



RC500 SYSTEM USER MANUAL



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Introduction



Read the entire User Manual before attempting to operate this device.

Glossary and Abbreviations

Term	Definition
LCD	Liquid Crystal Display
LS	Abbreviation for left hand wheel on microscope.
RS	Abbreviation for right hand wheel on microscope.
Speed Gear	Setting that determines how much the stage will move on the Z Axis when hand wheel is turned.
Z Axis	The focus axis along which the specimen moves closer to or farther away from the objective.

Safety

This section provides safety guidelines and safety-related statements to operate the RC500 System safely and effectively. Additional guidelines, statements, and protocols appear throughout this manual. Follow all printed guidelines, warnings, cautionary statements, and protocols when using the RC500 System.

Conventions Used in this Manual

Various Warnings, Recommendations and Notes are presented throughout this manual. Explanations and the corresponding symbols are:



Warning: Specific or potential danger. If ignored or compromised, the situation could result in serious injury. Warning statements are preceded with a yellow symbol.

Recommendation: Offers guidance for the optimal application and usage of the device.

Note: Describes the conditions or exceptions that may apply to the subject matter presented.

General Safety Guidelines

Each person using the RC500 System must review instructions for use prior to operating the system.

General Safety Notes:

1. Keep the instrument out of direct sunlight, high temperature or humidity, and dusty environments. Ensure the microscope is located on a smooth, level and firm surface.
2. If any specimen solutions or other liquids splash onto the stage, objective or any other component, disconnect the power cord immediately and wipe up the spillage. Otherwise, the instrument may be damaged.
3. All electrical connectors (power cord) should be inserted into an electrical surge suppressor to prevent damage due to voltage fluctuations.
4. Confirm that the input voltage indicated on your microscope corresponds to your line voltage. The use of a different input voltage other than indicated will cause severe damage to the microscope.

Device Description

The RC500 System is a fully motorized microscope that enables remote examination of samples by a trained professional.

Warnings

- Do not move the RC500 System. If you need to relocate the RC500 System, please contact ACCU-SCOPE for guidance.



- If there are issues or your system is not functioning as intended, please call ACCU-SCOPE immediately for further instructions.

System Set Up

Location

Prior to installation, a location must be identified that meets the below requirements. The minimum dimensional requirements for the RC500 are as follows: 36" Wide x 23" Depth x 27" Height.

RC500 Location Requirements

- The RC500 System must be kept out of direct sunlight, high temperature or humidity, and dusty environments.
- The RC500 System must be installed on a smooth, level, and firm surface. The system cannot be installed on moving carts or shelving that is rated to hold less than 100 pounds.
- The RC500 System must not be located under an air vent or placed near sources of vibration (e.g., centrifuges).

Initial Set-up

Your distributor is responsible for setting up the RC500 equipment in a designated area that has undergone the pre-approval process for installation. Included with the set-up of the system is basic equipment orientation, standard training for use of the equipment and RC500 services. This manual will provide supplementary guidance.

Precautions

- Do not attempt to disassemble any component including eyepieces, objectives or focusing assembly unless directed to do so by ACCU-SCOPE.
- Do not attempt to move the RC500 System from the original location of installation.
- If the equipment is not functioning as intended or relocation assistance is needed, please contact Customer Care.

RC500 System Diagrams

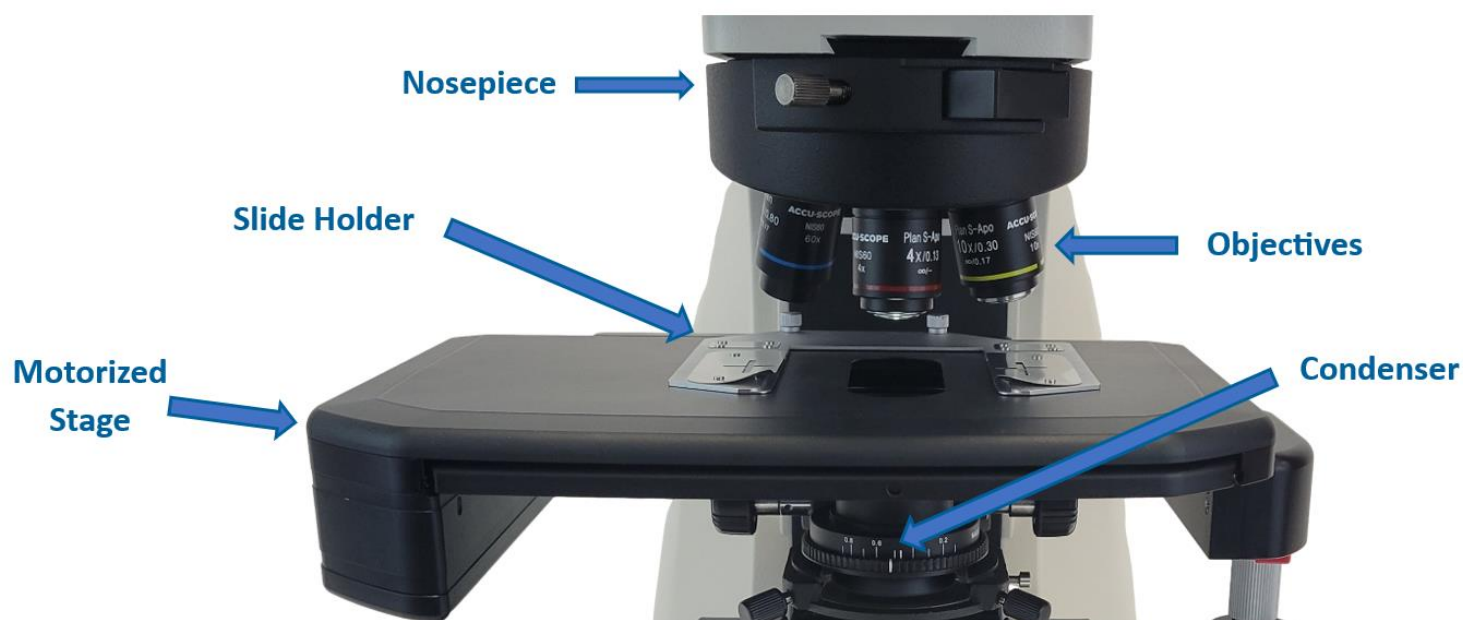
The following section describes the anatomy of the of the RC500 Remote Collaboration System (also referred to as the RC500 System) and how each component functions.

RC500 System Upper-Body Components (Front)



- **Camera:** This camera takes the images seen on the RC500 Software and provides live feed of the image for evaluation of slides.
- **Camera Mount:** Adapter that attaches the camera to the RC500 body.
- **Eyepiece:** Allows user to view image without needing to connect to the RC500 Computer.

RC500 System Mid-Body Components (Front)



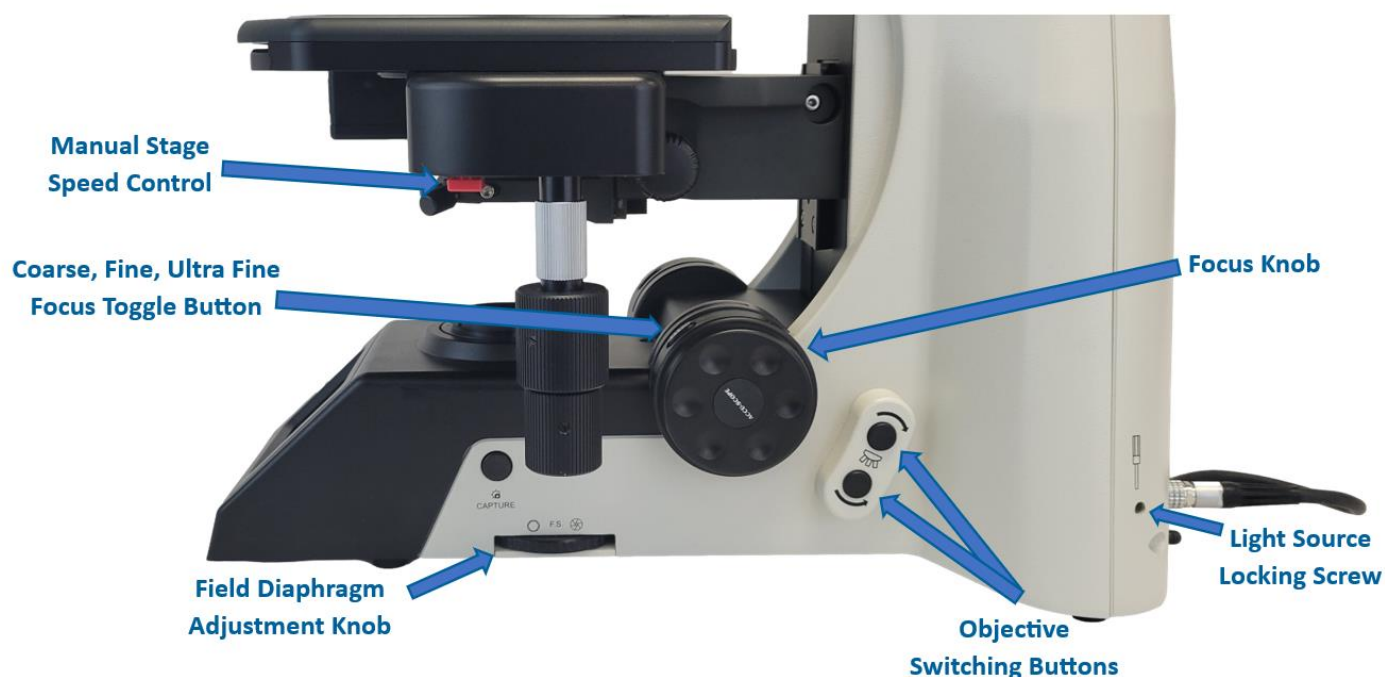
- **Nosepiece:** Enables user to switch objectives.
- **Objectives:** Provides magnification of 4x, 10x, 20x, 40x, and 60x or others as equipped.
- **Slide Holder:** Allows user to mount up to two standard sized slides at one time.
- **Condenser:** Lens that focuses light on slides being viewed.
- **Motorized Stage:** Allows user to move slide position on the x/y axis via remote control and manual adjustment.

