precipoint

R8

Instructions for Use (User Manual)

2025/05/20

Revision 1.1

GTIN 04262402090713, 04262402090720, 04262402090737, 04262402090744, 04262402090751, 04262402090768, 04262402090775, 04262402090782, 04262402090706

Complete reading of the user manual before operating is required.

This user manual must be stored and/or kept within reach of the device. Staff responsible for operating the device must read the user instructions before working with the product.

If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired and the warranty invalidated.

GTIN 04262402090713, 04262402090720, 04262402090737, 04262402090744, 04262402090751, 04262402090768, 04262402090775, 04262402090782, 04262402090706

Table of Contents

1 General Information

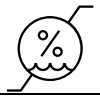
1.1 Abbreviations and Definitions

The following abbreviations appear on your product or in this user manual:

REF	Reference Number
WEEE	Waste of Electrical and Electronic Equipment
FFPE	Formalin-fixed Paraffin-embedded
EMC	Electromagnetic Compatibility
PE-foam	Polyethylene-foam
RoHS	Restriction of Hazardous Substances
MDP	Mini Display Port
DP	Display Port
ppm	Pixel per Micrometer
IC	Illumination Correction
AF	Auto Focus
QHD	Quad High Definition
UHD	Ultra High Definition
MP	Mega Pixel
GLP	Good Laboratory Practice
lp	Line Pairs
px	Pixel

1.2 Pictograms/Symbols

The following symbols may appear on your product or in this user manual:

	Consult *Instructions for Use*
	Caution
	Manufacturer
	Date of manufacture
	Catalogue number
	Keep dry
	Temperature limit
	Humidity limitation
	Fragile, handle with care
	Separate waste disposal for electric and electronic equipment (WEEE)
	Electrical grounding
	Compliance with EU regulations

2 Overview of the Device

The R8 is a digital light microscope system. The R8 consists of a microscope and the corresponding control software "MicroPoint" that is running on a host PC. This manual is applicable for configuration with a 20x and 40x objective, which are provided by PreciPoint. The R8 is controlled by a microscope user and can only be used as a complete system. The device creates a magnified image of a specimen by optical magnification. This virtual image is digitized by a camera sensor and transmitted to the host PC. The digital image is then displayed to you through the control software on a computer screen. You use the device to view and interpret the digital image of a specimen.

2.1 Name or Trade Name of the Device

R8

2.2 Name or Trade Name of the Manufacturer

PreciPoint GmbH

2.3 Other Unique Identifiers of the Device

GTIN 04262402090713, 04262402090720, 04262402090737, 04262402090744, 04262402090751, 04262402090768, 04262402090775, 04262402090782, 04262402090706

2.4 Intended Purpose / Intended Use

The R8 is a system that consists of a digital brightfield microscope and its control software. It is intended to provide magnified digital images of samples mounted on microscopic slides to be examined for life science research and educational purposes.

Acquisition of digital images is supported by the microscope's motorized XY-Stage and Z-Axis, while the display of the acquired images is enabled by the system's connection to its accessories.

2.5 Intended User

The intended users are research professionals, students, and technical assistants.

2.6 Automation

The R8 digital microscope contains motorized XY-stage and Z-axis, allowing for automated sample positioning and focus adjustments.

2.7 Qualitative, Semi-quantitative, or Quantitative

R8 does not perform tests or generate data. It lacks detection, measurement, data analysis, and decision-making capabilities.

2.8 Sample Type

The sample type is not specified, as the product is not intended for use with specific samples only.

2.9 Precautions and Warnings

	Although this device has been tested for compliance with the electromagnetic radiation emission limit (electromagnetic compatibility EMC), a residual risk of affecting other devices remains.
	Sporadic electromagnetic exposures can lead to a permissible loss of performance. The application may crash. In this case, the system loses no stored data, since images are only cached. The system may need to be restarted. This clears any cached images.
	Before placing this device in a room containing life support devices, ensure there is no interference between the life support devices and this device. Consult the life support devices manual for further information.
	Before unpacking, ensure the transportation box is not damaged. If there is any damage, please contact PreciPoint GmbH immediately.
	Do not place the device upside down or sideways. Ensure you open the device from the side indicated on the packaging.
	The stage cable is delivered pre-connected. When removing the device from the transportation packaging ensure there is no damage to the stage cable.
	After unpacking, let the device adjust to ambient conditions (e.g., temperature).
	The microscope contains moving parts. Do not restrict or impair movement while operating.
	When changing the tray in the microscope, always use the “Change Tray” button in the control software.
	Leave enough space for the Z-axis to move vertically and the XY- stage to move horizontally.
	Inadequate lighting may negatively influence the image quality.

	Do not place anything onto the device or put weight onto the device.
	If available, plug any USB 2 devices (e.g., mouse and keyboard) into the matching USB 2 ports on the Host PC. Plug the USB 3 cable of the microscopy system only into USB 3 ports.
	Do not bend or compress the cables.
	Operate the device only under the conditions described in the user manual.
	Malfunctions that can impair safety must be reported to PreciPoint GmbH immediately. Do not use the device in case of any malfunctions. If there are any malfunctions, please contact PreciPoint GmbH immediately.
	Unless instructed otherwise in writing by the manufacturer, repairs must be performed by PreciPoint staff or personnel authorized by PreciPoint. Unauthorized opening or interference with the devices leads to the loss of all warranty rights and annuls PreciPoint's service contract obligations.
	Any fuses in the system must only be replaced by PreciPoint staff or personnel authorized by PreciPoint.
	The system may only be operated with the indicated voltage.
	The Microscope operates with basic insulation in Class I with electrical earth (grounding). Microscope working voltage is 110-240V, 50 Hz-60 Hz.
	For 3-pin plugs, do not use adapter plugs without the ground pin or remove the ground pin from the plug. Only use the cables provided.
	Plug the equipment power cables into properly grounded electrical outlets.
	In case something falls into the XY-stage, the device must be completely disconnected from the power supply before the object can be removed.

3 Scope of Delivery

Before using the device, make sure that all listed parts are included and none of the equipment is damaged. In case of damage or missing parts, do not use the device and immediately inform PreciPoint GmbH.

3.1 Contents

- One (1) PreciPoint R8 digital microscope
    - USB 3.0 cable for connection to host PC
    - Stage cable for connection from XY-stage to microscope (pre-connected)
    - Power cable R8
    - Multiple socket
    - 3 trays
- Objective(s)
    - Scope of delivery may differ. Two different objectives are available upon request.
        - Olympus UPLAN 20x
        - Olympus UPLAN 40x
- R8 operating software "MicroPoint"
- Quick Start Guide for quick set-up of the device
- Torx screwdriver TX20 for removing transport metal

3.2 Materials Required but not Provided

The following accessories are additional and are dependent on the order placed:

- Monitor
- Host PC
- Glass slides with specimen and cover glass

4 Unpacking, Transport, Storage, and Disposal

4.1 Unpacking

The device is heavy (25 kg). We recommend unpacking the device along with a colleague.

Be careful when using sharp objects to open the carton box; you might damage the device or the components.

Steps to unpack the R8:

1. Remove strappings, plastic edge protectors, and tapes from the carton.

2. Remove the Quick Start Guide and the accessories box that contains:

    a. USB 3.0 cable
    b. Power cable R8
    c. Magnetic trays
    d. Multiple socket

3. Lift the device, which is in a foam casing, out of the box by the flap.

4. Remove the lateral foam parts.

5. Lift the device out of the foam base. Hold the device below the girder holding the microscope head with both hands.

6. Remove the red metal fixation by using the delivered Torx screwdriver TX20 and loosen the eight screws off the metal, see Figure 4-5. Do not dispose of the metal fixation and screws.

7. After unpacking, make sure the delivery is complete according to the order confirmation. If not, please contact PreciPoint GmbH immediately.

Figure 4-1: Remove Accessories Box

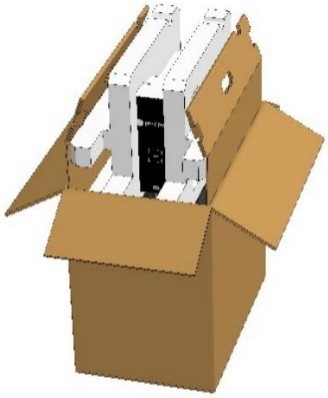


Figure 4-2: Lift Microscope Out of the Box

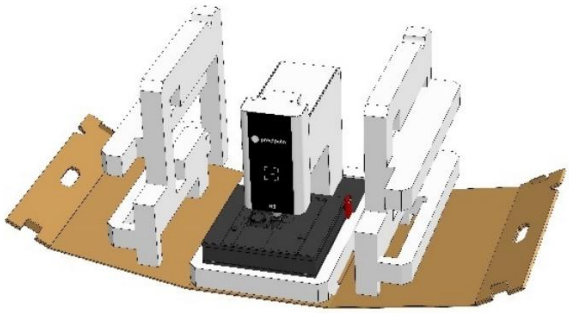


Figure 4-3: Remove Lateral Foam

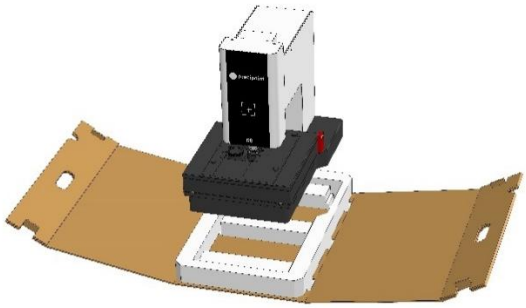


Figure 4-4: Lift Microscope from Base

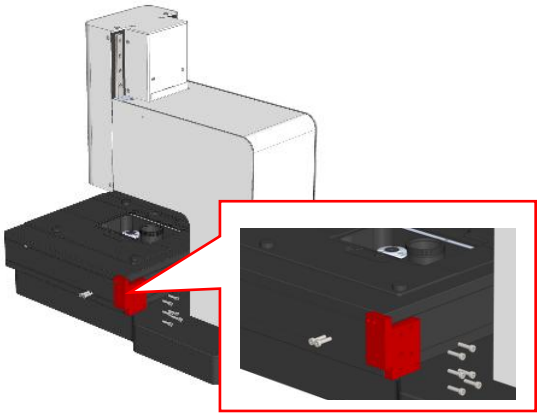


Figure 4-5: Remove Transport Fixation of XY-stage

For unpacking of computer and monitor, please read the respective handbooks.

4.2 Transport

Always carry the device using two hands. Hold the device below the girder holding the microscope head. Improper carrying of the device can cause accidents, such as dropping of the device, and consequently damaging the device.

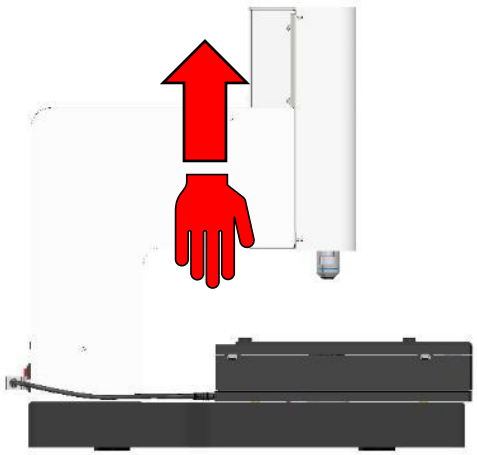


Figure 4-6: Lifting and Holding the R8

4.3 Operating Environmental Conditions

When operating the digital microscope, it is important to monitor and maintain the appropriate temperature, humidity, and altitude, ensuring these conditions stay within the specified ranges, which can be found in Chapter 14.5. Additionally, the device requires sufficient space around it to allow its moving parts to function freely. For product dimensions, please see Chapter 14.4.

4.4 Transport and Storage Conditions

The R8 parts are equipped with sensitive mechanical parts and electronic components. To maintain the function and functionality of the device, transport and storage conditions should be suitable for electronic devices. For more information, see Chapter 14.5.

4.5 Disposal

4.5.1 Disposal of Packaging

Dispose of the packing in accordance with local environmental regulations.

Dispose of the materials that were used for packaging the device in accordance with local environmental regulations and supply the packaging to the local disposal facility. Check your local disposal regulations for further information. The materials that are used for the packaging are made from PE-foam and cardboard.

4.5.2 Disposal of Device and Trays

Dispose of the device and trays in accordance with local environmental regulations.

This device and the trays fall under the EU Directive 2012/19/EU to reduce the increasing amount of electronic waste. This device may not be disposed of in unsorted residual and domestic waste. For disposal of the device, the customer must send the device back to PreciPoint. For this, either create a ticket in the Support System or contact Customer Support. Contact details are provided in Chapter 17.

RoHS conform (Restriction of Hazardous Substances) according to Directive 2011/65/EU and Directive 2015/863.

The customer is responsible for the secure deletion of any personal data stored on the system before recycling.

4.5.3 WEEE

PreciPoint GmbH is registered with the Stiftung Elektro-Altgeräte Register under the WEEE-Reg.-Nr. DE 25025077.

5 Initial Set-up

5.1 General Information

The device and its connected components need to adapt to room temperature. Use the device only after a waiting time of up to 24 hours if the temperatures in the transport and storage environment strongly differ from the temperature in the operating environment.

5.2 Wiring and Connections

1. Make sure that all cables used are without damage.
2. Connect all devices with each other:
    a. Microscope to computer.
    b. Monitor to computer.

       Ensure that the monitor cable is connected to the dedicated graphics card connector (Nvidia).
    c. Do not disconnect the stage cable as it is pre-connected.
3. Connect all devices to power:
    a. Microscope
    b. Monitor
    c. Computer
4. Turn power on for:
    a. Microscope
    b. Monitor
    c. Computer

After each component has been turned on and the software has been started, the XY-stage and the Z-axis will be initialized. The start-up is successful if the initialization is complete. If initialization fails, switch all devices off, check all connections, and restart the system. Should that fail, please contact PreciPoint Support, see Chapters 13 and 17.

