# CORAL Name: Microscope-QuickVision

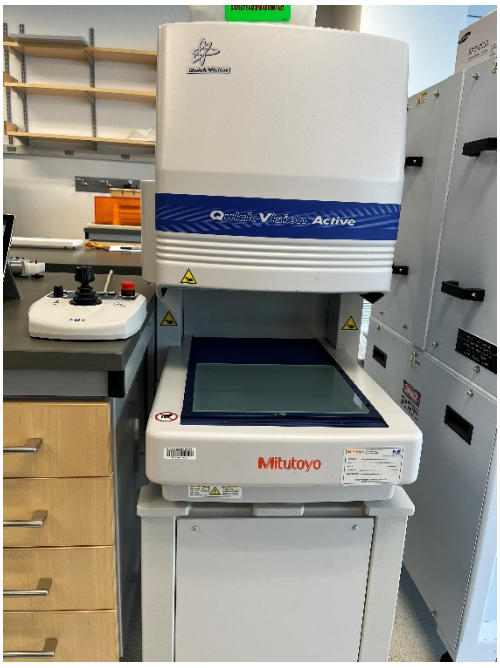
**Location: 12-5115**
**Purpose: Metrology and Imaging**
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## Introduction

The Quick Vision Active Microscope is in the Nano Packaging lab. It takes automated imaging of larger surfaces, and has pattern recognition capability. It takes and saves images quickly, with a high quality color camera. The microscope has only one objective of 1.5x. This can be adjusted by magnification of 0.750x – 5.250x.




## Safety

This tool has pinch and crush points. Keep your hands and face away from the scope while it is in operation. The lens moves up and down causing crush points. The stage moves forward and backward causing pinch points. The equipment also has an electrical shock hazard. Do not put any part of yourself or anything else inside or around the tool, other than putting your sample onto the stage.

Unless using the auto focus function, if the stage or the lens move without user input, press the Red Emergency Machine Off (EMO) button on the controller.

## User Qualifications and Responsibilities

Users must have access to the MIT.nano Packaging lab, located on the 5$^{th}$ floor of building 12. Users must be trained by staff to use this microscope. Treat the tool with respect and leave the work station the way you found it when your work is completed.

# Operating Procedure

## System Setup

1. Reserve and engage the microscope in CORAL.
2. Double click the "QVPAK Ver.12.1" icon to start the program.
3. A "Warning" window will appear in the middle of the screen. Click "OK" to re-zero the stage.
4. Wait as the stage initiates, it will move on its own to re-zero itself. This step is completed without any samples on the stage.
5. When the stage completes its process, a "QVPAK" window will open in the middle of the screen. This is a confirmation of the lens installed. Click the "OK" button on the bottom right of the window.
6. Close the "Graphic View" extra window that pops up on the left-hand side of the screen.

## QVPAK Operation Windows

1. **Video** (Left side of screen): Shows what the scope is currently looking at.
2. **Light control** (Top right side of screen): Has multiple light options to see the sample.
   - *Stage* – Light coming up from underneath the stage and sample.
   - *Coaxial* – Light directly from the axis of the camera.
   - *Ring Lights* – Lights around the camera pointed at an angle.
3. **Stage Control** (Top right side of screen): Used to control the stage in lieu of Controller.
4. **DRO** (Top right section of the screen): Used to show the X, Y, and Z coordinates.
5. **Measurement Results** (Bottom right of screen): Displays the measurement results of either running a program or manually entered points.
6. **QVEasy Editor** (Bottom right of the screen): Used to create programs to run measurements.
7. **Graphic View** (Left side of screen overlaying the Video window): Used for graphing measurements to track progress.

## Standard Operating Procedure

1. Start up the system as directed in **System Setup.**
2. Place sample on the stage. Multiple samples may be placed on the stage if they are smaller and can rest on the glass section of the stage.
3. Turn on the lights using the sliding controls in the **Light Control** window. Descriptions of the light options are listed above.
4. Verify the lens is fully zoomed out; it will be easier to find the sample at minimum magnification. Click setup, lens, properties. This will open a new window containing a slider and drop-down menu where user can select a different magnification. Select 0.750 to zoom out as far as possible. Then click "OK" at the bottom of the window. **DO NOT CHANGE THE LENS Z-OBJECTIVE. Make sure it stays on 1.5X (Z-objective).**
5. Move the joystick on the controller to find your sample on the **Video** screen.



- Use adjustable SPEED knob to increase or decrease the speed the tool moves.
- For the Y-axis: Push the joystick forward to bring the stage backward.
- For the X-axis: Push the joystick right or left to bring the camera that direction.
- For the Z-axis: **Adjustments must be performed on low speed** to avoid crashing the lens into the stage. Twist the top of the joystick counter-clockwise to bring the scope down, and clockwise to bring the scope up.
- If the lens crashes into the sample or stage, report the problem in CORAL as a recalibration of the tool must be performed.

6. Once you find the sample, start to bring the lens down **slowly** to focus on the sample.
7. You may have to adjust the lights, brightness or style of lighting to achieve your ideal look at the sample.
8. You may adjust the magnification by Right Clicking anywhere on the **Video** window. You may choose Mag Up, Mag Down, or use Select Mag to choose the specific magnification you desire.

## System Shut Down

1. Move the camera all the way up on the Z-axis by rotating the top of the joystick in the clockwise direction.
2. Move the stage all the way to the front on the Y-axis by pushing up on the joystick.
3. Move the lens all the way to the left on the X-axis by moving the joystick to the left.
4. Remove your sample.
5. Turn off all lights.
6. Close QVPAK program.
7. Disengage in CORAL.