RC500 System Lower-Body Components (Front)



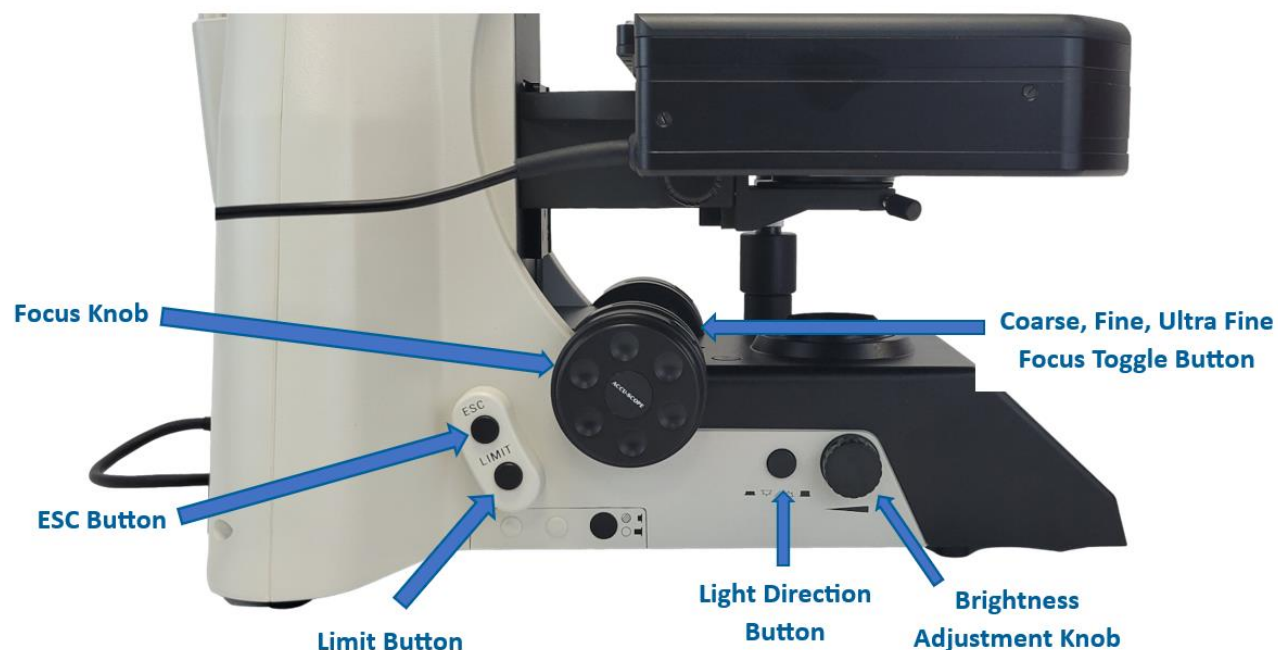
- **Condenser Height Knobs:** Allows user to adjust height of condenser relative to the slide stage.
- **Condenser Aperture Diaphragm Adjustment:** Allows user to change intensity of light focus.
- **Y-stage Movement Knob:** Moves stage forward/backward.
- **X-stage Movement Knob:** Moves stage side to side (Left/Right).
- **LCD Screen:** Displays RC500 Settings. Must be used to change objectives when used as a stand-alone microscope. **Never attempt to move the objectives by hand when the microscope is powered on.**

RC500 System Lower-Body Components (Right Side)



- **Manual Stage Speed Control:** Switches between fast and slow manual travel speeds.
- **Focusing Knob:** Page 13. Allows user to move stage up/down along Z axis to focus the image on the sample.
- **Coarse, Fine, Ultra Fine Focus Toggle Button:** Controls sensitivity of Z-axis
- **Capture Button:** Not used in RC500 Applications.
- **Objective Switching Buttons:**
 - **Top:** Nosepiece moves clockwise.
 - **Bottom:** Nosepiece moves counterclockwise.
- **Field Diaphragm Adjustment Knob:** Enables users to adjust the amount of light entering the condenser.

RC500 System Lower-Body (Left Side)



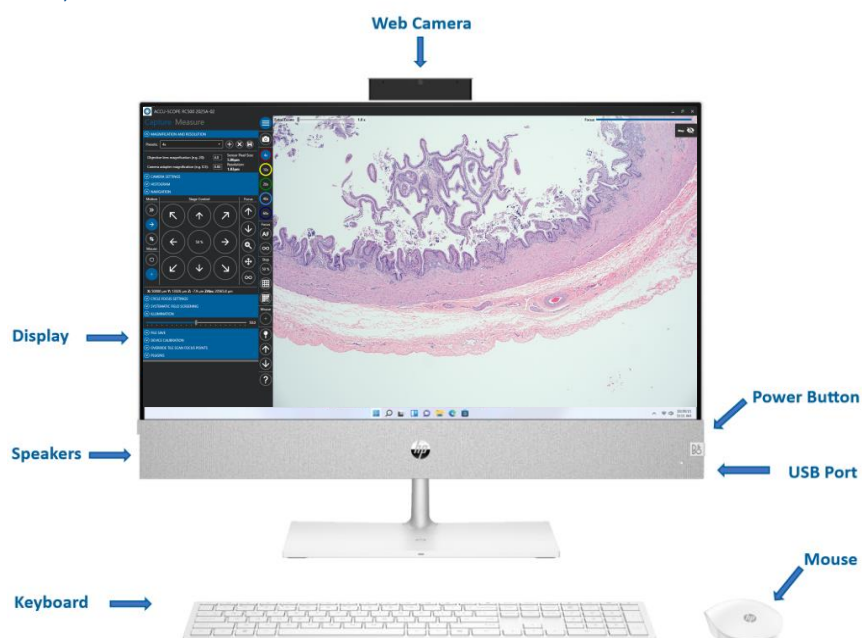
- **ESC Button:** Allows user to toggle between current Z-axis position of the objective and its highest position from the slide. Useful when changing slides or adding oil for an oil immersion objective (if equipped).
- **Limit Button:** Not Enabled
- **Light Direction Button:** Allows user to toggle between Transmitted Light and Reflected Light (Not enabled on the RC500) for changing light intensity.
- **Brightness Adjustment Knob:** Allows user to adjust illumination.

RC500 System (Back)



- **Computer Connector:** Connects the RC500 System to the computer.
- **Illumination Lamphouse Connector:** Connects the light source to the RC500 main body.
- **Light Source:** Generates light for slide illumination.
- **3mm Hex Wrench:** Used for tightening connections on the RC500 System.
- **Power Switch:** Turns RC500 microscope on/off.
- **Power Connector:** Connects the RC500 microscope to the power source.

RC500 Workstation (Front)



The RC500 computer (optional*) is an all-in-one computer that can be controlled either by a mouse/keyboard combination or through touch screen navigation.

The front/side of the computer includes:

- 24" Display
- Web Camera
- Power Button
- USB Port
- Speakers

***Specifications are subject to change. Integration fees may apply to use the RC500 with an existing computer system. A Computer is required for RC500 software operation.**

RC500 Workstation (Back)

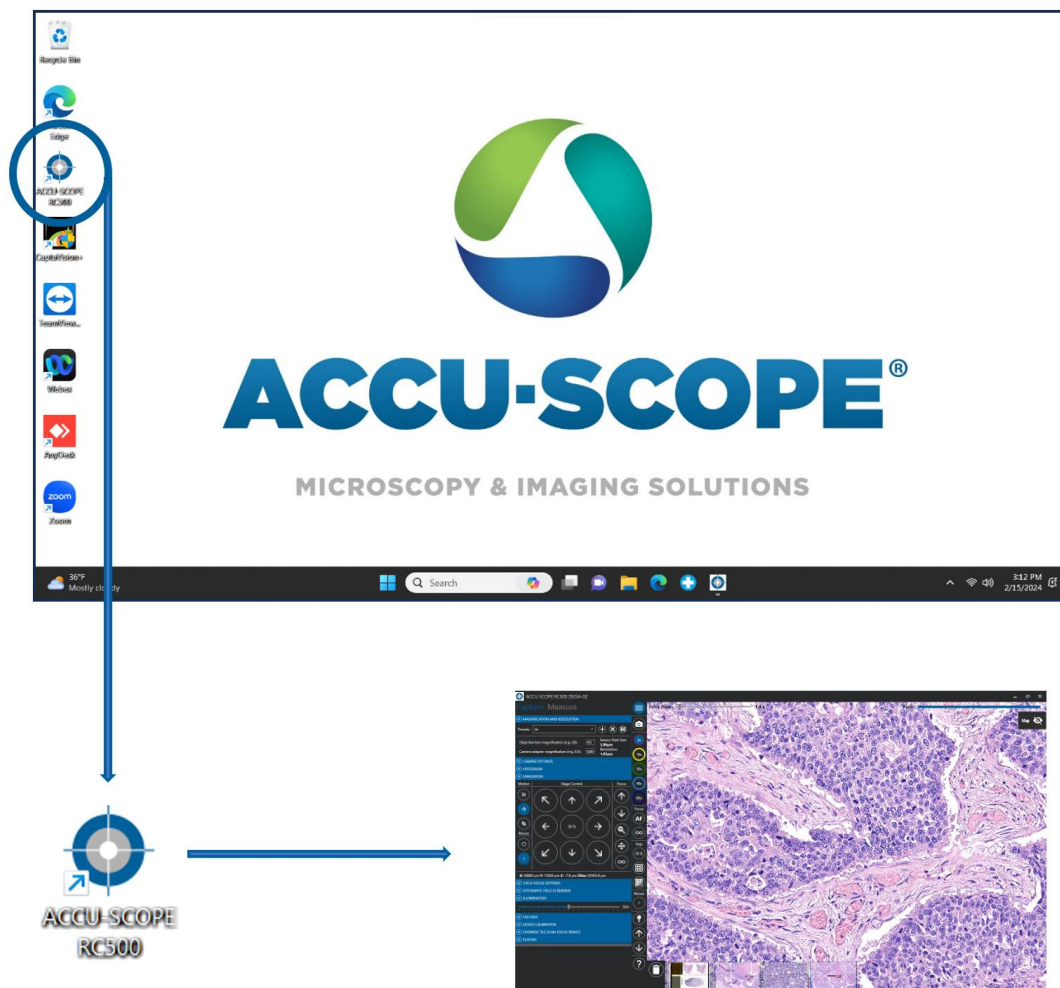


Connections in order from left to right

- HDMI Port (In)
- HDMI Port (Out)
- Ethernet Port
- Power Connector
- 2- Type A USB Ports (Stage and Microscope)
- 1- Type A USB SS-Port (Super Speed Reserved for Camera)
- Type C USB SS-Port

Monitor display controls are located above the power button.