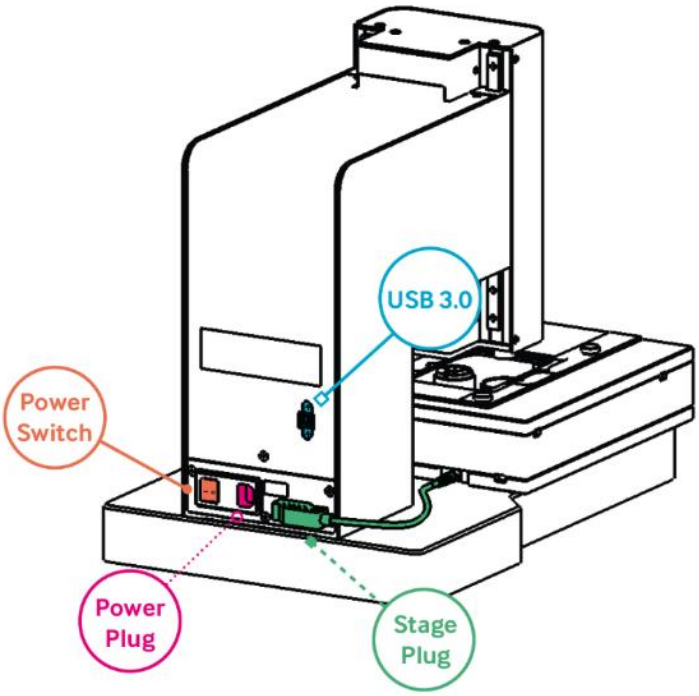


Figure 5-1: Rear Side of R8 with All Important Connections

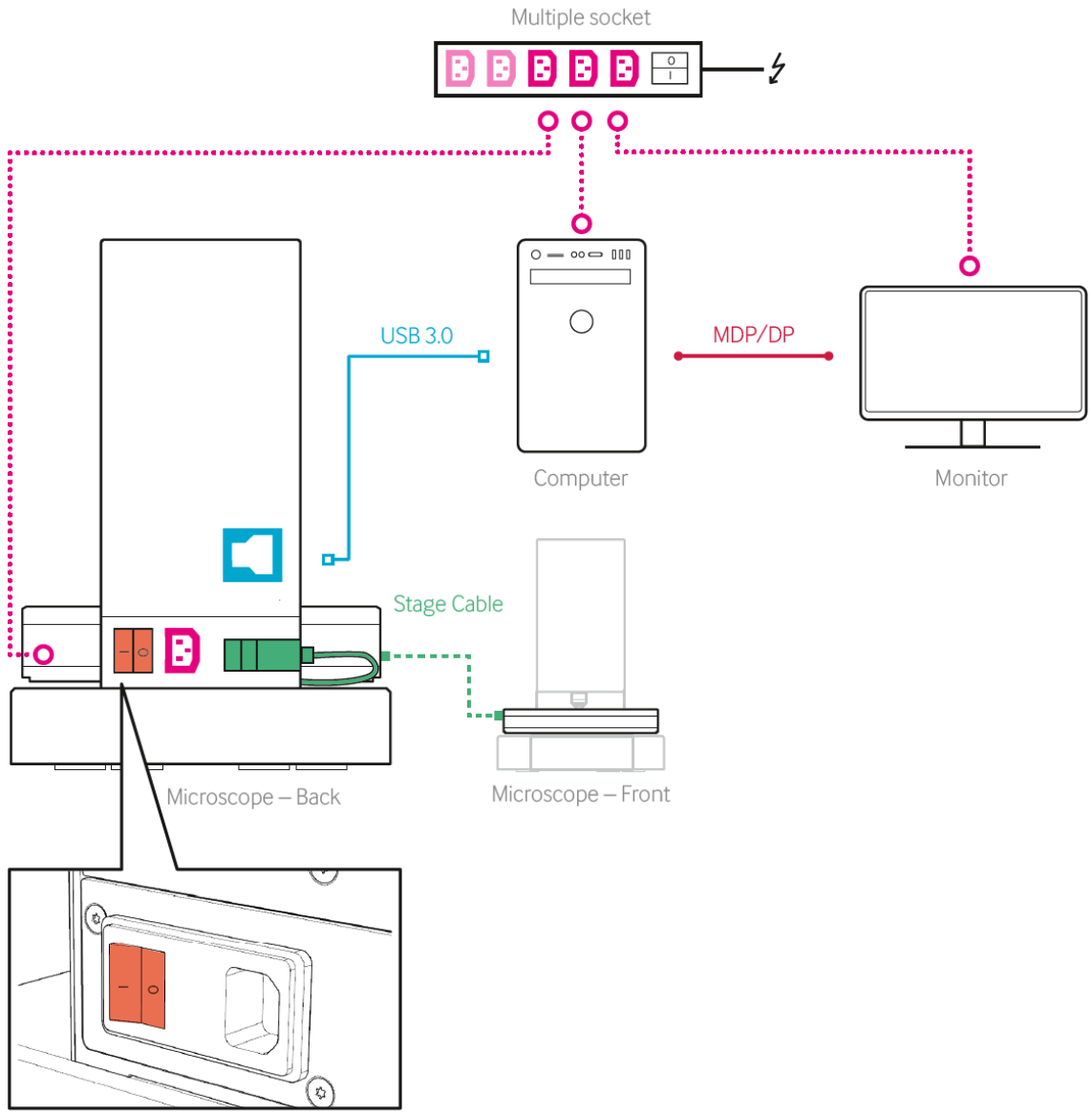


Figure 5-2: Connection Diagram

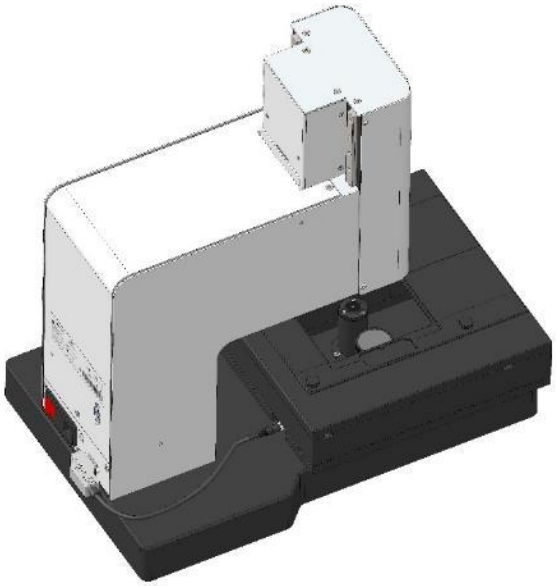


Figure 5-3: Left Rear Side View of R8

The stage cable is delivered pre-connected. Do not unplug the cable.

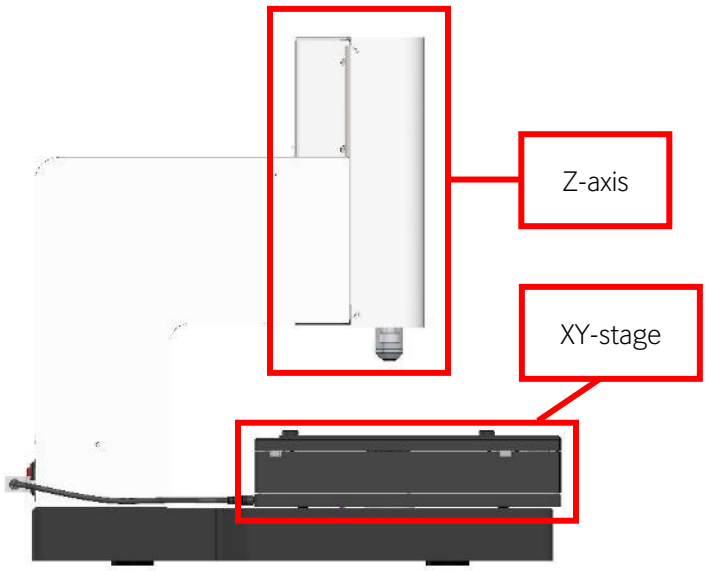


Figure 5-4: Left Side View

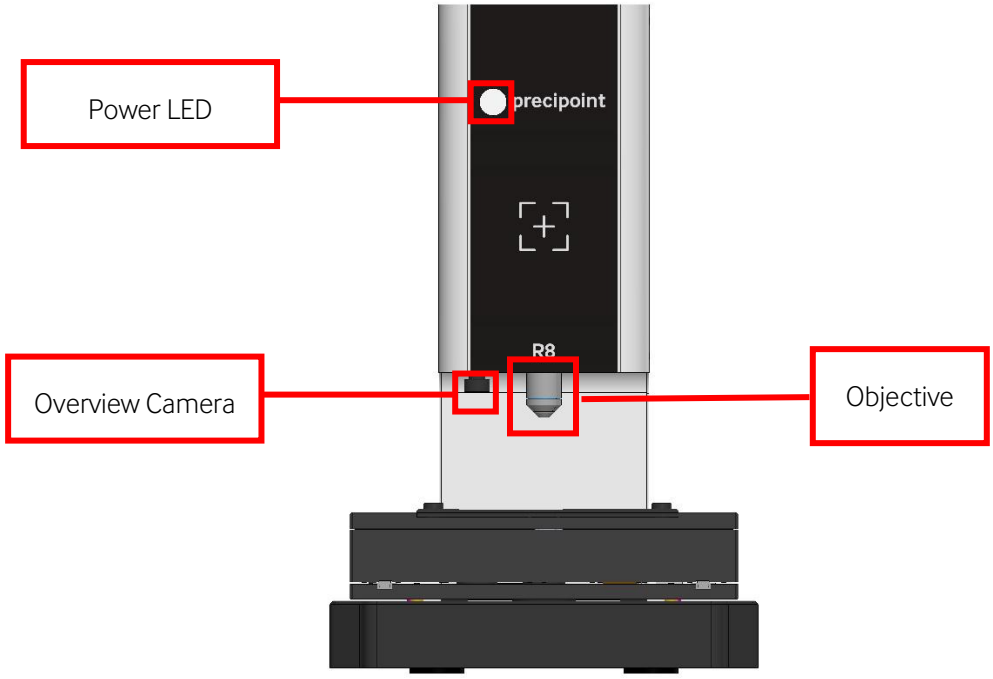


Figure 5-5: Front View and Optical Components

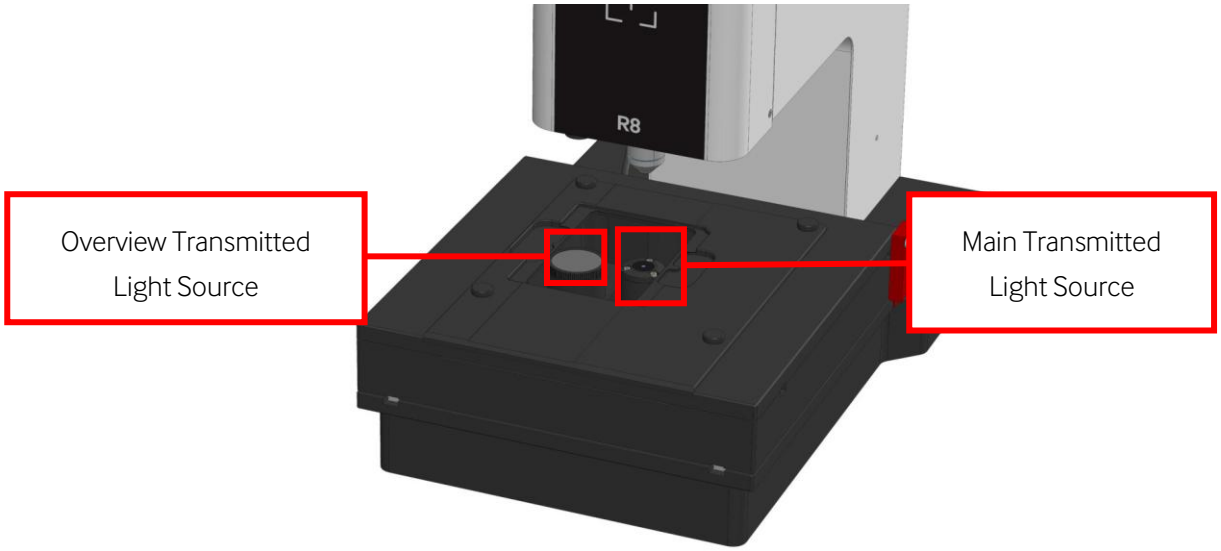


Figure 5-6: Optical Components in Stage

5.3 Starting the Computer

Once the computer has been started according to indications in the computer and monitor user manuals, there will be a Windows start screen where the operator can log into the user account *R8-User*.

5.4 Starting the Software

The system operates in a single mode: Standard Operation Mode, which is set by default to the "MicroPoint" software. This user manual refers to "MicroPoint 2.1.0 RUO". Installation of MicroPoint is handled by PreciPoint and is not covered in this manual. For installation, please contact PreciPoint Support.

1. Turn the device on. Double-click on the PreciPoint icon shown below to start the "MicroPoint" software.

Figure 5-7: Desktop Icon "MicroPoint" (Operating Software)

2. A start screen appears showing the progress of the initialization of the device. Wait until the application and the device have been successfully initialized.

3. Make sure that the objective displayed in the 'Microscope Setup' section is correct.

4. Choose the mode you want to use by clicking one of the options shown in the 'Available Modes' section. This will open the slide selection view. The modes are further described in Chapter 6 and 7.

