with sterilizing.

Disposal of Waste Products

The Clarus Digital Inspection Scope System does not produce any waste materials. At the end of the device's life, the Clarus Digital Inspection Scope System components may be disposed of with standard electrical products. Follow local regulations for proper disposal of electrical products.

Troubleshooting and Servicing

Condition	Appearance	Cause	Correction
No image	Main Image Window is black.	The Inspection Borescope System was not connected to computer when the software was opened.	Unplug USB Connection on Camera Cable and plug in again.
No image	Main Image Window is black.	<ul style="list-style-type: none"> • USB Video Device not selected, or without the borescope connected. • Check HDMI Monitor "Input" Selection 	If no image, go to the 'Settings' Tab and select USB Video Device.
No light	No light when borescope pointed at surface.	No power to light source or power connections are not secure.	<ul style="list-style-type: none"> • Check the Camera Cable connections and make sure the computer is powered on. • HDMI-Make sure System Power Button is "ON"
Low light	No image or very dark image. Weak light pattern when borescope pointed at surface.	Light setting too low.	Cycle through light intensity levels/settings until a clear image is obtained
Low light	No image or very dark image. Weak or light pattern when borescope pointed at surface.	Broken light fibers in borescope.	Replace Inspection Borescope (The user must judge when the Inspection Borescope is no longer adequate for use, but as a guide, when 10% of the image or illumination has been degraded or lost it is recommended that a replacement be acquired).
No image or distorted image	No image or heavily distorted, cracked appearance.	Broken image sensor and/or internal cables.	<ul style="list-style-type: none"> • Press Power Cycle button • Replace Clarus Inspection Borescope. *
Overly bright image	White-out type reflection.	Light Intensity is too bright.	Cycle through light intensity levels/settings until a clear image is obtained
Blurry image or overly bright image	Distorted image. Light often reflective and image appears brightly colored.	Debris or film on lens.	Wipe off end of Clarus Inspection Borescope with soft cloth.
Image does not capture	When you click the Capture Button, the still image or video is not captured.	The File Loc path may have changed, or the folder name does not exist.	Set up a new Windows File Loc folder.

Warranty

The Clarus Digital Inspection Scope System is warranted, when new, to be free of defects in material and workmanship and to perform in accordance with the manufacturer's specifications when subject to normal use service for a period of 1 year from the date of purchase. Clarus Medical, LLC, at its option, will either repair or replace any components found to be defective or at variance from manufacturer's specifications within this time at no cost to the purchaser. It shall be the purchaser's responsibility to return the device directly to Clarus Medical, LLC after receiving a Returned Material Authorization Number from Clarus Medical, LLC's Customer Service Department. Prior to returning the device, it shall be the purchaser's responsibility to clean and disinfect the device and to package it in a manner that minimizes the possibility of shipping damage.

EXCEPT TO THE EXTENT PROVIDED ABOVE, CLARUS MEDICAL, LLC MAKES NO REPRESENTATION OR WARRANTY TO THE PURCHASER OR TO ANY THIRD PARTY, WHETHER WRITTEN, ORAL, STATUTORY, EXPRESS OR IMPLIED, CONCERNING THE DEVICE, INCLUDING BUT NOT LIMITED TO ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL CLARUS MEDICAL, LLC BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, WHETHER FOR BREACH OF ANY WARRANTY, FOR BREACH OR REPUDIATION OF ANY OTHER TERM OR CONDITION OF SALE, OR FOR LIABILITY ON THE BASIS OF NEGLIGENCE, STRICT LIABILITY OR OTHERWISE, EVEN IF CLARUS MEDICAL, LLC SHALL HAVE BEEN ADVISED IN ADVANCE OF THE LIKELIHOOD THEREOF.

REPAIR OR REPLACEMENT OF THE DEVICE AS PROVIDED ABOVE SHALL BE THE SOLE AND EXCLUSIVE REMEDY FOR ANY BREACH OF THE WARRANTY GIVEN ABOVE.

Specifications

Power Source Requirements

- **USB** Control Module: Electrical Power for the Digital Inspection Scope System is supplied by a USB port on a computer.
- **HDMI** Control Module: Medical grade power supply
 - INPUT 100-240VAC, ~1A, 47-63Hz (from wall outlet)
 - OUTPUT 5V DC, 2A (to enclosure)

Illumination Source

LED within the Inspection Control Module Physical Properties

	Control Modules		Inspection Borescopes			
	USB	HDMI	CB2-60	CB2-110	CB2-200	CB1-110
Borescope Working Length (cm)	N/A	N/A	60cm	110cm	200cm	110cm
Borescope Overall Length	N/A	N/A	78cm	128cm	218cm	128cm
Borescope Diameter (at Distal Camera)	N/A	N/A	1.83mm	1.83mm	1.83mm	1.06mm
Control Module Dimensions (LxWxH)	133 x 99 x 47 mm	133 x 99 x 47 mm	N/A	N/A	N/A	N/A
Control Module Weight	544 g	544 g	N/A	N/A	N/A	N/A

Optical

Field of View	120° in air
Angle of View	0°
Resolution	160,000 Pixel or 400 Pixel x 400 Pixel format

Connectors and Cables

USB Control Module: USB Type A Male Connector

HDMI Control Module: HDMI Camera Cable: HDMI type A male to HDMI type A Male

Environmental Conditions

Storage and transport
 Humidity: 10 to 100% (condensing)
 Temperature: -20°C to +60°C
 Pressure: 600 hPA to 900 hPA

Normal Operation
 Humidity: 0-100% (condensing)
 Temperature: +5°C to +40°C

Waterproof Rating / Ingress Protection Rating

- **CD-USB:** IPX5 (Water Resistant)
- **CD-HDMI:** IPX4 (Water Resistant)
- **Borescope (ALL CB):** IPX7 (Waterproof)

Manufacturer

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