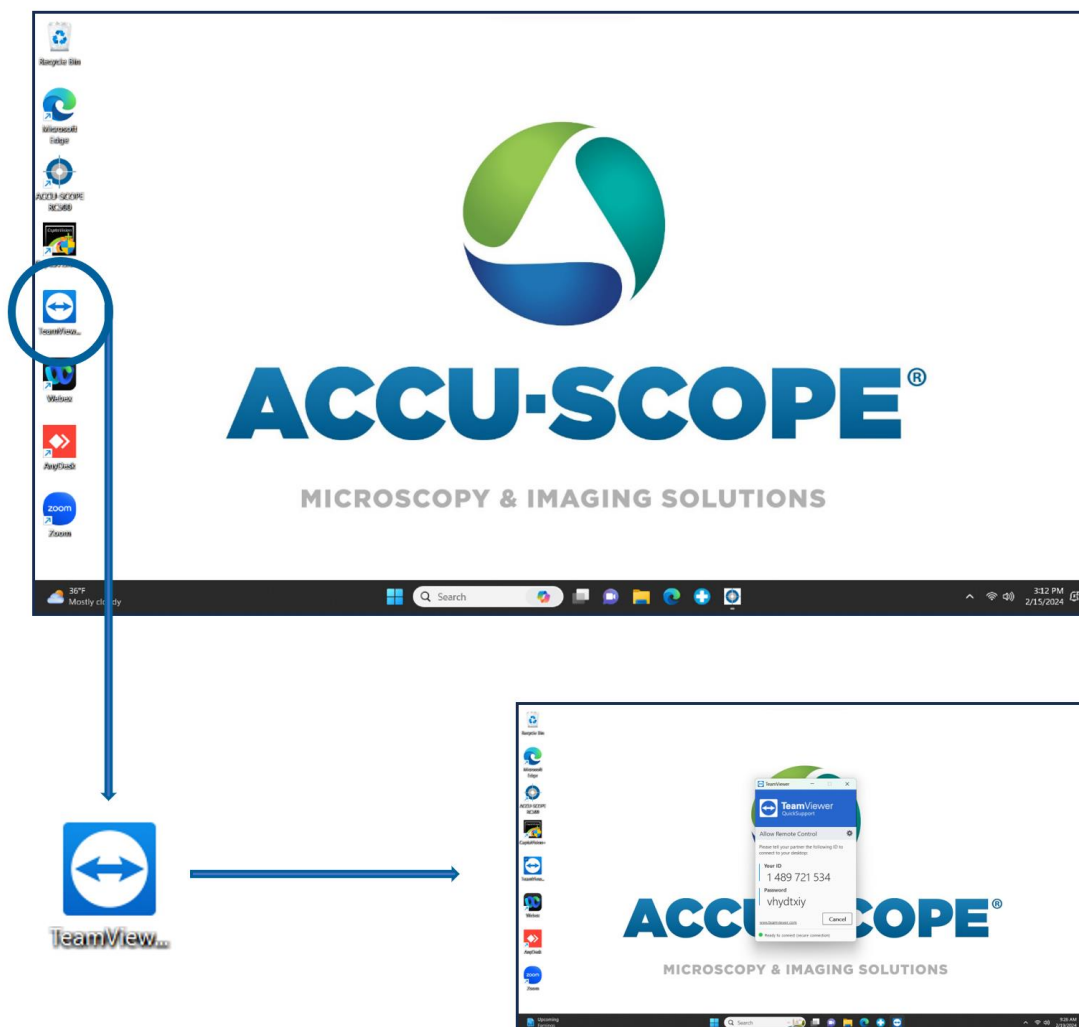
RC500 Software



The RC500 Software enables the user to:

- View and capture live images from the RC500 System
- Control the motorized components of the RC500 System including:
- Objectives, Slide Position, Focus, and Illumination
- Save images to local computer files and/or upload files to a shared drive.

RC500 Remote Access Software



RC500 Remote Access Software: The RC500 System can be accessed by a remote user utilizing a Remote Access Software such as TeamViewer. Other remote access software may be used.

This software enables the remote expert to:

- View and control the RC500 System via the RC500 software
- Provide real-time feedback or messaging on the screen.
- Troubleshoot issues with the RC500 System and/or software.

To grant control to the remote user, supply them with the ID and uniquely generated password

Device Operation

The following section will cover the operation of the RC500 system components and software.

Safety Precautions



Warning: Keep liquids and/or flammable material away from the RC500 power source.



Warning: Keep hands clear from the stage and/or nosepiece area while the RC500 system performs the start-up sequence.

Power On

The steps below describe how to power on the unit.

1. Press the power switch of the main body, located on the back side of the system, to the on position.



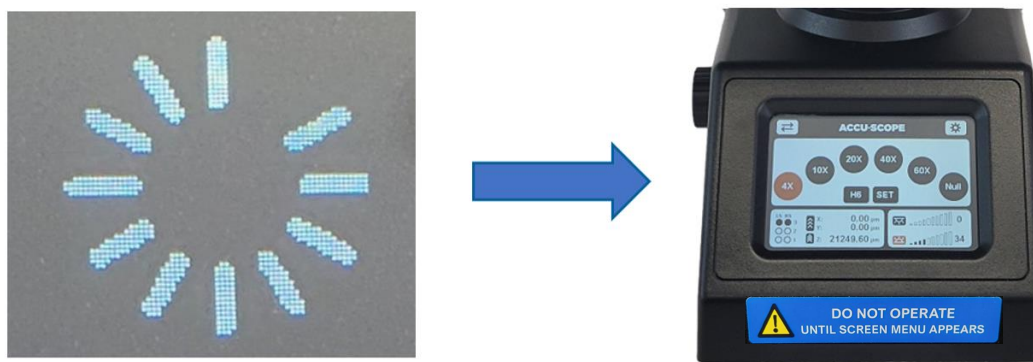
The system will go through a start-up sequence that takes approximately 30 seconds.

- Wait for screen to initialize

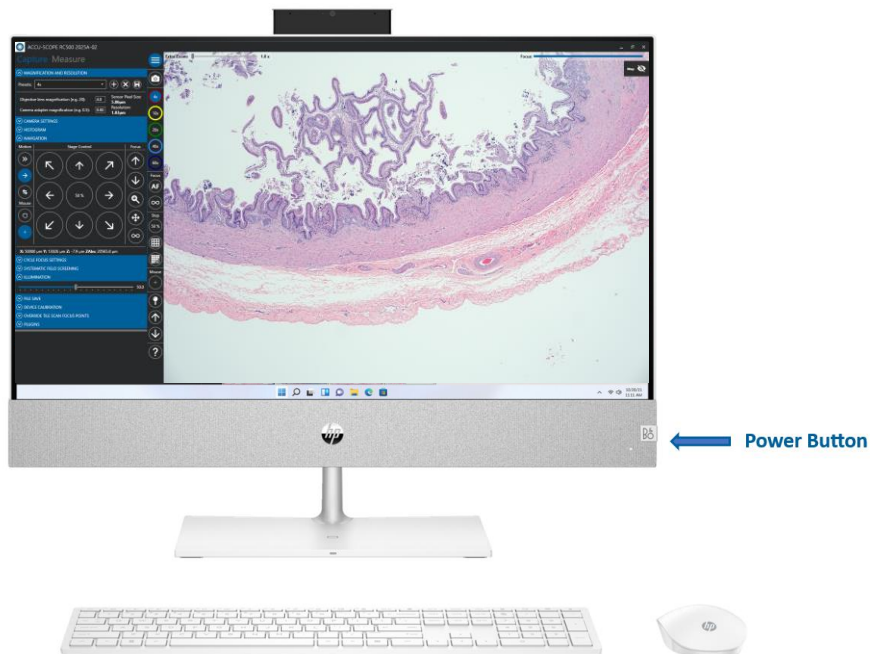
- The stage will move up and down. Do not attempt to load a slide or touch the stage during this process.



The front display will show a loading indicator, then the main screen will appear.



2. Turn on the RC500 Computer by pressing the button located on the right side of the speakers.
 - There is a switch located under the wireless mouse to turn it on. If the keyboard or mouse is ever unresponsive, replace their batteries. The keyboard cannot be turned off.



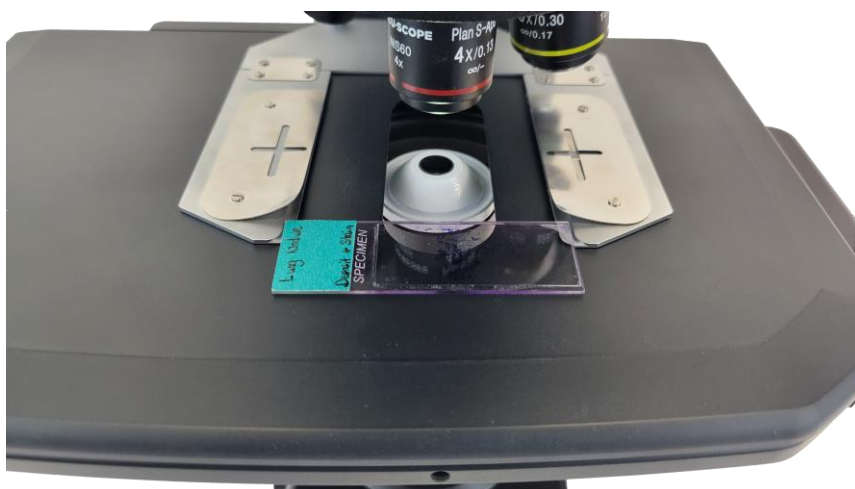
Manual Operation

The RC500 system can be used independently of the RC500 service. Below are instructions for operating the RC500 system manually.

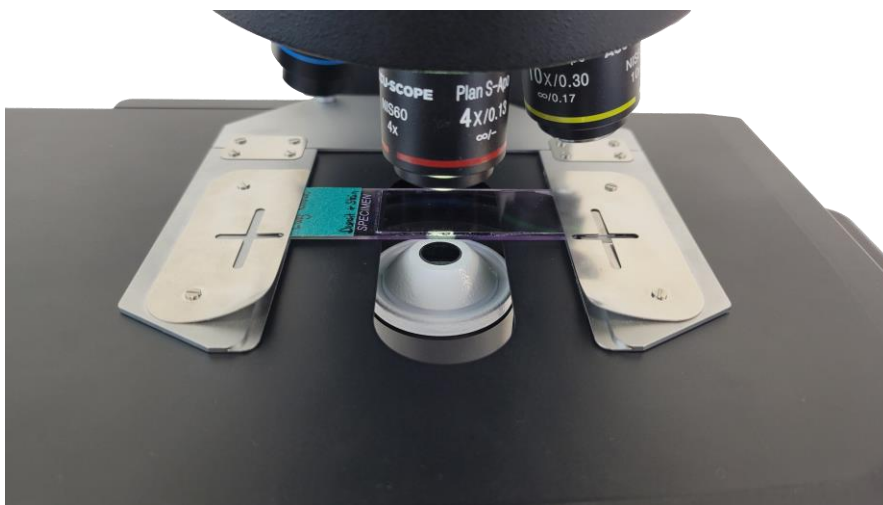
Mounting the Specimen

The steps below describe how to mount the specimen to be examined.