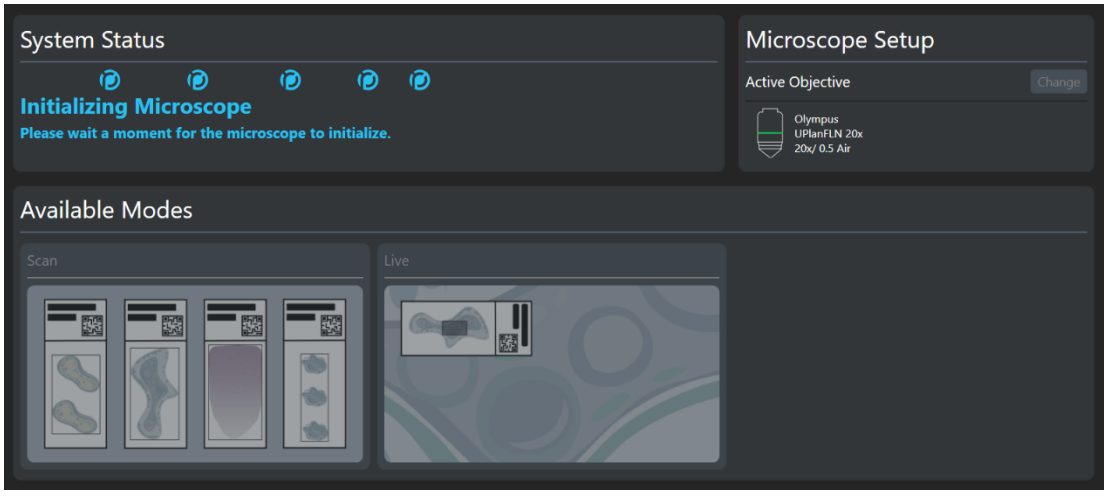


Figure 5-8: Initialization Screen for start-up of "MicroPoint"

5. Place the slide(s) into the designated tray and put the tray on the XY-stage. Instructions on how to place slides are provided in Chapter 9.

6. To go to the microscopic view, click "Start microscopy" to start with all 4 slides. Alternatively, select the tray slots that are of interest to you using the checkboxes and "Select All" or "Deselect All" buttons. To only analyze one slide, double-click on its tray slot. Selected slides are indicated with green border.

7. Clicking "Start microscopy" prompts the R8 to capture overview images of the selected slides with the overview camera .

8. For microscopic analysis, see Chapter 6 and 7.

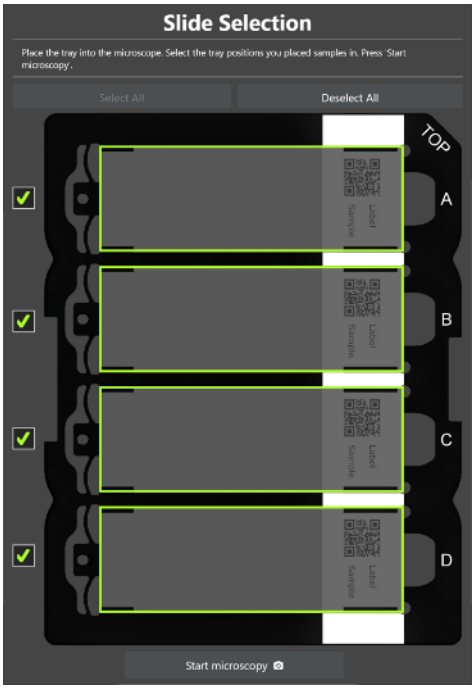


Figure 5-9: Slide Selection: All Slides Are Selected

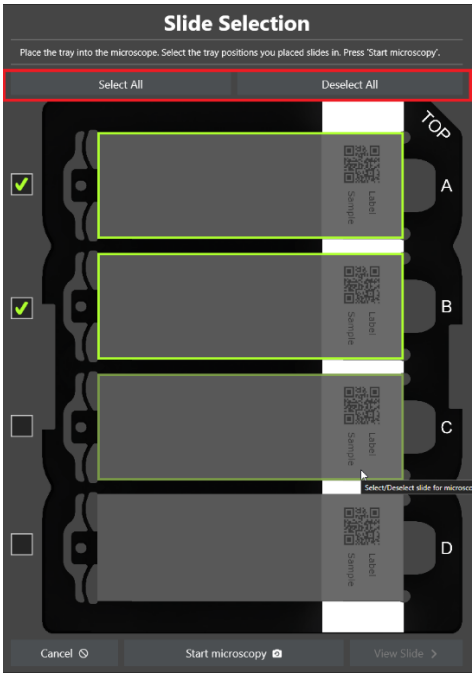


Figure 5-10: Slide Selection: Two Slides Are Selected; 'Select All' and 'Deselect All' Buttons Highlighted in Red

5.5 Shutting Down the Software

To shut down the software, click the "X" button in the upper right corner of the application software window. The device is now in standby mode.

5.6 Shutting Down the Device

To shut down the device, use the toggle switch on the back of the microscope. The software must be closed before the device is switched off. The device moves the Z-axis, so that it is easier to take out the samples.

6 Live Mode: Basic Menu Structure

The main feature is Live-stitching. It is the concatenation of individual pictures taken at the maximum resolution of the objective within seconds to a full single picture. It combines the advantage of a large field of view from a scan with the speed and responsiveness of a digital live view. An overview of the specimen is available (top left) while zooming through the details of the sample. Note that the digital zoom can render the image blurry (i.e., the further the zoom is beyond the actual objective magnification, the blurrier it will get).

The user interface is divided into three main sections: **Main View** (green box), **Toolbar** (orange box), and **Sidebar** (red box). Each section serves a distinct purpose, with their functionalities detailed in the subsequent chapters. Within the **Main View**, the **Current Magnification** (blue box) and the **Scalebar** (yellow box) are displayed.

Figure 6-1: Software Viewport (Green Box), Toolbar (Orange Box), Zoom Level Indication (Blue Box) and Sidebar (Red Box)

6.1 Main View

In "Main View", both, an overview image of the entire slide and the microscopic view of a sample can be seen.

6.1.1 Microscopic View

Figure 6-2 shows the core functionality of the R8 with the starting screen. It displays a bird's eye view of the selected sample. To view the sample in higher magnification, zoom into it using the scrolling wheel. Navigation left, right, up, and down the slide is executed via the mouse by dragging the sample.

Navigation through the sample also moves the device's XY-stage, while adjusting the focus moves the Z-axis. The moving area should not be blocked, and the microscope should not be touched while moving.

The microscope can continue moving while navigating, allowing seamless operation on the screen.

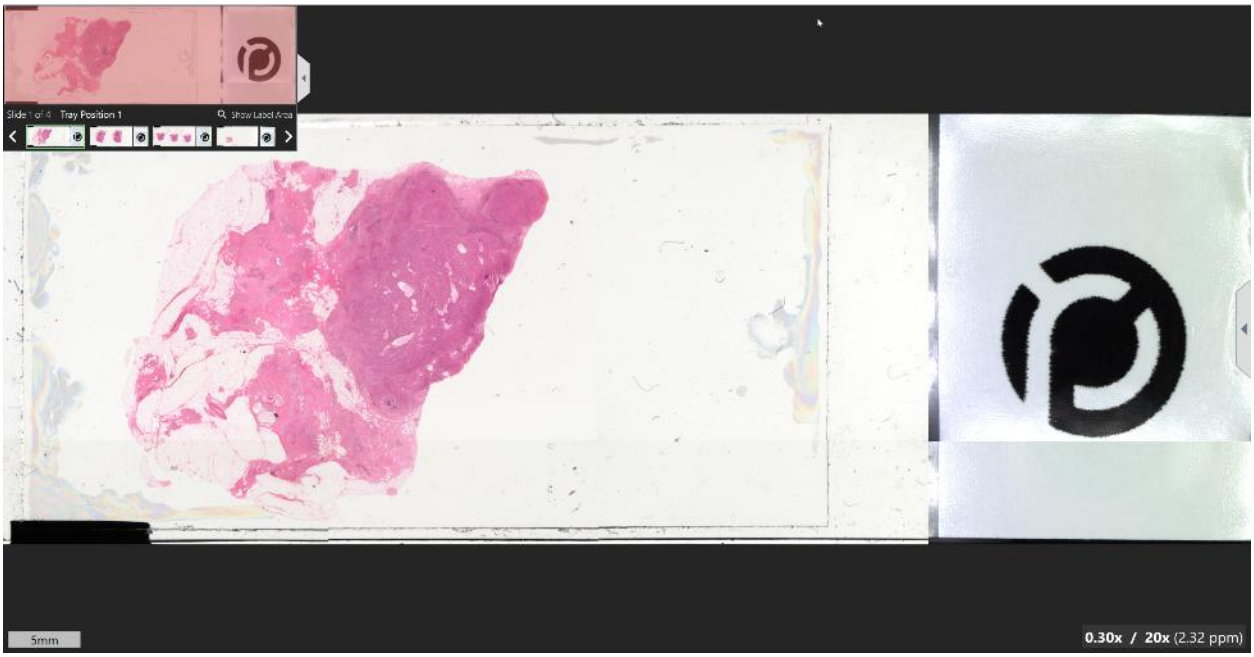


Figure 6-2: Viewport

6.1.2 Overview Map

The "Overview Map" is for quick navigation across the sample and to a different slide. It displays the overview image. Clicking on a specific position within the overview image moves the red rectangle (current view) to the desired location. The microscope will then automatically begin acquiring images at the corresponding stage position.

Additionally, clicking on the gray arrow on the right side of the "Overview Map" hides the entire overview area.

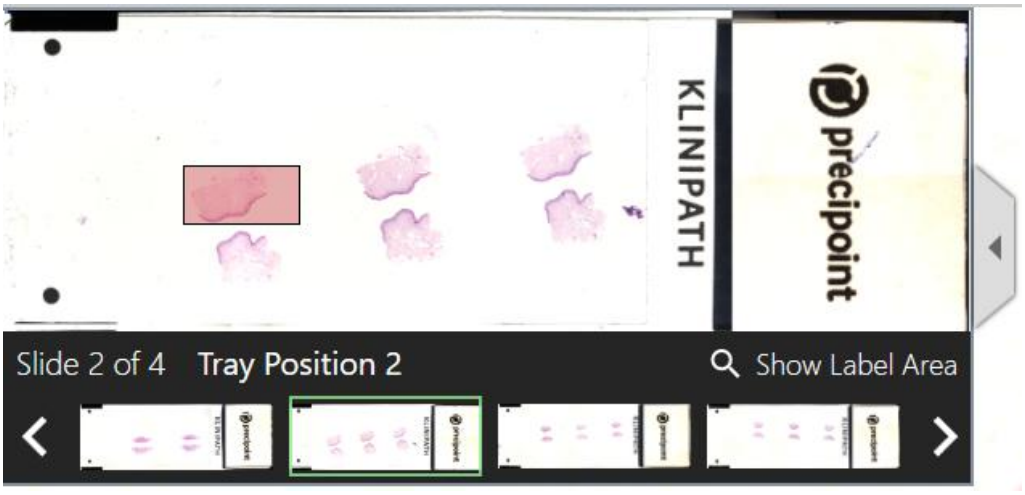


Figure 6-3: Overview Area

By clicking the preview slide image under the overview image or the arrows on the left and right side of the preview slide, the next slide can be selected. The currently viewed slide is displayed right under the overview image and its corresponding preview picture is highlighted with a green border.

6.1.3 Show Label Area

By clicking the "Show Label Area" button, the label of the current slide is displayed magnified in a separate window in the middle of the screen. The image can be rotated clockwise or counterclockwise in 90-degree increments by clicking on the arrows in the bottom right corner. Clicking the "X" on the upper right corner or clicking somewhere outside the window will close the window.

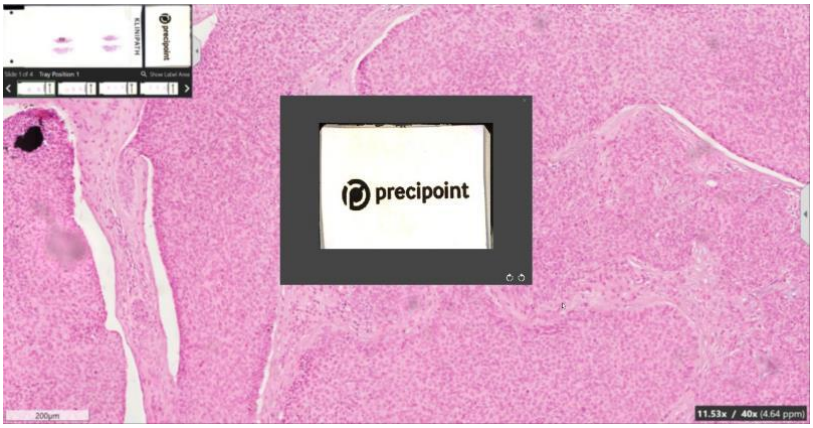


Figure 6-4: Show Label Area

6.1.4 Scalebar and Current Magnification

The bottom left corner displays the "Scalebar", which can be moved by dragging and dropping it to the preferred position. The bottom right corner displays the current magnification, the objective magnification, and the corresponding pixel per micrometer value (ppm). Zooming to a magnification higher than that of the mounted objective results in the display indicating the digital overzoom, which is highlighted in yellow.

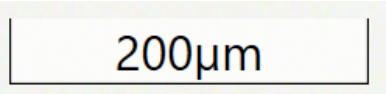


Figure 6-5: Scalebar

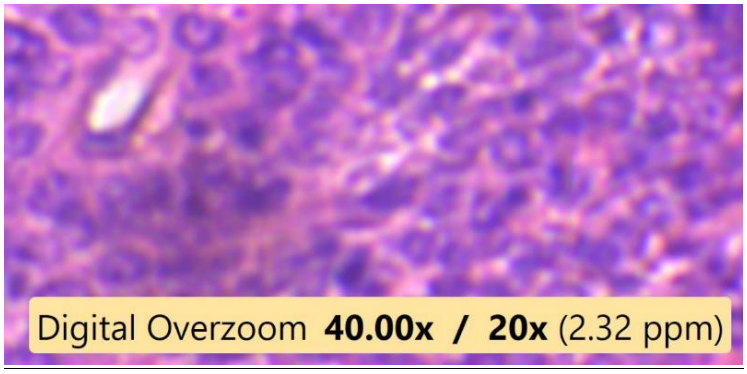


Figure 6-6: Digital Overzoom in the Bottom Right Corner

6.2 Toolbar

The "Toolbar" is located immediately above the "Main View" and offers different operations which are explained in the following chapters.

Figure 6-7: Toolbar

6.2.1 Magnification Buttons

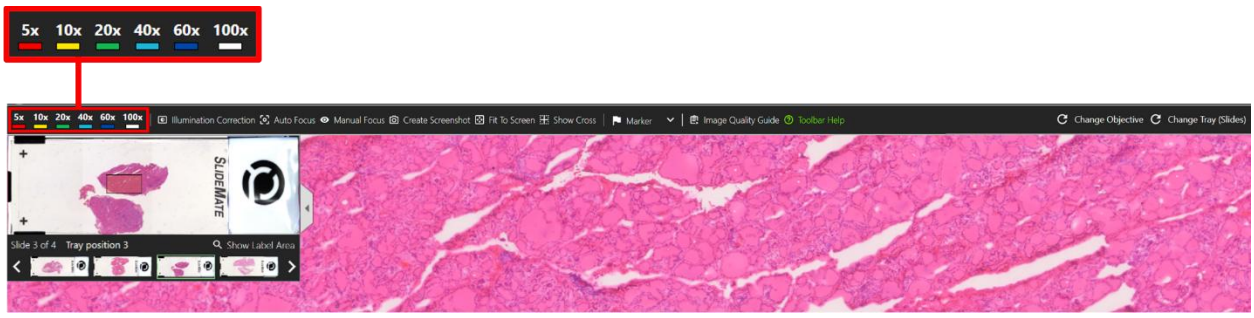


Figure 6-8: Magnification Buttons

The "Magnification Buttons" provide the opportunity to zoom quickly to the desired magnification.

Going beyond the objective, magnification enlarges the image artificially providing no additional information. This is known as digital overzoom (going up to a maximum of 150x) and is displayed in the "Main View" as explained in Chapter 6.1.

6.2.2 Illumination Correction

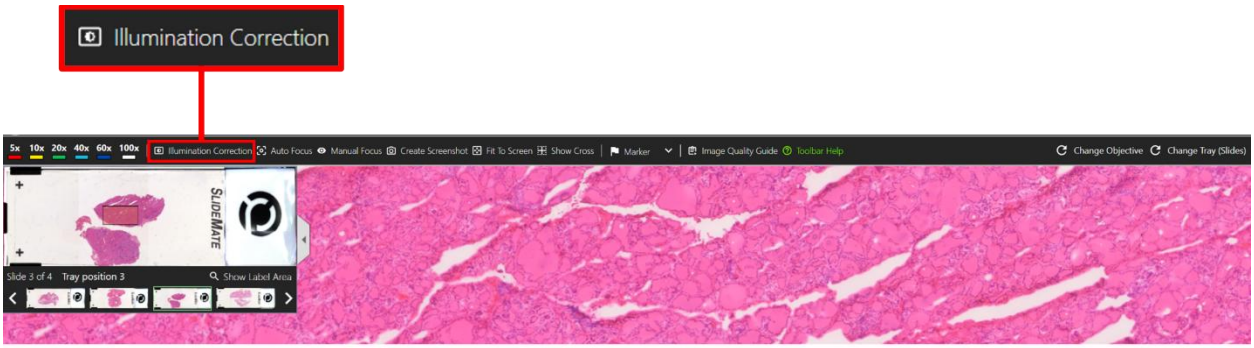


Figure 6-9: Illumination Correction

"Illumination Correction" (IC) is used to adjust the exposure time during image generation, perform white balancing, remove uneven illumination, and thus improve the quality of the images.

By clicking on the "IC" button, a dialog with a red square and a live image area appears in the middle of the screen. Follow the instructions in the dialog, which direct you to move the red square out of the sample and into the white space (still under the cover glass). Click "Start" to sample illumination data. This takes a few seconds and once finished, it will prompt you to confirm the new settings by clicking "Yes". By selecting the checkbox for automatic illumination correction, you can disable the automatic function, and a slider will appear to manually adjust the flashing time of the LED for the IC.

Please ensure that the red square only encompasses a white surface. It should not contain any parts of the specimen or any dirt. This would lead to replicating these artifacts over the entire sample.

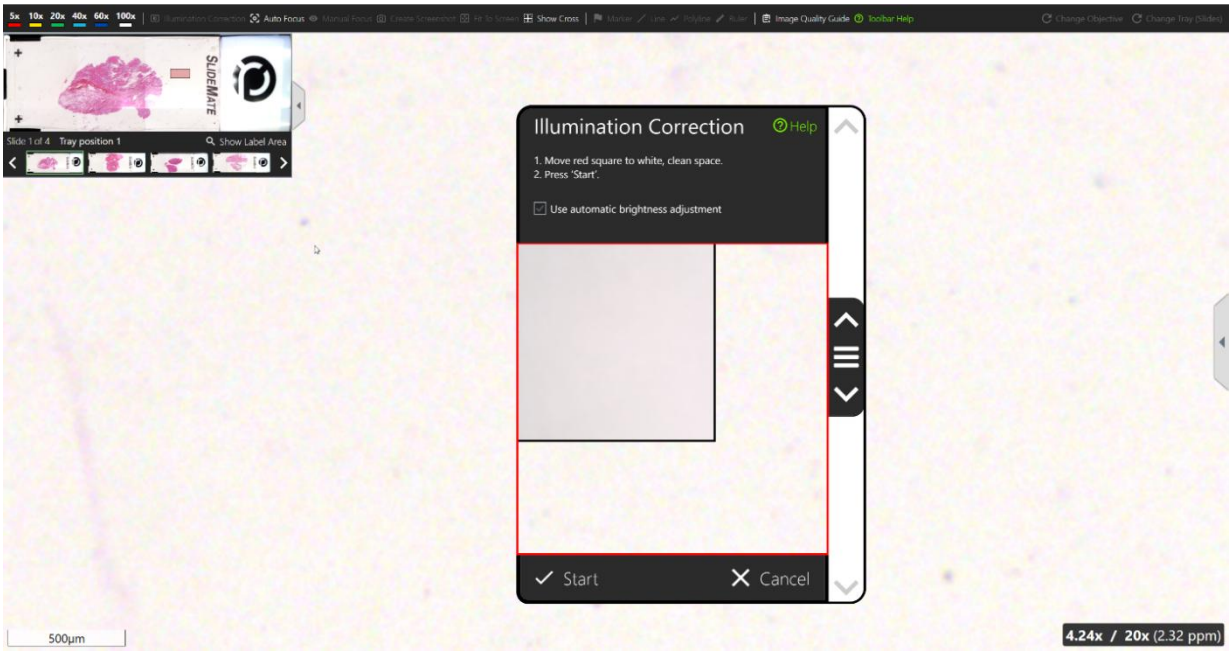


Figure 6-10: Illumination Correction

6.2.3 Auto Focus

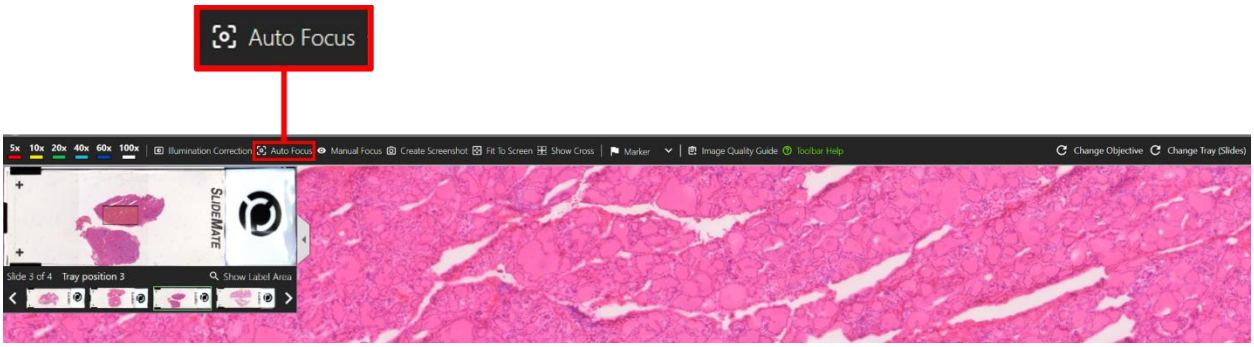


Figure 6-11: Auto Focus

The "Auto Focus" (AF) offers an automatic adjustment of the Z-axis looking for the best sharpness in the region of interest to provide you with a focused image.

The "Auto Focus" button will focus on the center of the main screen. The AF can be triggered with a click on the mouse wheel, then the focus is performed at the position of the mouse cursor.

The AF function can be repeated if the perfect focus cannot be found. The Z-axis range searched for will be higher in the repeat click.

If the AF does not perform as expected, ensure that an IC has been performed. You can always fall back to Manual Focus to adjust the image sharpness.

6.2.4 Manual Focus

A manual adjustment of the focus can also be performed especially if the autofocus does not deliver a satisfactory image.

Figure 6-12: Manual Focus

By using the "Manual Focus" button, a square with a live camera image will appear in the middle of the screen.

The white bar displayed on the right, next to the live image, is for adjusting the Z-axis position and setting the focus manually. Clicking in the middle area of the bar and slightly dragging downwards and upwards will move the focus accordingly in the fine drive. For larger movements, the coarse drive is activated by pressing and

holding the CTRL button on the keyboard. Alternatively, the scrolling wheel for moving the Z-axis can be used for very fine adjustment.

Once the appropriate position has been found, the focus can be set by clicking the "Apply Focus" button on the left of the live image, the "Apply Focus" button in the toolbar, or pressing "Enter" on the keyboard. Following the adjustment, the system will start acquiring images in the area with the newly found focus.

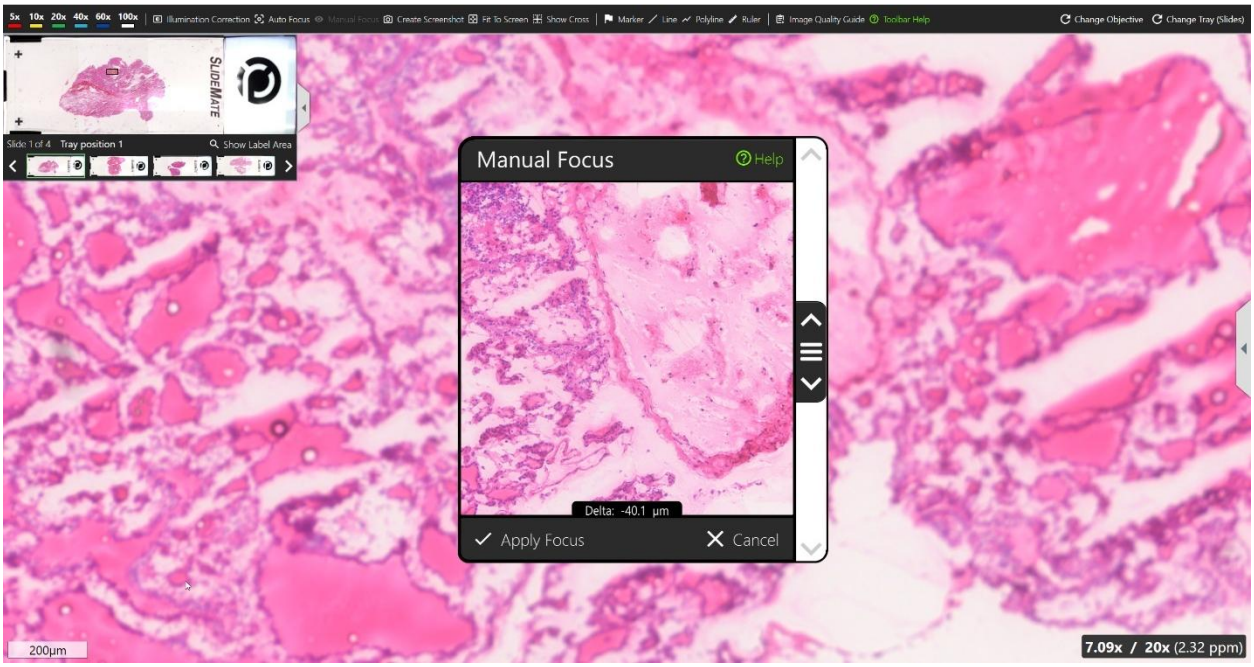


Figure 6-13: Manual Focus View

In case the manual focus also does not achieve a sharp image, please contact PreciPoint Support team.