1. Line up the slide, specimen side up, with the opening at the front of the slide holder. There is a lip on the slide holder that the slide must be inserted onto. **Orient the label to the left.**



2. **Gently** push the slide in the holder until it is fully seated as shown.

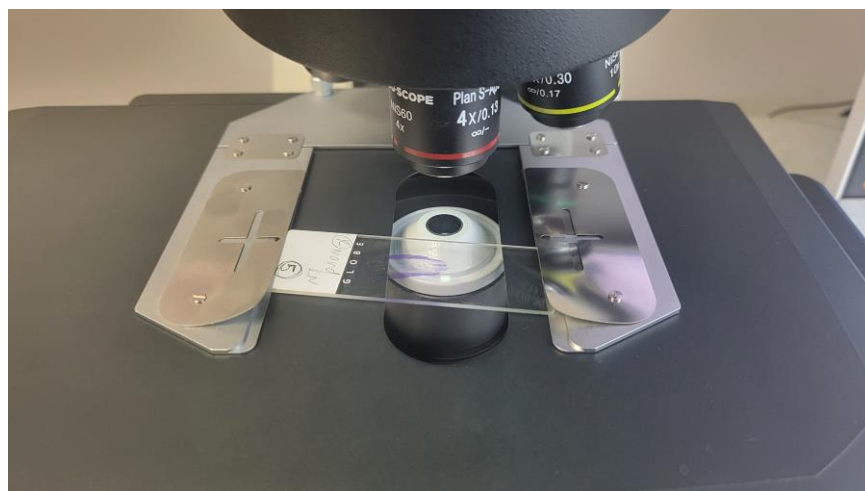


3. If examining two slides, repeat with the second slide.

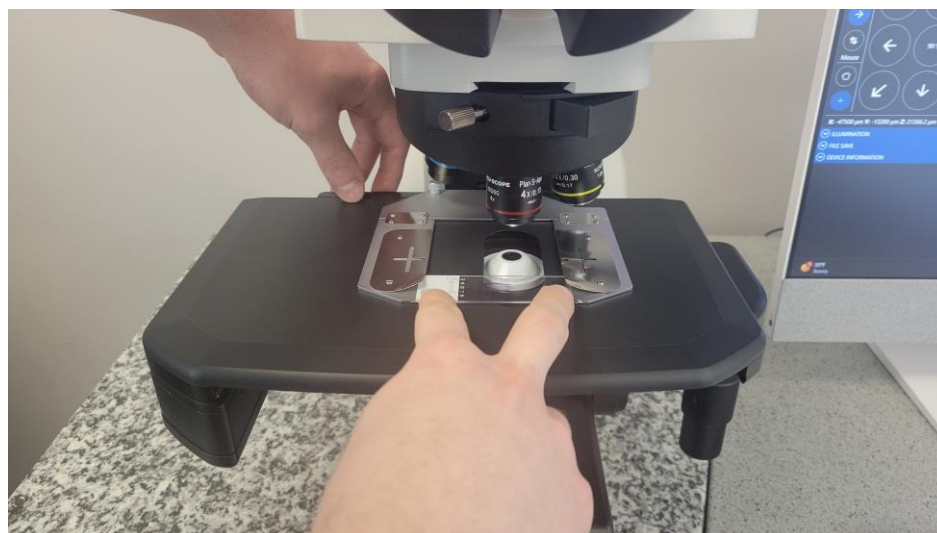
Motorized Stage

The Motorized Stage on the RC500 is a precision instrument capable of accuracy in microns. It is an actively engaged motor that should only be handled by those who are familiar with the delicacy of such instruments. Pushing against the stage or forcing it in any way can cause damage. **Do not transport the microscope with the stage powered on.** For shipping, always secure the X/Y-Axis with the supplied shipping screw.

When loading slides onto the slide holder, never force a slide that is inserted crooked. Forcing a jammed slide will push against the stage motor and add wear to the internal mechanisms. If a slide is giving resistance when inserted, remove the slide, and reinsert it straight.



Supporting the back of the stage when inserting a slide will help maintain the longevity of your stage. It is highly recommended that you always support the stage as shown below when loading slides. Load slides as shown to keep them straight.



Removing Slides

For removing slides, you can switch to the 4x or “Null” position and remove the slide evenly with both index fingers as shown below. Use your thumbs to support the stage from the front while you remove them. Once the first slide is free, you can remove it and then continue removing the second slide to prevent cross-contamination.



If you are using the software, click the Load New Sides button. The stage will move to a convenient slide loading position for easier access.

Viewing the Slide

To view the slide utilizing the eyepieces, ensure that the eyepiece diopters are both set to 0 or set to your individual prescription.



Adjusting the Focus Manually

The steps below describe how to adjust the focus of the unit manually. The focus can be adjusted by utilizing the left and/or right focus knobs.

The focus speed gear determines how much the stage will move when the focus knob is turned.

1. To adjust the speed gear, press the switch button located next to the focus knob and the gear will change on the front display.
 - 1 -> 3 (Fine -> Coarse)
 - LS= Left Focus Knob
 - RS= Right Focus Knob

Moving the Slide Stage/Slide Position Manually

The steps below describe how to move the slide stage or slide position manually.

1. To move slide forwards/backwards, use the Y-Stage Movement Knob (larger knob on the top).
2. To move slide side to side, use the X-Stage Movement Knob.



Note: The stage must be connected to a power source to be able to move both manually and through the RC500 Software.

Changing Objectives Manually

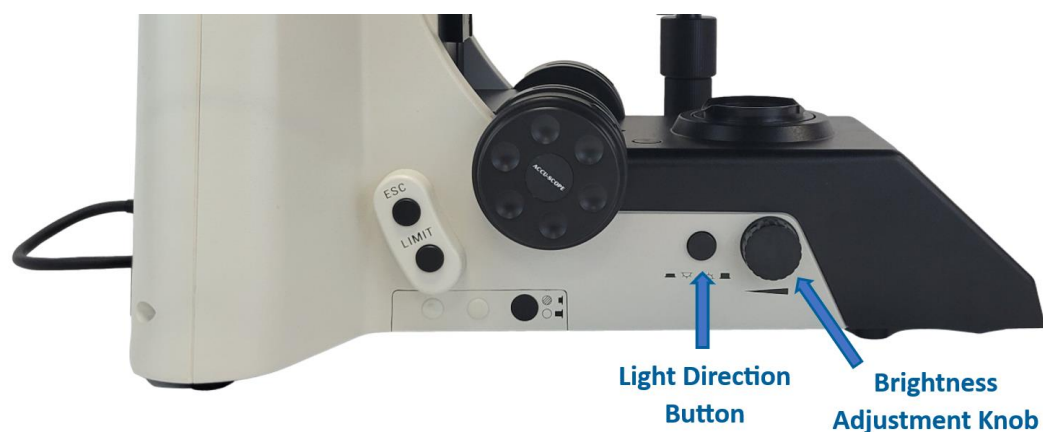
Do Not grab the objectives or nosepiece to physically rotate another objective into position. Doing so will damage the motorized nosepiece. Objectives can be changed on the RC500 System manually using the following methods:

1. Touch the desired objective on the display screen. The objective that is currently active will be illuminated orange.
2. Using the Object Switching Buttons located on the right-hand side of the system.
 - Top= Nosepiece moves clockwise.
 - Bottom= Nosepiece moves counterclockwise.



Adjusting Illumination Manually

- Confirm that the Light Direction Button should be depressed to adjust illumination intensity.



The level of illumination will be displayed on the front screen of the system. If you are having difficulty controlling the light levels, ensure the Light Direction Button is depressed for Transmitted Light. Reflected Light Illumination is not used on the RC500.



Adjusting the Condenser Aperture

The aperture has been pre-set during installation. It is adjustable using the dial on the condenser. To adjust, simply rotate the aperture to the left or right.

This adjustment will control how light is gathered to illuminate the specimen, which affects the detail seen on the microscope image.

For the optimal balance of resolution and contrast, rotate the condenser aperture to the number that is also reflected on the barrel of the objective intended for use. These numbers indicate the numerical aperture of the condenser and the objective. For example, a 10x objective has the label 10X/0.30 – set the condenser aperture to 0.3.

**Condenser Aperture
Diaphragm Adjustment**



Enabling the Focus Compensation

The Focus Compensation has been pre-set during installation and will automatically turn on when opening the software.

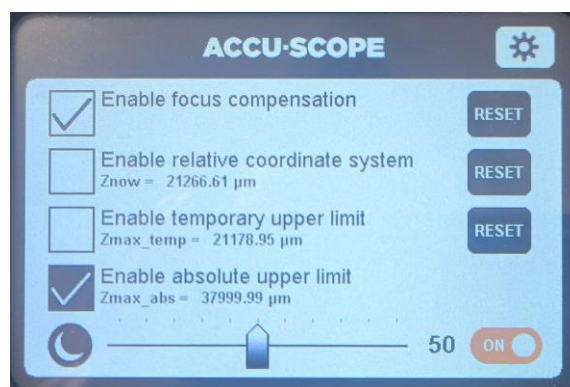
Focus Compensation sets the objective focal plane coordinate, so the microscope stays relatively in relative focus when switching between objectives. See the Set-up and Installation Guide for calibration details.

To turn on the Focus Compensation for use outside the software, follow these steps:

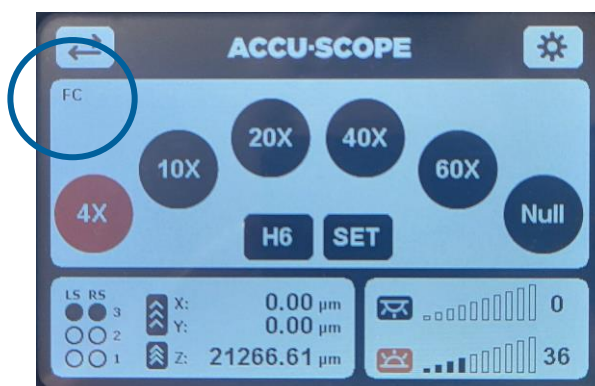
1. Press the Settings button on the front display.



2. Check box to enable focus compensation.



3. Exit settings by pressing the gear icon. You will see "FC" in the corner to indicate that focus compensation is active.

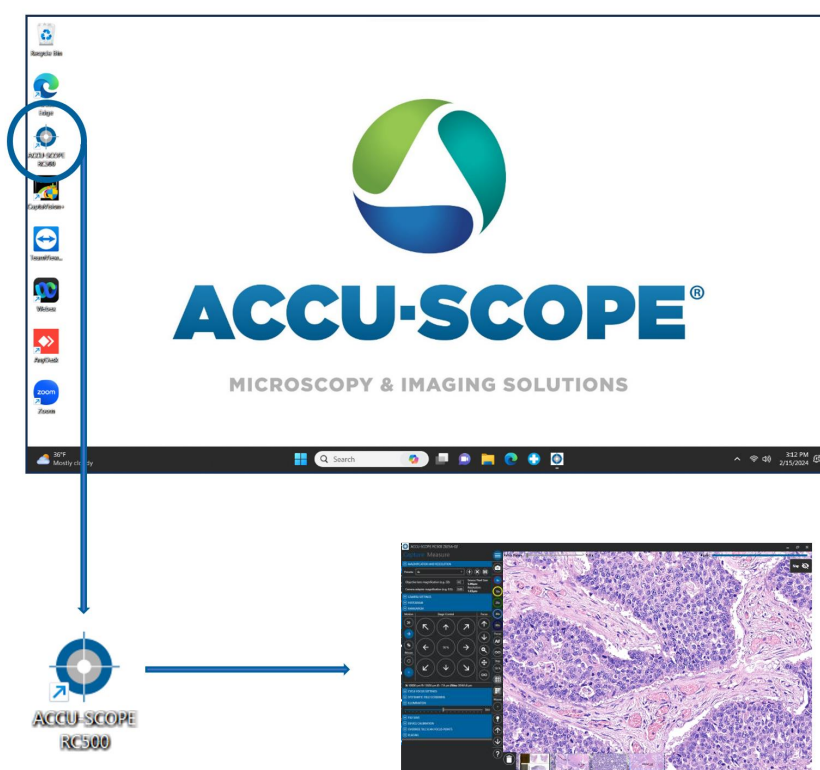


RC500 Software

This section describes how to use the RC500 Software. This software is located on the main screen of the RC500 workstation.

Note: Ensure all RC500 components are powered on and connected to the workstation prior to initiating the software. If a component is not connected and/or is not powered on, an error message will be produced upon software initiation.

To view the slide utilizing the RC500 Software, double click on the RC500 Software located on the Workstation desktop.



A loading screen will appear and then the slide image will be displayed at 4x.

Note: Upon starting up the program, the RC500 System will go through a start-up sequence and the stage will position the center of the top slide under the objective. The 4x objective will automatically be selected (if not already in position at start of program).

To expand or collapse the toolbar, click on this icon in the top left:

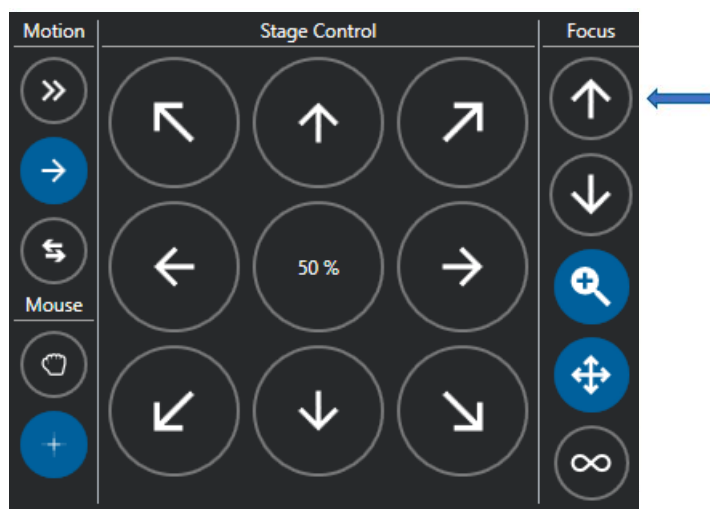


Adjusting the Focus with the RC500 Software

The steps below describe how to adjust the focus of the unit with the RC500 Software.

Adjusting the focus using the RC500 Software can be done three different ways:

- Using the focus arrows on the screen.
- Using the wheel on the mouse (forward = down, backward= up)
- Pressing "Ctrl" and the "Up" or "Down" arrow keys on the keyboard.



Note: Specimens should be focused on the screen, NOT utilizing the eyepieces as individual vision differences could cause the image to be out of focus.

The RC500 is equipped with Auto Focusing capabilities. By clicking the "AF" button, it will attempt to automatically focus the image within a certain range.

If the image is not within range after multiple clicks of this button, you may need to adjust the focus using the methods above.



Auto Focus



Auto focus after objective lens change

- This tool will autofocus the image when selecting a new objective.
- Click to toggle on or off.



Auto focus after stage position change of more than a field of view

- Ideal for traversing specimens with varying Z-planes.
- Turn off for extended manual stage use within the software. **If you are manually controlling the stage with this activated, it will stop your movement and attempt to focus on each rest.**
- Click to toggle on or off.

Cycle Focus is useful for repeatedly focusing through a three-dimensional object with details in focus at multiple Z positions.

-First, focus the image using auto focus or manual focus to find the main focal plane of the object. Then, start Cycle Focus. The microscope will cycle using the Time, Step Width, and Range settings. You can adjust these to cover greater or smaller areas as needed.

-This feature does NOT replace Auto Focus.

Keyboard Shortcut: CTRL+F (toggle on/off)



CYCLE FOCUS SETTINGS	
Cycle Time [ms]:	4000
StepWidth [μm]:	40.0
Range [μm]:	440.0

Moving the Slide through the RC500 Software

The steps below describe how to move the slide using the RC500 software interface:

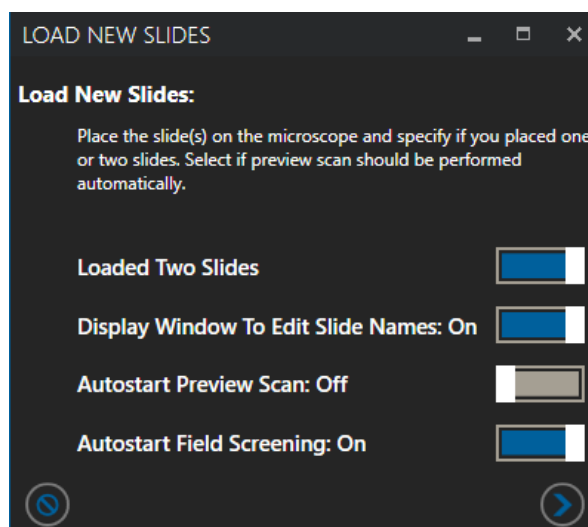
1. In the map, click on the area of the slide you would like to view using the map.

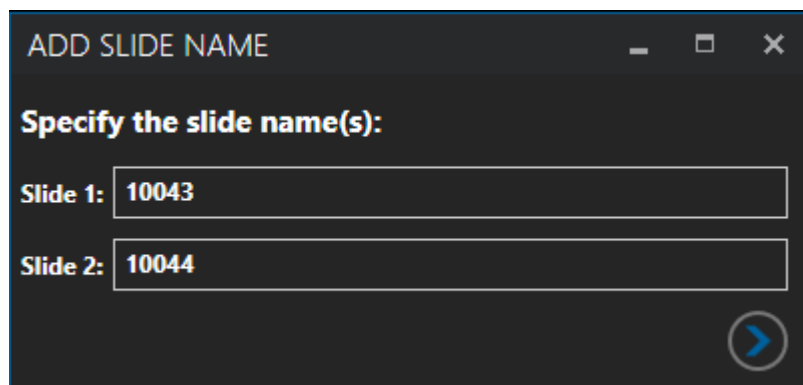
- The map allows you to create a preview scan, jump to any region of the slide, track where you've previously been on a slide, conceal patient information, or collapse for a full screen experience.
- Preview Slide 1 & 2 will create a representation of the slide in the upper right corner.
- The map can also be used without a preview scan (not recommended).



2. When selecting the Load New Sides button, the stage will move to a convenient slide loading position. Load and preview scan your choice of 1 or 2 slides.

- The names of your slide will be remembered for any pictures or screening that is captured within that slide. This can be changed under File Name Pattern.
- You can select Autostart Preview Scan or Autostart Field Screening to immediately begin your next viewing session.
- Shortcuts: CTRL+L or F5



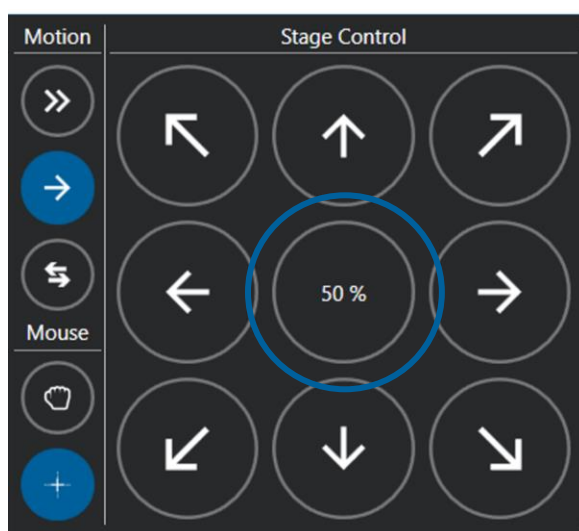


When 'Display Window to Edit Slide Names' is toggled on, you will be prompted to name your slide while the microscope performs its preview scan.

These names will be remembered when saving images as a file.

3. Use the Stage Control on screen commands

- The field of view will move as far or as fast as the percentage shown in the middle
- This percentage can be changed by clicking on the center number (10%, 30%, 50%, 90%)



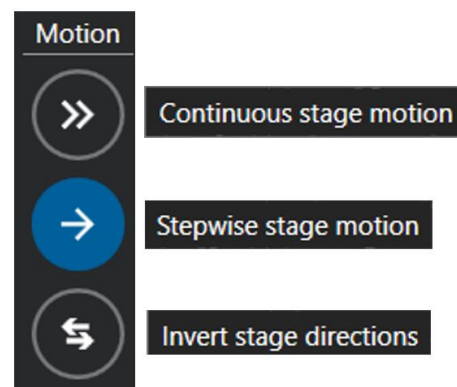
4. Under "Mouse", you can select the "Hand" feature to click and drag the field of view in your desired direction.