6.2.5 Create Screenshot

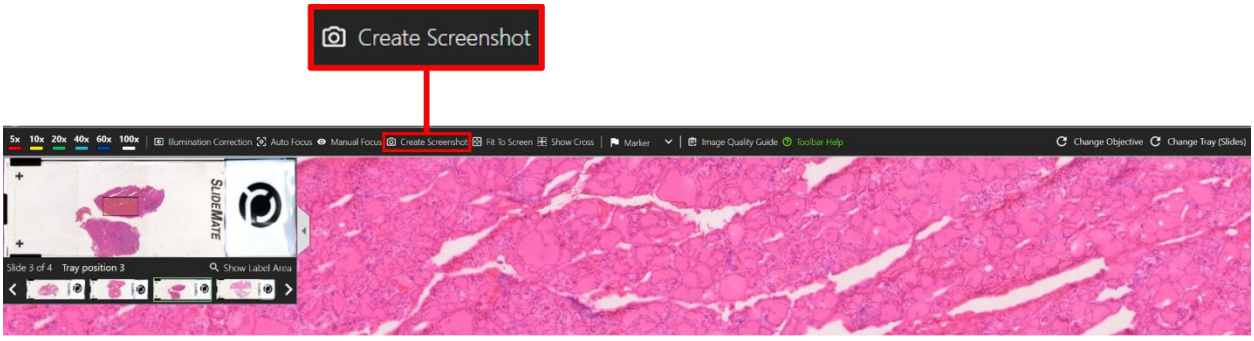


Figure 6-14: Create Screenshot

To create a screenshot, click on the "Create Screenshot" button. By clicking the button, the current state of the working area is acquired. You can decide where to save the image in the automatically opened Windows save file dialog.

Supported file formats are:

- .bmp
- .png
- .jpg
- .tif

6.2.6 Fit to Screen

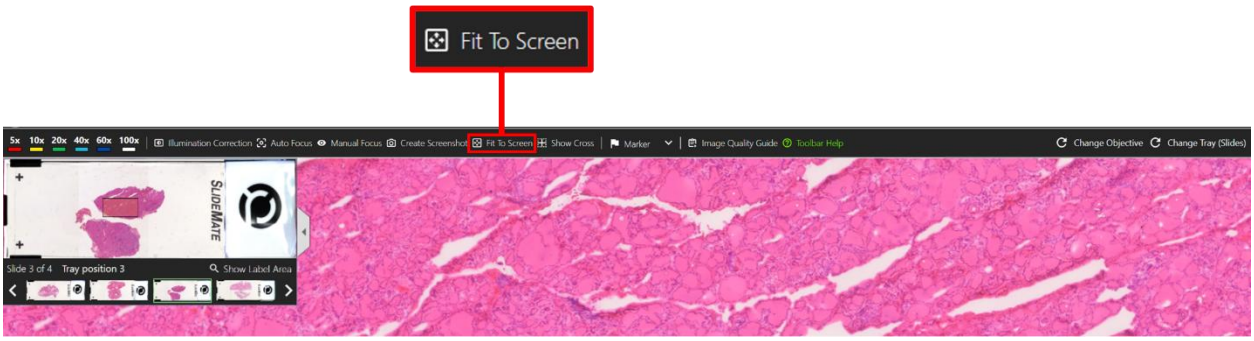


Figure 6-15: Fit to Screen

The "Fit to Screen" button re-centers and zooms out the image in the microscopic view until the complete slide is visible.

6.2.7 Show Cross

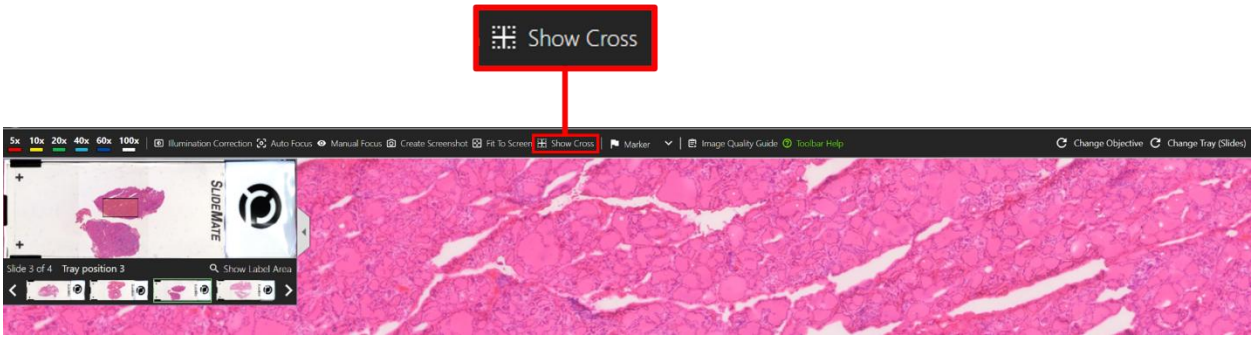


Figure 6-16: Show Cross

The "Show Cross" button serves as a size indication feature to enhance microscopy observations. When activated by clicking the "Show Cross" button, it overlays crosshair markings on the observed image. The scale adapts while zooming in, ensuring accurate size indication.

6.2.8 Marker (Annotation Mode)

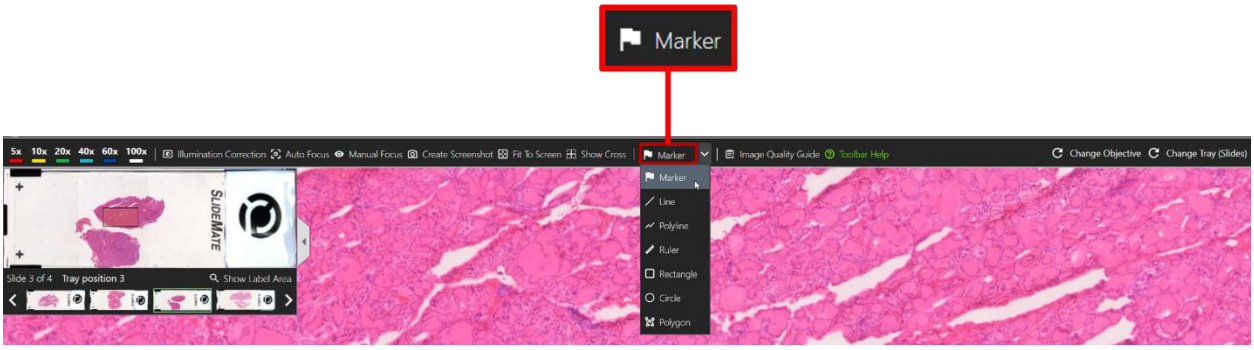


Figure 6-17: Marker

The "Marker" button activates the "Annotation" mode. When activated, an orange frame is displayed around the Viewport, and the "Sidebar" opens. In this mode, clicking on an area of interest places a marker in the default orientation and size. Holding the mouse button and dragging the cursor allows you to adjust the marker's length and orientation. The annotation mode exits automatically after placing one marker. You can deactivate this automatic exit feature in "General Settings" (Chapter 8.2.1).

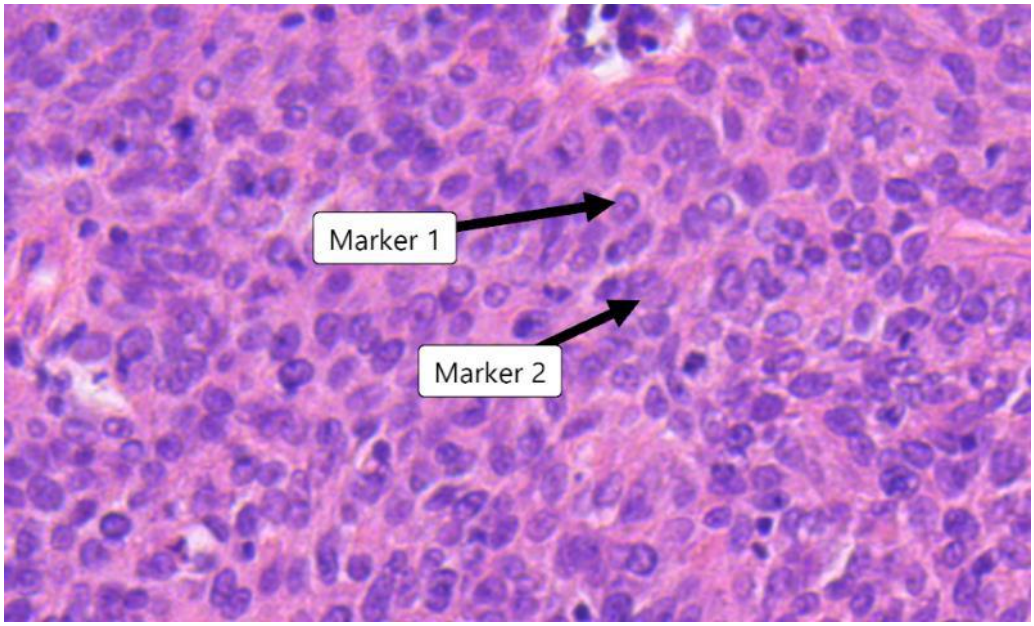


Figure 6-18: Marker Controlling

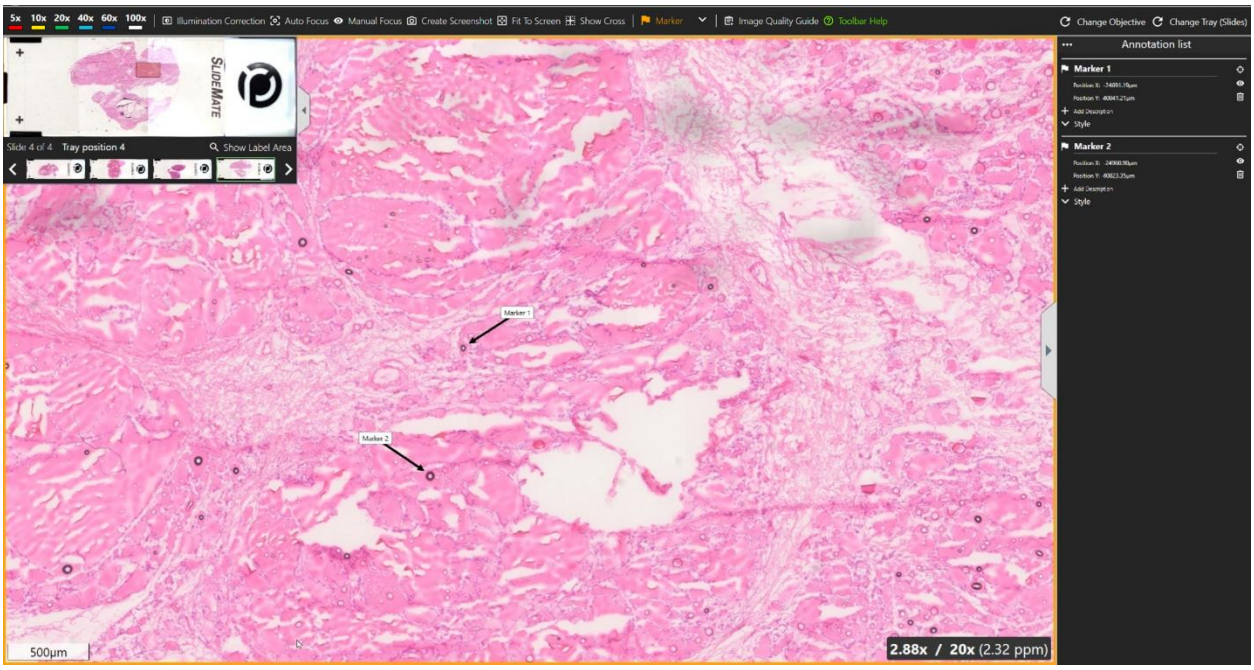


Figure 6-19: Annotation Mode; Working Area is Highlighted in Orange

For more information on Markers, Annotations, and the Sidebar, see Chapter 6.3.

6.2.9 Line

Figure 6-20: Line

The "Line" button allows you to measure samples effectively and accurately. To create a measurement line, select the start and end points you wish to measure. This can be achieved by clicking and dragging the line from start to finish point. The flexibility of this function accommodates the measurement of areas at various angles. However, please note that the measurement line created by this tool is always a straight line.

6.2.10 Polyline

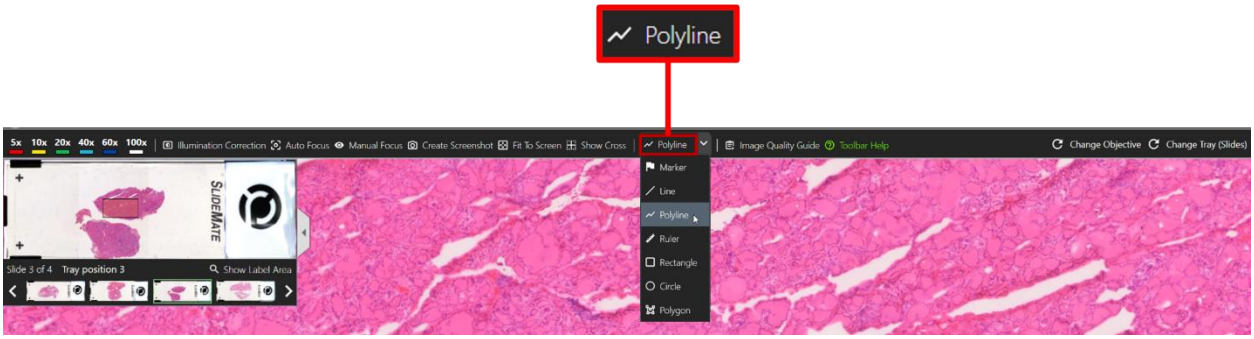


Figure 6-21: Polyline

The "Polyline" button enables users to create complex shapes and outlines for various purposes, such as annotations and measurements. To utilize it, select the "Polyline" tool and then click and drag to draw your desired shape within the area of interest. The "Polyline" tool offers flexibility, enabling you to craft complex shapes.