-Click to center is set by default and will center an area of interest on the screen when clicked.

- Using the arrows on the keyboard. (For continuous motion, press the space bar to stop)

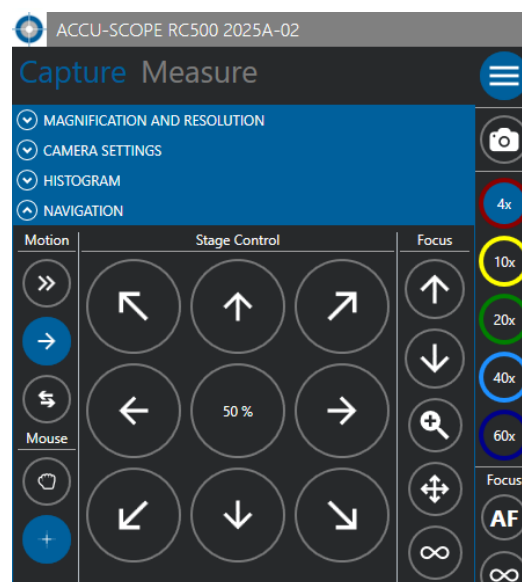
Under “Motion” there are three buttons with arrows. To change the type of control, click on the button to select that option.

These buttons control whether the stage moves in a continuous to stepwise manner, and whether the stage moves in a direct manner (image moves in the same direction as the stage) or inverted manner. When the button is highlighted blue, the directional controls for the stage will be implemented.

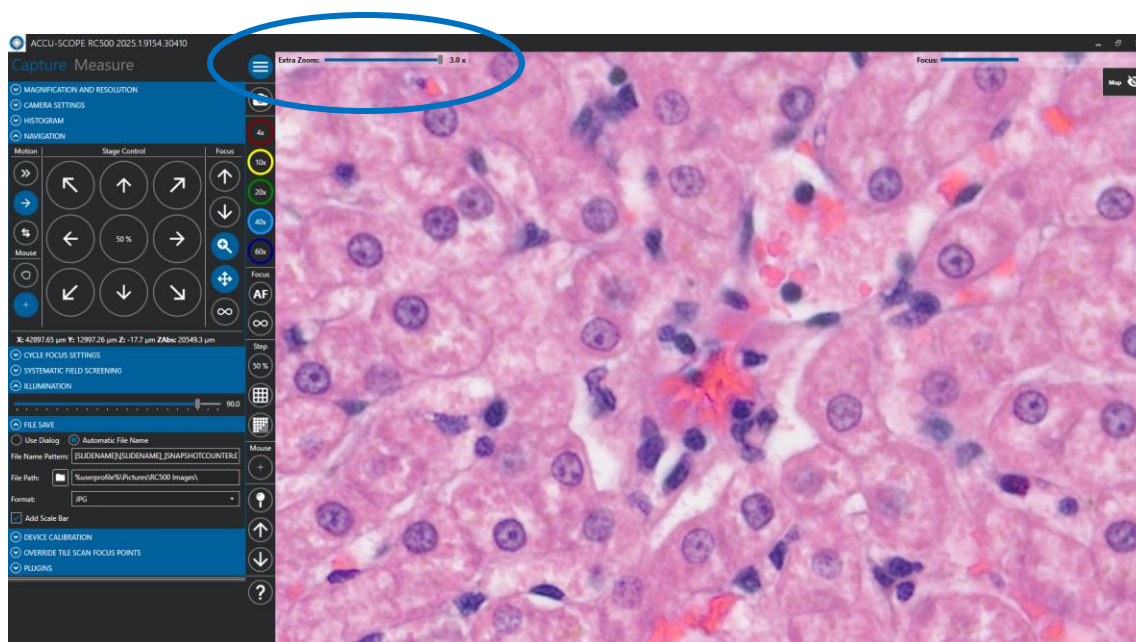


Changing Objectives in the RC500 Software

- When using the RC500 Software, objectives can be changed by selecting the desired objective located at the top right of the toolbar.
- The active objective will be illuminated blue.
- Wait for the objective to change.** The microscope needs time to physically move the nosepiece. This can take an estimated 5 seconds. Do not give another command to the RC500 during this time.



In Addition to optical magnification, there is also a 3.0x digital zoom slider on the top of the screen.

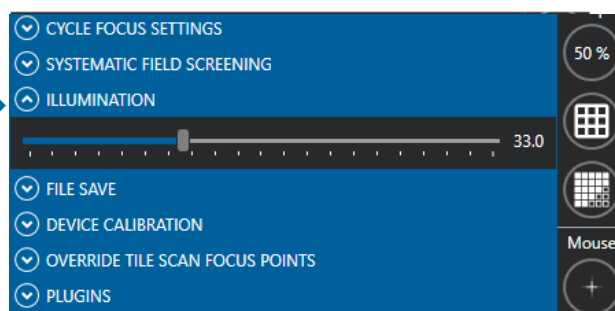


Adjusting Illumination in the RC500 Software

The illumination of the RC500 System can be adjusted by using the sliding adjustment featured under the “Illumination” tab.

To change illumination, click on the slider and drag it to the desired amount of illumination. Manual adjustments of the illumination intensity on the body of the frame will impact the view through the software.

Illumination Slider



Note: Multiple clicks on the slider may result in delayed changes to the illumination.

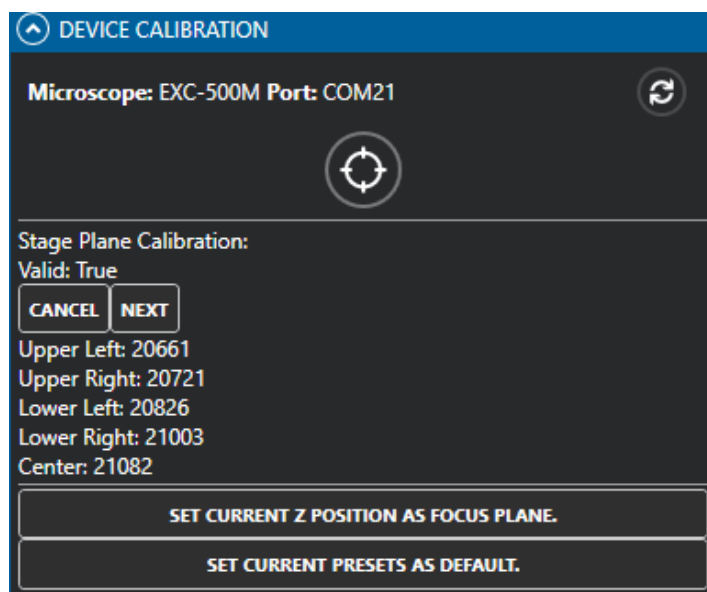
Dropping Pins in the RC500 Software

Pins can be placed to mark areas of note simply by **right clicking of the mouse**. After you place a pin, you can name it or add a short note, and change the color. Click in the image away from the pin to finish the pin edit.

Jump between pins using the arrows or by clicking on a specific pinned location.



Stage Plane Calibration



Stage Plane Calibration is intended to help identify the ideal focus range on top of your slide. You will need 2 blank slides to perform this calibration.

Follow the on-screen prompts to each corner of your slides, then center. You will need to focus the microscope on the **top surface** of your glass slides.

Once the calibration is complete select set current Z position as focus plane on the center of the slide.

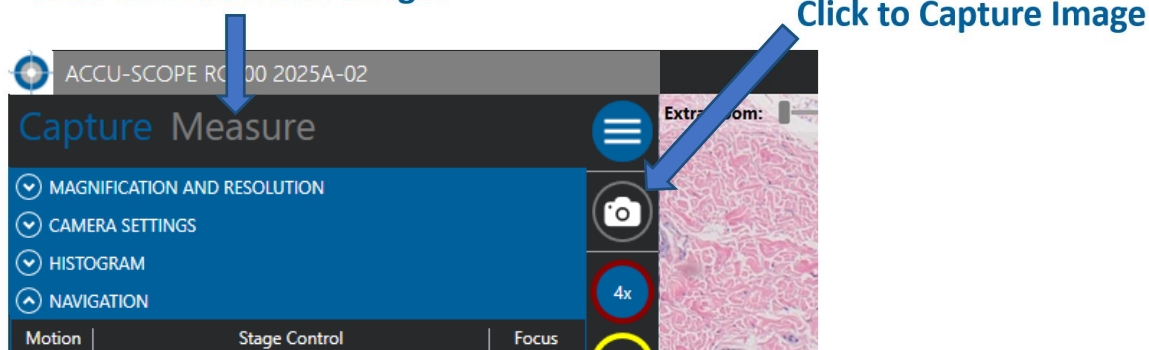
Capturing Images

The steps below describe how to capture images.

Images can be captured and saved utilizing the RC500 Software.

1. To capture an image, click the camera icon located at the top right of the toolbar. The capture image will be displayed in the gallery at the bottom of the screen. Note: The captured image is not yet saved. Refer to the next section about saving images.

View and Annotate Images



2. To view captured images, either click the “Measure” title located next to “Capture” or click on the captured image in your gallery.



Saving Captured Images to Local Computer Files

Images taken using the RC500 Software can be saved to the local Computer files for transfer into patient files in the practice management system. Images can be saved as “TIFF”, “JPEG” or “PNG” files.

1. Right click the image at the bottom portion of the screen.
2. Select “Save image with annotations...”
3. Select the folder you wish to save to. (You can also save directly to a cloud service)
4. Click “Save”.

Note: It is recommended that files are not permanently saved to the computer as it will affect the storage capacity of the computer and may affect the speed in which the software performs. Additionally, images are not saved automatically to the computer. Once the user closes out of the program, all images will be erased.

Systematic Field Screening



SYSTEMATIC FIELD SCREENING

Asynchronous Mode: ☒

Screening Objective: 4x

Examination Objective: 20x

Screening Time Per Field [ms]: 2000

Screening Field Overlap [%]: 5

Fine Focus While Screening: ☒

Fine Focus Range [μm]: 150.0

Examination Extra Zoom Default: 1.0

Examination Cycle Focus Auto-On: ☐

Examination AF On Changed Objective Auto-On: ☒

Examination AF On Changed Stage Position Auto-On: ☒

Store All Screening Images: ☒

File Name Pattern: [SLIDENAME]

File Name Pattern: [SLIDENAME]

Systematic Field Screening allows for overview samples that can be selected for more in-depth analysis.

- Screening specifications can be set in the drop-down toolbar.

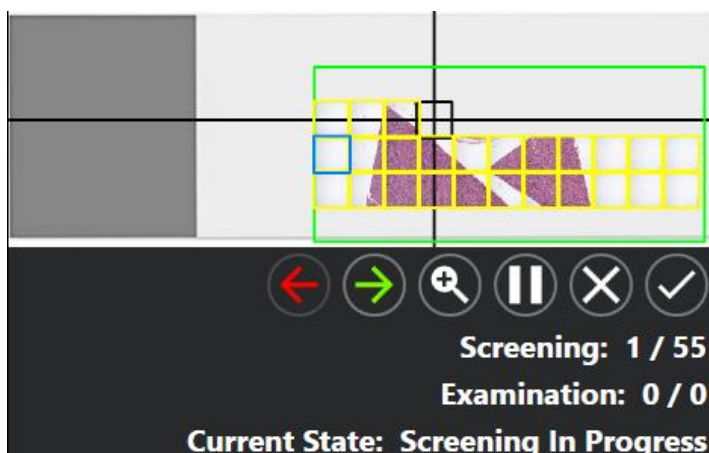
Asynchronous Mode allows you to view screened images as stored images while the microscope is acquiring more images.

When unchecked, Synchronous Mode would always show live images and have the microscope wait a certain amount of time before moving on. Asynchronous Mode is preferred for overall faster screening time and quality.

When prompted, draw a box around the desired region for screening.



By selected next in the bottom right corner, the RC500 will automatically begin screening and attempting to focus each field of view for your selected region.



Use the arrows on screen or on the keyboard to view each screening segment. You can also select specific screened regions of the slide with your mouse.

By **left** clicking an area of the screen in this mode, you will digitally zoom the clicked area based upon you zoom ratio in settings.

By **right** clicking an area of the screen in this mode, you will mark a point. If the microscope is still screening, it will store the point with a circle in a list for later review. If screening is paused or completed, the examination objective will directly be rotated to examine the marked location.



To examine marked locations while screening is in progress, click the  button.


This will pause screening, and your examination objective will then be rotated in for optical viewing. The microscope will move to the first marked location unless a specific region is selected.

Keyboard Shortcuts:


Up Arrow: Toggle Screening and Examination Mode

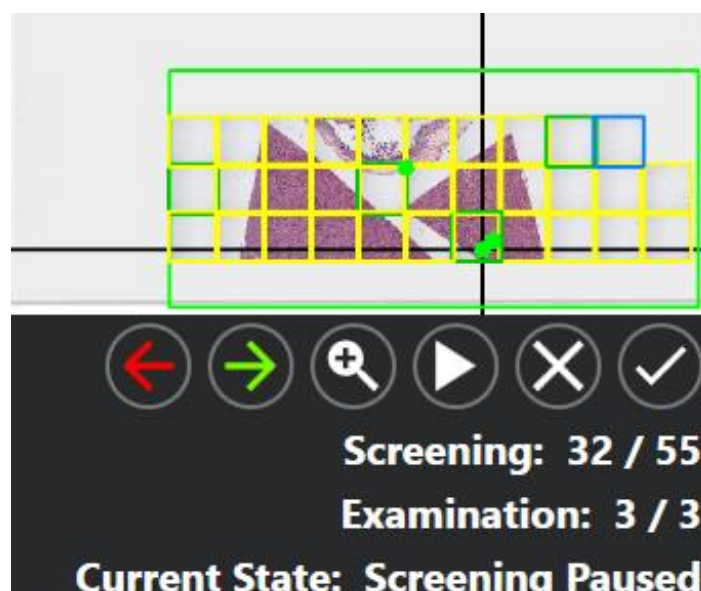
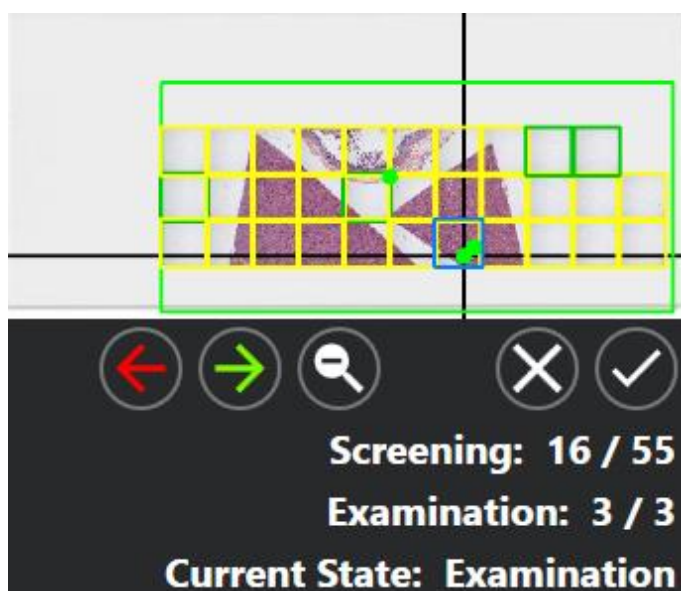
Down Arrow: Switch from Screening to Examination



If you paused a screening to begin evaluating and wish to continue the screening, select the  button.



Next, click the **last screened region**. A  button will appear where you can resume screening. Regions that have previously been examined will be highlighted in **green**.



Remote Access Software

You will need remote access software to be installed on both the RC500 computer and any remote computer to be used during consultation. Regardless of the remote access software being used, the steps to connect from a remote computer to the RC500 are similar. Some popular remote access software include: TeamViewer, RemotePC, Splashtop, AnyDesk, LogMeIn, and GoToMyPC.

- Confirm that the RC500 system is turned on and the remote access software is running.
- Confirm that the remote computer is on, and the remote access software is running.
- In the remote access software on the remote computer, enter the credentials from the remote access software on the RC500 system and connect.

The remote viewer can now control the RC500 via the RC500 software.

Resources

The workstation contains a library of resources that are available for educational purposes. On the desktop, there is a folder labelled “RC500 User Guides”. This folder contains guides for operating the RC500 system (this manual), quick reference guides and troubleshooting guides.

Hot Keys

Once you become acclimated with the RC500, you can then become proficient in it by using Hot Keys. These Hot Keys have been programmed to provide an efficient alternative to mouse clicks in the RC500 software interface. The list of Hot Keys can be found behind the:



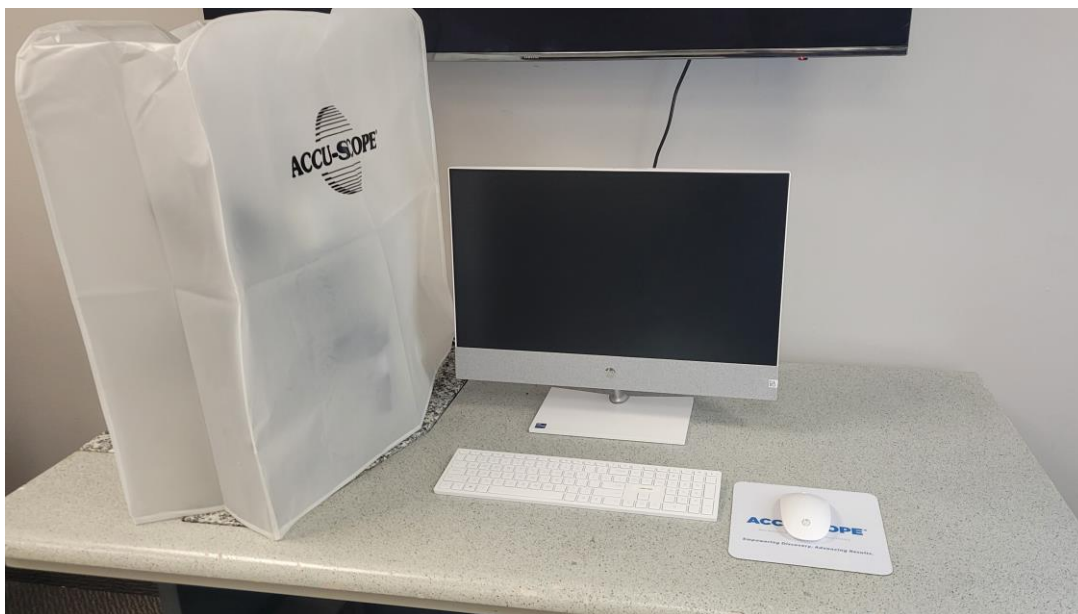
	Windows	Mac (via Screen Sharing)
Move XY Stage	[Arrow Keys]	[Arrow Keys]
Stop XY Stage	[END], [SPACE], [ESCAPE]	[SPACE], [ESCAPE]
Switch Objective Magnification Down	[CTRL+ARROW LEFT] On full-sized keyboards: [CTRL+PAGE DOWN] [SUBTRACT]	[OPTION+ARROW LEFT] On full-sized keyboards: [CTRL+PAGE DOWN] [SUBTRACT]
Switch Objective Magnification Up	[CTRL+ARROW RIGHT] On full-sized keyboards: [CTRL+PAGE UP] [ADD]	[OPTION+ARROW RIGHT] On full-sized keyboards: [CTRL+PAGE UP] [ADD]
Focus Down	[CTRL+ARROW DOWN] On full-sized keyboards: [PAGE DOWN]	[OPTION +ARROW DOWN] On full-sized keyboards: [PAGE DOWN]
Focus Up	[CTRL+ARROW UP] On full-sized keyboards: [PAGE UP]	[OPTION +ARROW UP] On full-sized keyboards: [PAGE UP]
Auto Fine Focus	[CTRL + A]	[CTRL + A]
Select 4x Objective	[CTRL + 1]	[CTRL + 1]
Select 10x Objective	[CTRL + 2]	[CTRL + 2]
Select 20x Objective	[CTRL + 3]	[CTRL + 3]
Select 40x Objective	[CTRL + 4]	[CTRL + 4]
Select 60x Objective	[CTRL + 5]	[CTRL + 5]
Toggle XY Stage Stepwise/Continuous motion	[HOME]	[FN+Left Arrow] On full-sized keyboards: [HOME]
Toggle XY Stage step width (in percent of a field of view)	[CTRL+D]	[CTRL+D]
Acquire Image	[CTRL+SPACE], [CTRL+S]	[CTRL+S]
Pin new location	[CTRL+CLICK]	[CTRL+CLICK]
Move to next pinned location	[CTRL+N]	[CTRL+N]
Move to previous pinned location	[CTRL+B]	[CTRL+B]
Toggle Extra Zoom 1x, 2x, 3x	[CTRL+Z]	[CTRL+Z]
Toggle Capture/Measure	[CTRL+M]	[CTRL+M]
Upload images to server	[CTRL+U]	[CTRL+U]

Maintenance

Cleaning

Do not attempt to disassemble any component including eyepieces, objectives, or focusing assembly.