6.2.11 Ruler

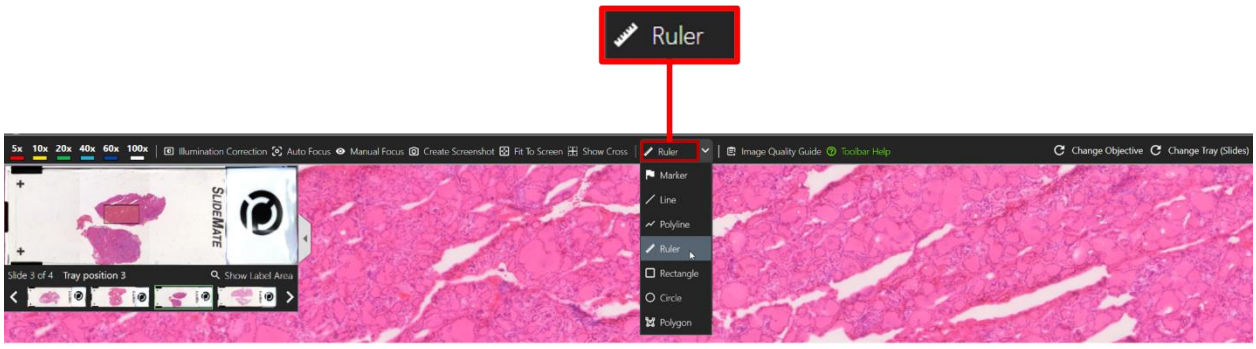


Figure 6-22: Ruler

The "Ruler" feature is designed for size indications. Activate it by selecting the tool. Click on the area you wish to assess, and a ruler appears to evaluate distances or dimensions of your microscopic images.

Customize the ruler's orientation (horizontal or vertical) and length in the sidebar.

6.2.12 Rectangle

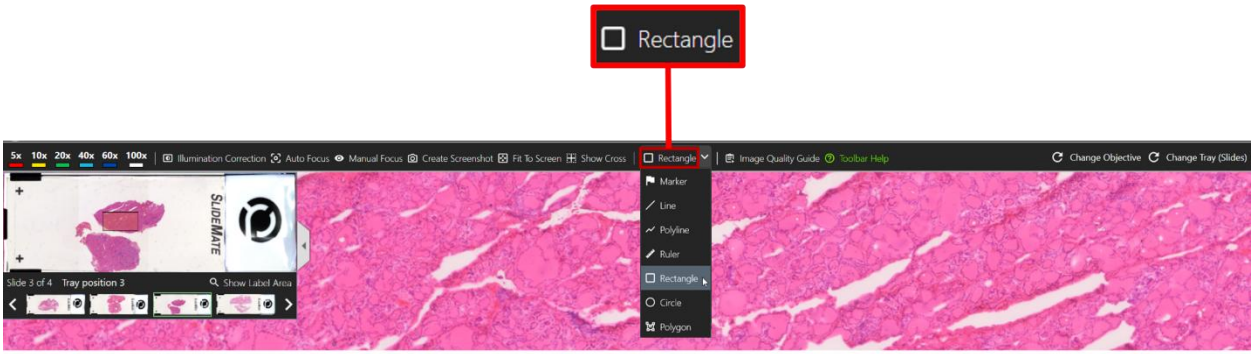


Figure 6-23: Rectangle

The "Rectangle" annotation is created by clicking and dragging the mouse to draw its diagonal. To adjust the rectangle, clicking on its border reveals points at each corner and the midpoint of each side. These points can be adjusted by dragging them to modify the size and shape of the rectangle.

6.2.13 Circle

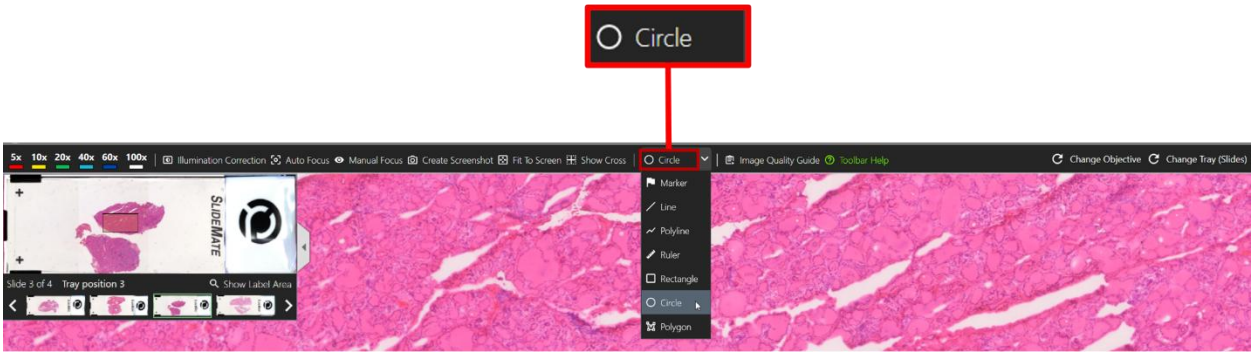


Figure 6-24: Circle

A "Circle" is created by dragging the mouse to define its diameter. Clicking on the circle enables editing, revealing four adjustable points along its border. The radius can be modified by dragging any of these points.

6.2.14 Polygon

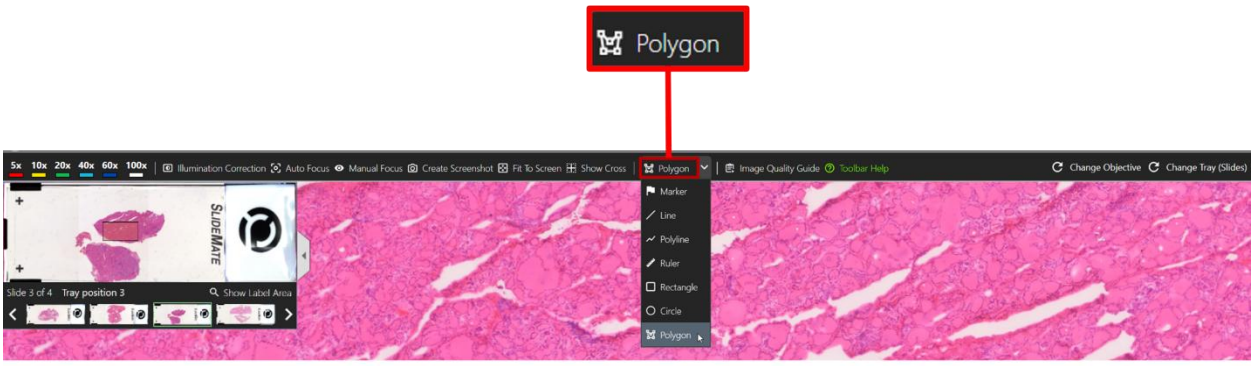


Figure 6-25: Polygon

To create a "Polygon" annotation, select the polygon annotation tool using the annotation button, then draw the polygon directly in the "Main View". Clicking on the polygon's outline will select it, revealing points along the outline. You can drag these points to modify the polygon's shape.

6.2.15 Image Quality Guide

The "Image Quality Guide" guides you through the steps required to optimize the display quality of the sample you are viewing under the microscope. By default, when you access a slide, you are asked whether you want to follow the guide. If you choose to proceed, which is highly recommended for new users, the guide will move to the top right of the screen and provide step-by-step instructions to you. You can keep clicking the "Next" button in the guide, on the top right, until the task is completed.