- Keep the instrument clean; remove dirt and debris regularly.
- Lens surfaces can be wiped utilizing lens cleaning tissue or similar cloth wipes.
- Accumulated dirt on metal surfaces should be cleaned with a damp cloth. Do not use organic solvents for cleaning.
- Cover the system with included dust cover when not in use.



Troubleshooting

Under certain conditions, performance of the RC500 may be adversely affected by factors other than defects. If a problem occurs, please review the following list and take remedial action as needed. Before you call, check the following issues and resolutions listed below:

Optical Issues

Problem	Cause	Corrective Measure
Darkness at the periphery or uneven brightness of view field	Revolving nosepiece did not stop in correct position.	Turn off power to microscope and revolve the nosepiece to click stop position by swinging the objective correctly into the optical path
Dirt or dust on the view field	Dirt or dust on the lens - eyepiece, condenser, objective, collector lens or specimen	Clean the lens
Poor image quality	Slide may be upside down	Turn slide over so the cover glass faces up
	Condenser aperture is closed or open too much	Open or close properly
	Condenser is positioned too low	Raise the condenser until it is positioned just below its upper limit
	Objective is dirty	Check the objectives, clean if necessary

Image Issues

Problem	Cause	Corrective Measure
Image is too bright	Lamp intensity is too high	Adjust the light intensity by rotating the intensity control dial and/or iris diaphragm
Insufficient brightness	Lamp intensity is too low Aperture diaphragm closed too far Condenser position too low	Adjust the light intensity by rotating the intensity control dial and/or iris diaphragm Open to the proper setting Position the condenser slightly lower than the upper limit

Error Messages

Below are the error messages that may appear during the start-up of the RC500 software.

Problem	Cause	Corrective Measure
Error Message: "No Camera Detected"	Camera has lost connection to power or is not connected to the computer.	Check connections to power and computer. It must be plugged into the Super Speed Port
Error Message: "No Motorized Microscope Frame Detected"	RC500 microscope is not turned on, has lost connection to power or is not connected to the computer.	Check connections to power and computer and turn power on to the RC500 microscope.
Error Message: "No Stage Controller Detected"	The motorized stage has lost connection to power or is not connected to the computer.	Check connections to power and computer.
Error Message: "Exception in Grabloop: The port is closed"	Connection to RC500 System has been interrupted while RC500 Software is operating. The RC500 System has lost power.	Close the program and check connections to power and the computer.

Mechanical Issues

Problem	Cause	Corrective Measure
Image will not focus with high power objectives	Slide upside down Cover glass is too thick	Turn the slide over so the cover glass faces up
Lamp does not emit light when switched on	No electrical power LED bulb burnt out Fuse blown	Check power cord connection Replace bulb or fuse
Stage will not move up/down during initialization of microscope	Microscope lost power during initialization	Contact ACCU-SCOPE
Nosepiece will not move or will move in disobedient ways	Connection to nosepiece is unstable (typically from transit)	Contact ACCU-SCOPE for instructions on how to confirm connections
Stage is making loud noise	Motor on stage was physically pushed against while engaged	Disconnect stage power supply immediately Wait 15 seconds and plug back in. Contact ACCU-SCOPE should the noise continue.

Software Issues

Lines Appear on the Preview Scan Image: If lines appear on the preview scan, that can be an indicator of too much light being presented to the 4x objective. Adjust the brightness slightly lowered to a still acceptable degree through the eyepieces and re calibrate accordingly for the 4x on the RC500 software. The Lines should be improved but may still be present to a tolerable degree.

Black Screen in Software: Should the software open and the camera not communicate any image, the camera may not be plugged into the USB-3 SS (Super Speed) port. Verify that it's properly connected.

Another Instance of the Software is Present: Go into Task Manager on the computer and locate the background process of EXC-500. Select "End Task" and attempt to start the software again. If this repeatedly occurs, contact ACCU-SCOPE for assistance.

No "Device" Detected: This can commonly occur with the camera, motorized frame, and stage. An error message will pop up telling you which device is not being detected. Check the USB connection between that device and the computer. Ensure that it is powered on and has completed its initialization process. If the error is still present, power cycle the device in question and try again. If this repeatedly occurs, contact ACCU-SCOPE for assistance.

Maintenance Schedule

The RC500 system should be regularly maintained and calibrated on an annual basis. It is the responsibility of the user to schedule this maintenance and keep record of activities. For more information on maintenance of the RC500 system, contact ACCU-SCOPE Customer Care directly.

Contact Information

If the RC500 system does not function as expected and/or if the system malfunctions, contact ACCU-SCOPE Customer Care.

Before you call, please have the following information so that Customer Care can provide you with the highest level of service:

1. Customer Account Number
2. Model Type
3. Serial # located on the back of the RC500 system

<https://accu-scope.com/contacts>

Phone: 631-864-1000

Fax: 631-543-8900

Email: info@accu-scope.com

Mailing Address:

73 Mall Drive

Commack, NY 11725

Specifications and Environmental Conditions

Device Specifications

Model Name	RC500 System
Model Number	EXC-500
Mechanical Specifications	
Dimensions	Approximately 36 x 23 x 27 in. (914 x 584 x 686 mm)
Weight	36 lbs.
Environmental Specifications	
Operation Temperature	<p>Temperature range is 0-40° C and the maximum humidity is 85%</p> <p>***After Truck Shipment, store the microscope should at room temperature for 24 hours before it can be powered on to prevent condensation from damaging the machine or electrical parts.***</p>
Electrical Specifications	
Input Voltage	100-240V
Input Current	1.5 A

Warranty Details

Warranty Information

Please review the terms of purchase and date of shipment to determine validity of warranty claim. Warranty claims should only be made for products within the terms of the warranty policy.

1. Contact ACCU-SCOPE at [\(631\) 864-1000](tel:6318641000) to obtain an RMA, or service order, number and detailed return instructions. A form will be enclosed with the loaner or replacement product and must be completed, signed and returned to ACCU-SCOPE with the returned product. All claims should be addressed to:

ACCU-SCOPE Service
73 Mall Drive
Commack, NY 11725

2. Be prepared to furnish:
 - Product Model and Serial Number
 - Purchase and Shipment Date
 - Primary Concerns
 - Name of person and phone number at your organization for further communication.
3. ACCU-SCOPE will advise the purchaser of its determination of warranty at the earliest possible time. Providing complete information as requested will expedite the process.

Warranty Terms

ACCU-SCOPE RC500 components are warranted to be free from defects in materials and workmanship for a period specified within your sales order agreement. The warranty terms will start from the date of initial installation. ACCU-SCOPE's liability under the agreement is limited to the following:

- RC500 System Electrical – 1 year
- RC500 Stage – 2 years
- Mechanical/Optical – 5 years

ACCU-SCOPE may provide an extended warranty for additional years beyond the Standard Warranty Plan. Please contact ACCU-SCOPE at [\(631\) 864-1000](tel:6318641000) for details.

Notice:

Warranty repairs will not apply to those products which have been:

- (i) Repaired or altered other than in accordance with the terms of this Agreement, or
- (ii) Abused, misused, improper handling in use, or storage, or used in an unauthorized or improper manner or without following written procedures supplied by ACCU-SCOPE, or
- (iii) Original identification markings, labels have been removed, defaced or altered, or
- (iv) Any other claims not arising directly from defects in material or workmanship.

Special contracts or contracts for non-standard products may have modified terms of warranty and, in such cases; the terms as stated in the individual contract must be signed by the duly authorized officer of ACCU-SCOPE and will supersede the standard terms.

ACCU-SCOPE will make final determination as to cause or existence of defect and, at its option, repair or replace the products which prove to be defective during the warranty period.

Products replaced under warranty will be warranted only for the balance of the warranty period from the original supplied equipment.

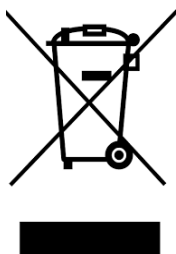
This warranty extends only to the original purchaser of the equipment from ACCU-SCOPE. The purchaser must notify ACCU-SCOPE within 15 days of first noticing the defect and promptly return the defective product upon receipt of RMA number(s) before expiration of the warranty period.

Products believed by purchaser to be defective shall be returned to ACCU-SCOPE and or the associated service provider with the transportation and insurance prepaid by purchaser. Repaired or replaced products will be returned to purchaser by ACCU-SCOPE, FOB city destination within the Continental United States. Transportation beyond these limits will be charged to purchaser. The warranty set out in above paragraph is the exclusive warranty made by ACCU-SCOPE and is in lieu of all other warranties (except for specific product performance warranties), whether written, oral, or implied, including any warranty of merchantability or fitness for a particular purpose, and shall be customer's sole remedy and ACCU-SCOPE's sole liability on contract or warranty of otherwise for the products.

This warranty shall not be modified or amended without the written approval of an officer of ACCU-SCOPE.

IN NO EVENT SHALL ACCU-SCOPE BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE FAILURE TO PERFORM UNDER THIS AGREEMENT OR THE FURNISHING, PERFORMANCE OR USE OF ANY GOODS OR SERVICES SOLD PURSUANT HERETO, WHETHER DUE TO BREACH OF CONTRACT, BREACH OF WARRANTY, NEGLIGENCE OR OTHERWISE.




Disposal



If you plan to discontinue the use of the RC500 system and intend to dispose of it or any of its parts or accessories, you must observe the applicable regional legal provisions for its disposal. You may also contact your local distributor, authorized service center, ACCU-SCOPE Customer Care for more information regarding the disposal of this system.

Labeling

Explanation of Symbols

Symbol	Title	Description
	Warning	Indicates the need for the user to consult the instructions for use for important cautionary information such as warnings and precautions that cannot, for a variety of reasons, be presented on the medical device itself.
	Do not dispose in unsorted municipal waste (WEEE)	Equipment must not be disposed of as unsorted municipal waste.
	Follow Instructions	Indicates the need for the user to consult the instructions for use prior to operating the device.

RC500 Product Label