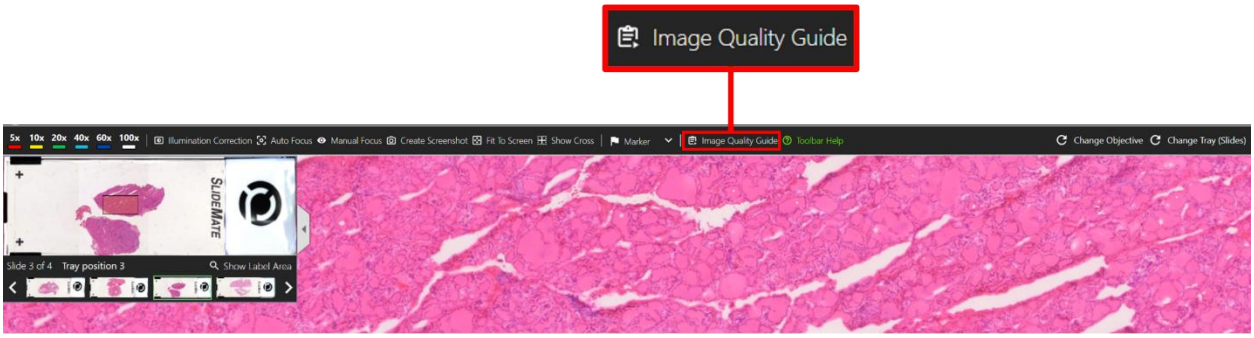


Figure 6-26: Image Quality Guide in Toolbar

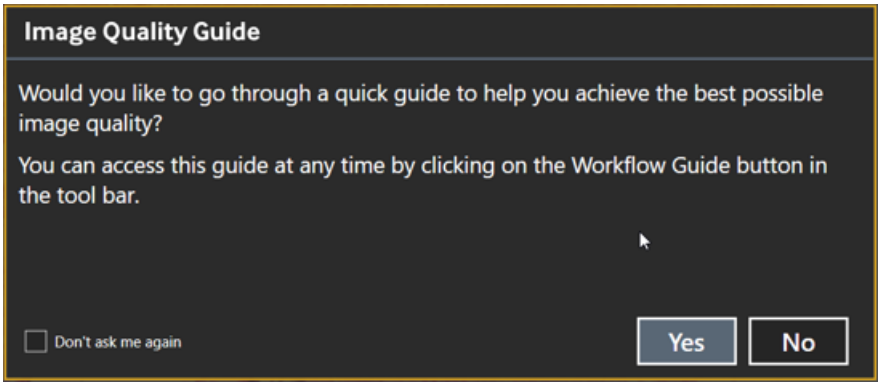


Figure 6-27: Center Screen Dialog Asking to Start the Image Quality Guide

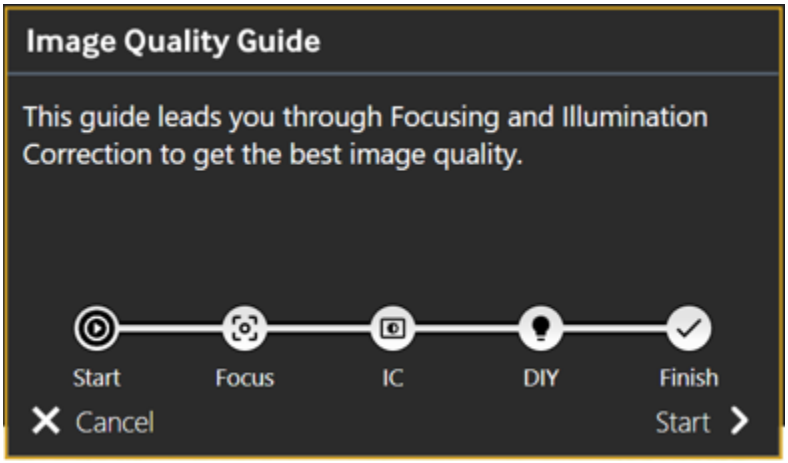


Figure 6-28: Image Quality Guide whilst in Progress on the Top Right

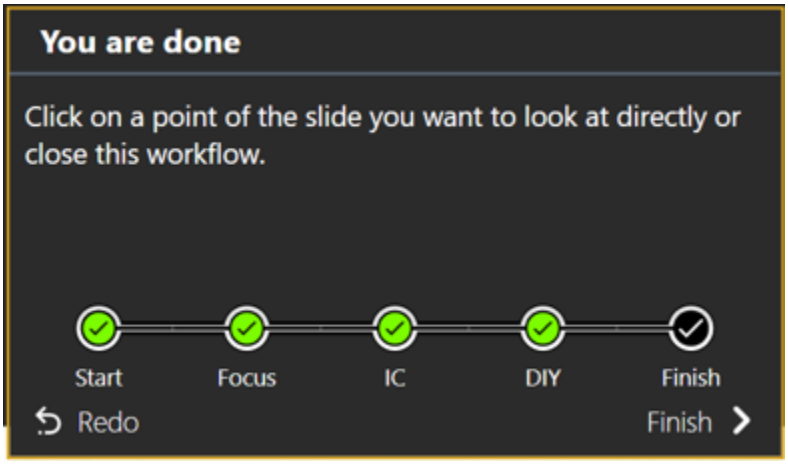


Figure 6-29: Image Quality Guide Once Completed on the Top Right

6.2.16 Toolbar Help

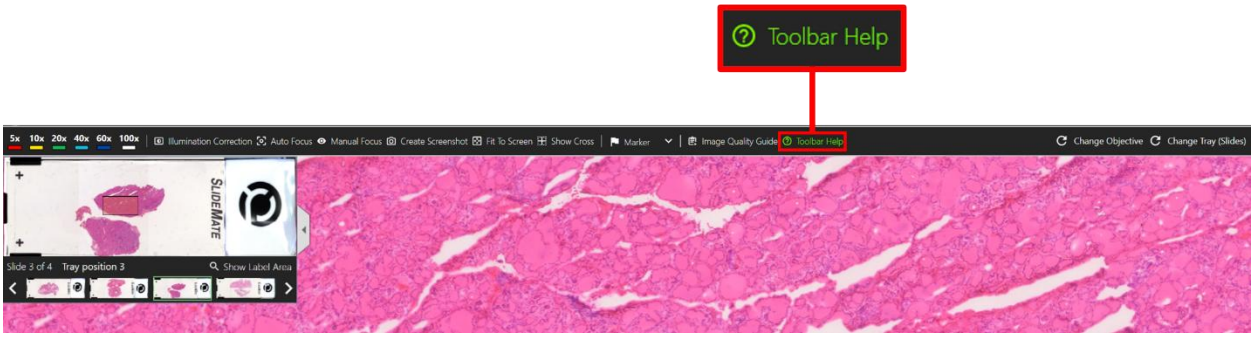


Figure 6-30: Toolbar Help Button

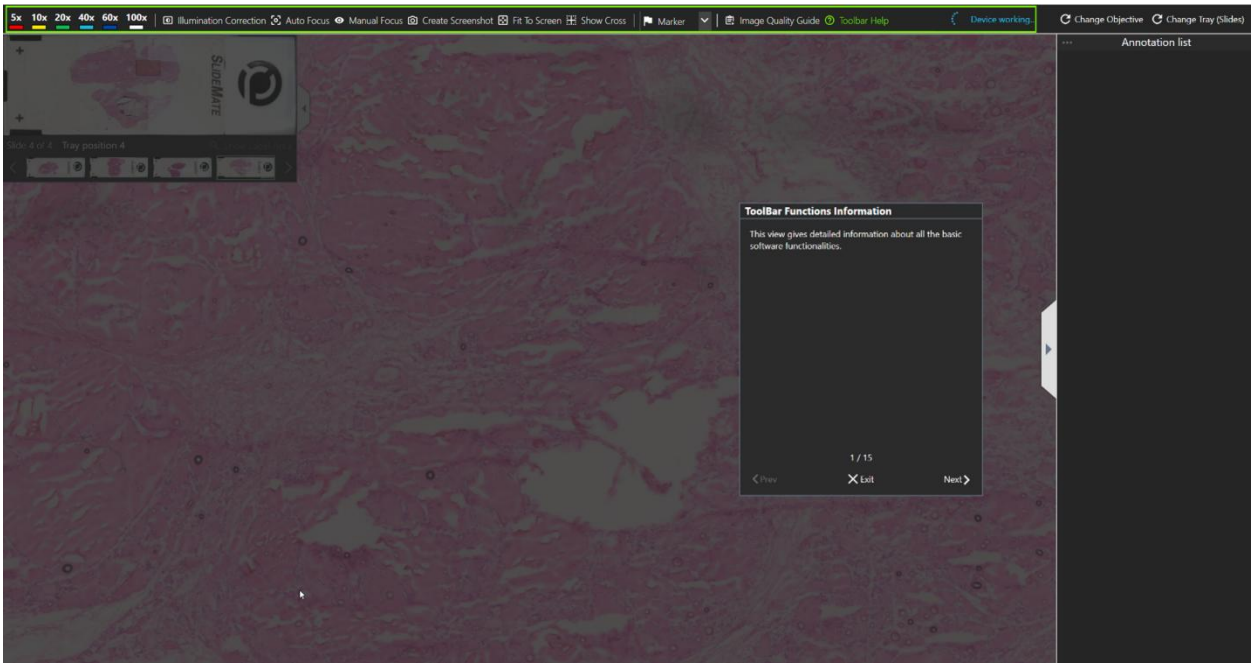


Figure 6-31: Toolbar Help Tour in Progress

The "Toolbar Help" starts a short, guided tour through the user interface and highlights buttons and features used to control the system.

6.2.17 Change Objective

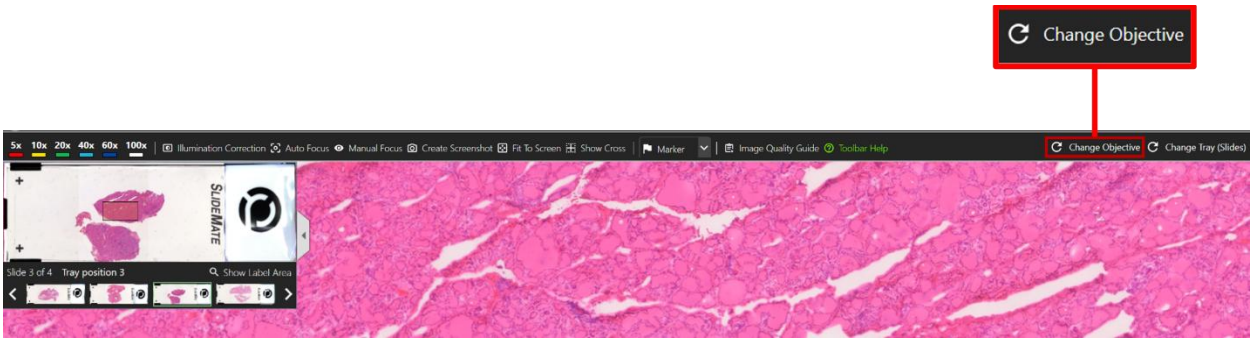


Figure 6-32: Change Objective

Pressing the "Change Objectives" button triggers the microscope to move into the initial position. A new window appears, prompting you to either select a new objective and confirm the choice by clicking the "Continue" button located at the bottom right of the window, or cancel the operation to retain the current objective. Upon selecting "Continue", the screen displays the "Objective Selection" window once again.

6.2.18 Change Tray (Slides)

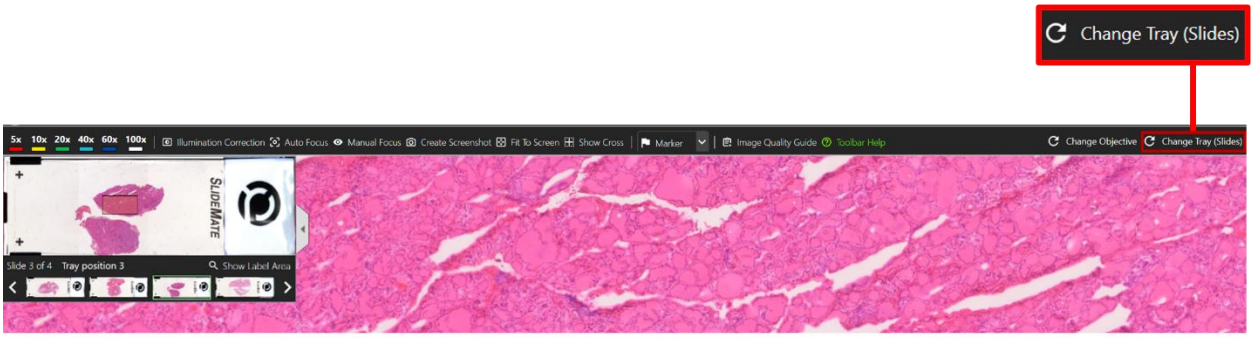


Figure 6-33: Change Tray (Slides)

By pressing the "Change Tray (Slides)", the microscope goes into the start position and a new window appears where you are prompted to either change the tray and press the "Continue" button on the bottom right of the window (for more information on how to change trays, see Chapter 9) or cancel the operation and go back to the current slide. After pressing "Continue", the screen will show the "Slide Selection" window again, as explained in Chapter 5.4.

6.2.19 Device Working

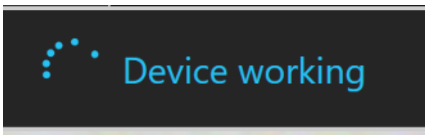


Figure 6-34: Device Working

While the device is running, the message "Device working" is displayed in blue on the right side of the toolbar with a progress ring. User input always overwrites current device operations, as described in Chapter 6.1.

6.3 Sidebar (Annotation List)

The "Sidebar", also called "Annotation list", shows the current drawn annotations and gives you the possibility to change their appearance. Further information for adding annotations can be found in Chapter 6.2.8. By clicking on the gray arrow at the left side of the "Sidebar", you can hide and open the annotation list again.

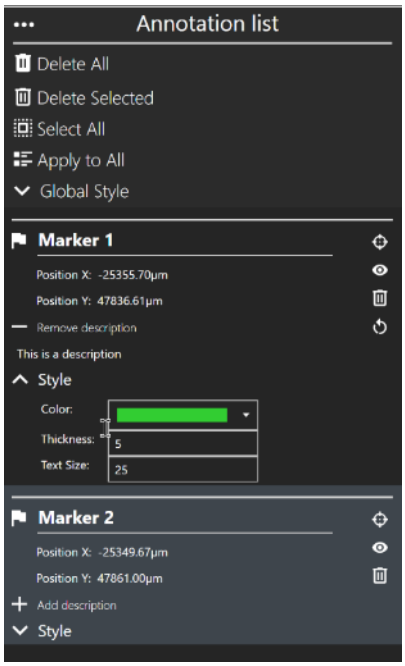


Figure 6-35: Annotation List

The "Annotation list" gives you various options to adjust current annotations and get more information about them. You can either adjust the global style or set a custom style for each annotation.

6.3.1 Global Style Adjustments

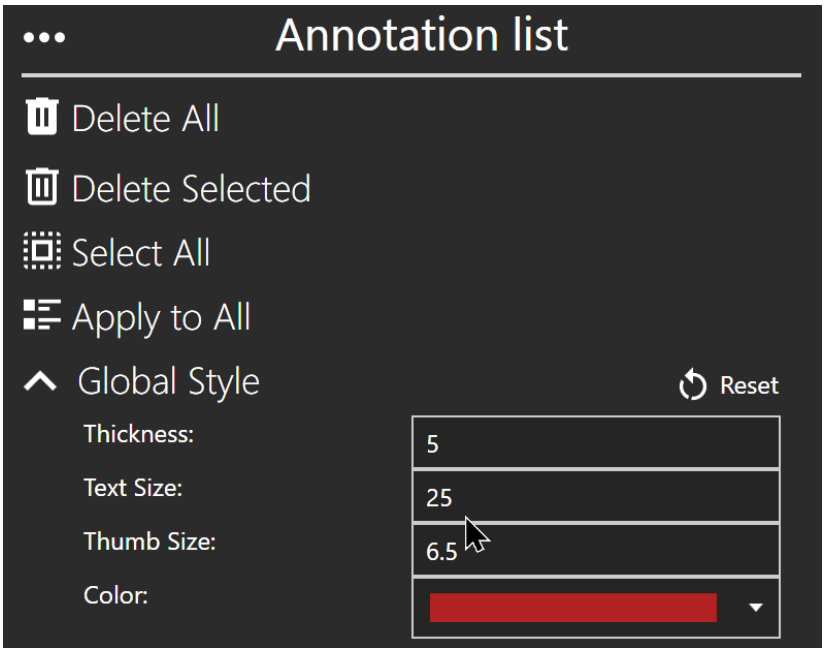


Figure 6-36: Annotation List Global Style

- With the upper section of the list, you can adjust all annotations at once.
- With the "Delete All" button, you can delete all annotations at once.
- With the "Delete Selected" button selected, particular annotation can be deleted. To select an annotation, click on an empty area in the desired annotation. The field will be highlighted in gray. By holding down the CTRL button, multiple annotations can be selected.
- With the "Select All" button, all annotations can be selected at once.
- With the "Apply to All" button, all customized annotations can be reset to the "Global Style" settings.
- The "Global Style" button hides and unhides the different parameters that can be adjusted for all annotations.
    a. Thickness: Thickness of the lines shown in the annotations in pixels.
    b. Text Size: Text size of the text shown above the annotations in pixels.
    c. Thumb Size: Thumb size changes the size in pixels of the dots shown on the annotations by clicking on them.
    d. Color: Color changes the color of the annotation.
- By using the reset button on the top right corner of the "Global Style" area, all changes can be reset to default.
- The lower sections show the specific annotations that were made in the sample.

6.3.2 Markers

The "Marker" sections show different parameters of the marker and it is shown with a white flag symbol in the upper left corner of the section.

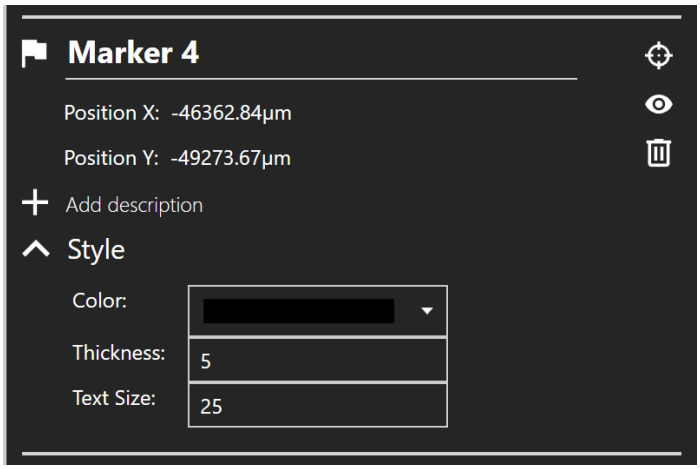


Figure 6-37: Marker without Description

You can rename the marker name by clicking into the field. The name can be up to 150 characters long.

Under the marker name, there is the position field where the current X and Y position of the marker is shown.

The "crosshair" symbol on the right side can be clicked to quickly navigate and zoom to the annotation in the working area.

With the "eye" symbol on the right side of the section, you can hide and unhide the marker in the working area.

By clicking the "trash bin" symbol on the right side of the section, the marker can be deleted.

By clicking the "Add description" button under the position status, you can add a description of the marker up to 5000 characters long. After description is made, it can also be removed by using the "Remove description" button.

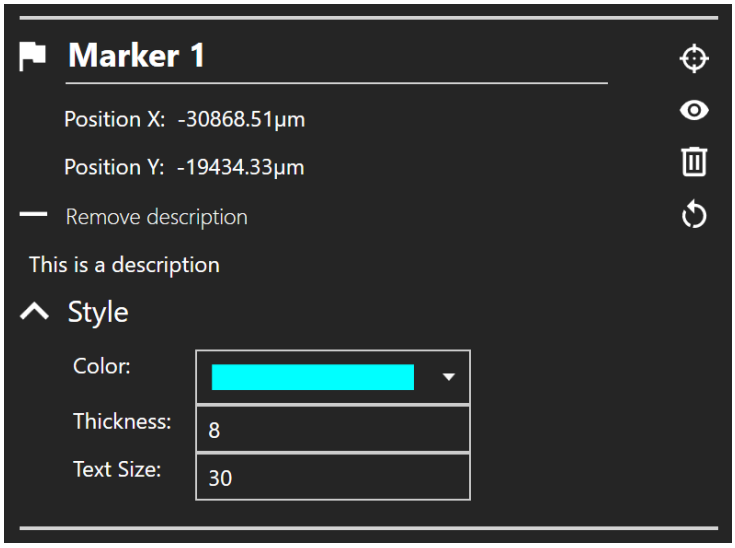


Figure 6-38: Marker with Added Description

The "Style" button hides and unhides the different parameters that can be adjusted for the selected marker.

- Color: Color changes the color of the marker.
- Thickness: Thickness of the lines shown in the marker in pixels.
- Text Size: Text size of the text shown above the marker in pixels.

By using the "Reset" button on the top right corner of the "Style" area, all changes can be reset to default.

7 Scan Mode: Basic Menu Structure

This mode is designed for scanning slide regions to generate persistent image files. High-resolution images are captured and stitched together to create one big image, known as whole-slide image (WSI). An overview of the specimen is displayed in the "Main View" area to select the scanning area. The process is enhanced by AI-powered tissue detection and an automatic barcode reader.

The user interface consists of three sections: Main View (red box), Toolbar (blue box) and the Sidebar (green box). All these sections have different functionalities which are explained in the following subchapters.

Figure 7-1: Software UI with Main View (Red Box), Toolbar (Blue Box) and Sidebar (Green Box)

7.1 Toolbar

The "Toolbar" is located immediately above the "Main View" and offers different operations which are explained in the following chapters.

7.1.1 Switch Views

The "Main View" offers two display modes: "Simple View" and "Detailed View". "Simple View" provides an overview of all slides in the tray, while "Detailed View" shows a selected single slide in more detail. To switch between these views, use the button on the top left side of the toolbar.

In ”Simple View”, this button is labeled ”Edit Slides”.

Figure 7-2: Edit Slides Button

When you are in the ”Detailed View”, the button shows “Display All”.

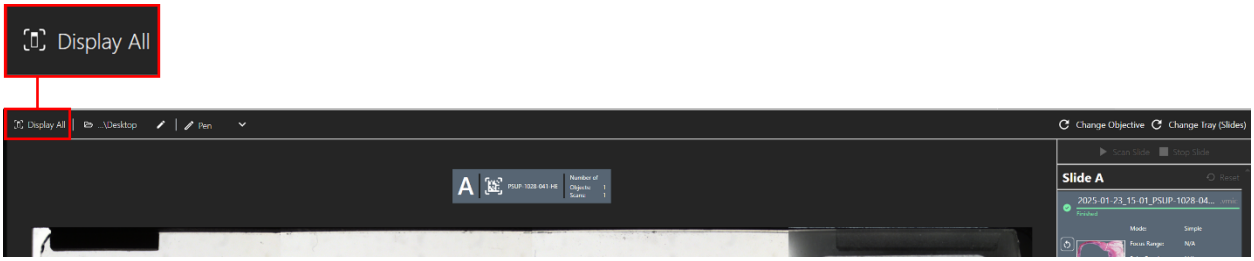


Figure 7-3: Display All Button

A more detailed description of both views can be found in Chapter 7.2.

7.1.2 Default Folder Button

This button shows the currently selected folder for saving scans. Clicking the button opens this folder in the file explorer. To change the folder location for the current session, click the pen icon on the right edge of the button. To set a permanent folder, go to the settings described in Chapter 8.2.3.

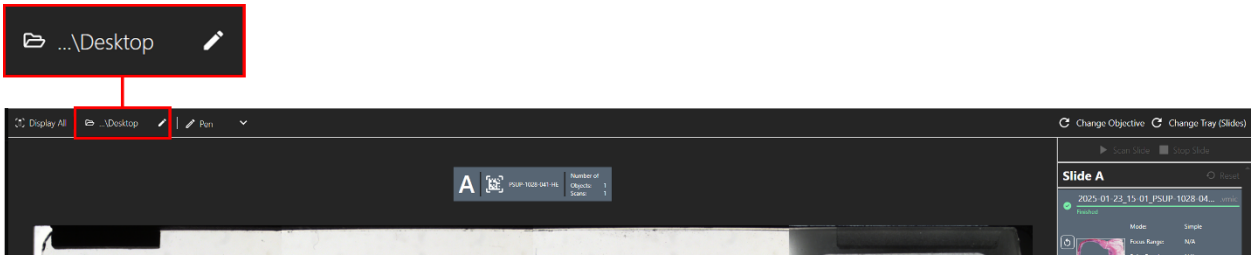


Figure 7-4: Default Folder Button

7.1.3 Drawing Tools Dropdown

This dropdown menu provides different drawing tools to edit the scan area of the slides. By clicking on the button, you can activate and deactivate the currently selected tool. To select a different tool, press the arrow down on the right edge of the button to open the list of available tools and select a different one.

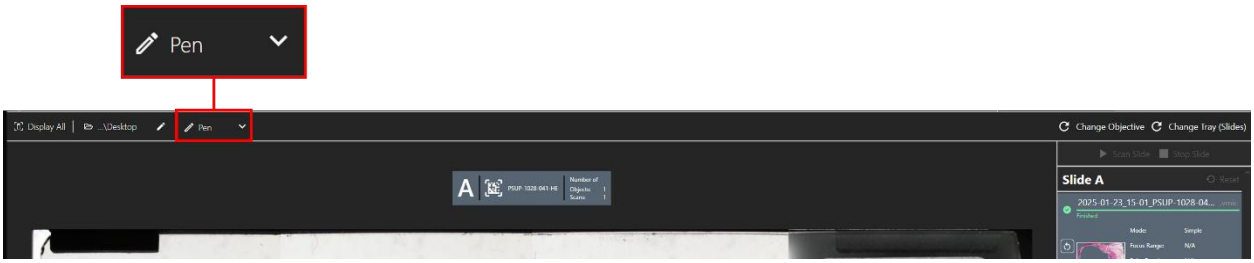


Figure 7-5: Drawing Tool Button

The tools are described further in Chapter 7.2.2.

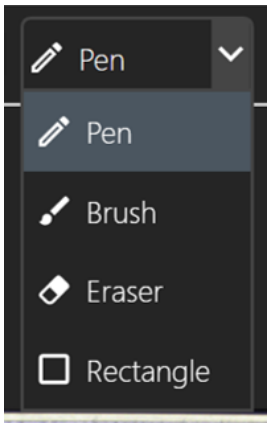


Figure 7-6: List of Available Drawing Tools

7.1.4 Change Objective and Change Tray Buttons

The functionality of these buttons is the same as described in Chapter 6.2.14 and 6.2.15.

Figure 7-7: Change Objective and Change Tray Buttons

7.2 Main View

The "Main View" can display either an overview of all slides ('Simple View') or a detailed view of a single slide ('Detailed View'). Both views are described in Chapter 7.2.1 and 7.2.2 respectively. The following applies for both:

After the overview images are captured, the AI tissue detection analyzes them and automatically defines scanning areas where tissue is detected. Furthermore, the barcode reader scans the slides for barcodes and assigns the file name of each scan accordingly. If no barcode was detected, this is indicated on the slide's info view and a default filename is assigned.

The results of the preprocessing are displayed in the "Info View", including the position on the tray, the content of the barcode, the number of objects, and the number of scans on each slide.

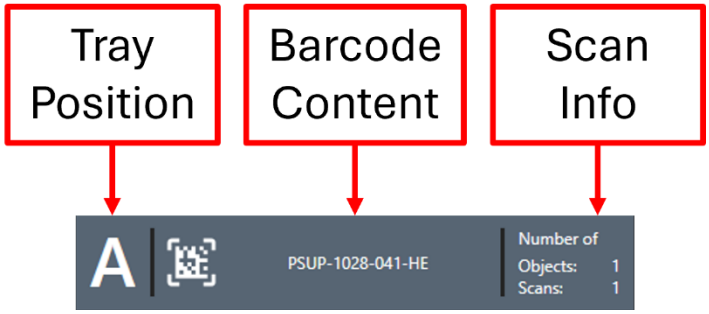


Figure 7-8: Info View

Additionally, the area used for IC (yellow square) is automatically set to a spot without tissue.

As already mentioned, one slide can contain multiple scans and each scan can include multiple scan objects. Each scan generates a single file, containing all selected objects for this scan. Each scan is displayed with a rectangular border on the slide.

You can activate or deactivate individual objects. Only active objects will be scanned when the scanning process starts.

To deactivate a marked object, hover over it with your mouse until the cursor changes to a cross, then click the left mouse button. To activate an object, hover over an unselected object until the cursor changes to a plus sign, then click to add it. The object will be added to the currently selected scan. You can continue adding objects to the same scan or click the checkmark in the upper right corner of the rectangle to finish adding objects. If you want to add another object to it later, use the plus button in the upper right corner and follow the same process.

Each object has at least one focus point. Blue points are primary focus points that are used first, while red points are normal focus points.

The focus points and the IC area are positioned automatically by an algorithm to ensure the best scanning results. However, you can move them around by clicking and dragging if you want to change their position.

7.2.1 Main View Simple View

By default, the 'Simple View' containing all slides that are placed in the tray is started. This setting can be changed in the preferences.

In this view, you see an overview of all scans with key information about the slides. Here, you can perform all the actions described in the previous chapter.

Figure 7-8: Main View Slide Overview

To edit a scan area, switch to 'Detailed View' by either clicking the button in the toolbar or double-clicking the slide you want to adjust.

7.2.2 Main View Detailed View

In this view, you can edit scanning areas on individual slides with the help of drawing tools, as shown in Figure 7-5 and 7-6. All tools must be activated with the toolbar button and can be used by clicking and dragging the mouse.

With the pen tool, you can draw the border of the area you want to scan. If you do not close the shape, the software will automatically complete it as a geometric shape. The entire area you draw is considered one object and will be scanned. Using the right mouse button, you can erase a drawn shape from an existing object.

With the brush tool, you can also draw shapes. Unlike the pen tool, the brush has a round shape, and its size can be adjusted using the range control in the toolbar or the mouse wheel. The entire area covered by the brush while drawing is considered an object. By using the right mouse button, you can erase the drawn area from an existing object.

The eraser tool can be used to erase parts of existing shapes. Use it the same way as the brush, but with the left mouse button, and it will erase the selected area.

With the rectangle tool, you can generate a rectangular shape of a given size. Adjust its size in the toolbar or with the mouse wheel. Clicking on the sample places the rectangle at the current mouse position. When dragged, the rectangle behaves like the brush tool.

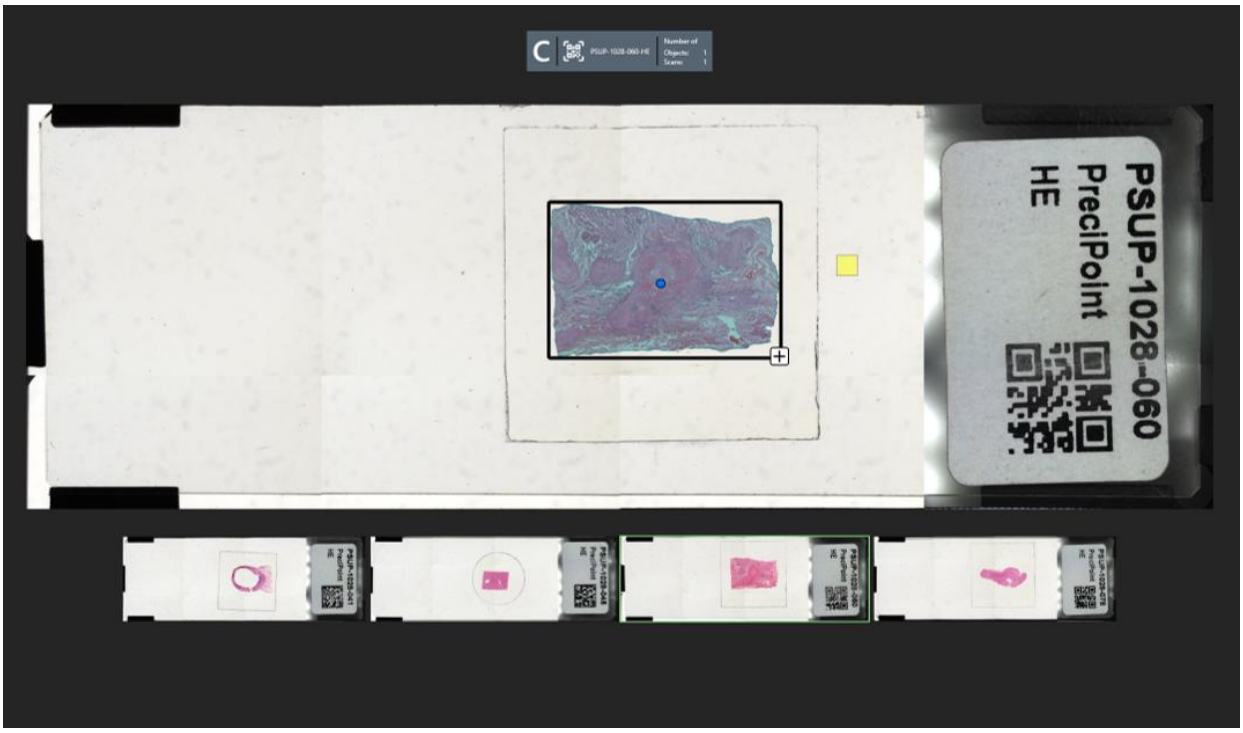


Figure 7-9: Main View Detailed View

To switch to another slide, click one of the small slide images at the bottom of the main view.

7.3 Sidebar

In the Sidebar, you can start, stop, and monitor the scanning process. It is also possible to modify the scan's configurations. All scans are sorted by the slide they belong to.

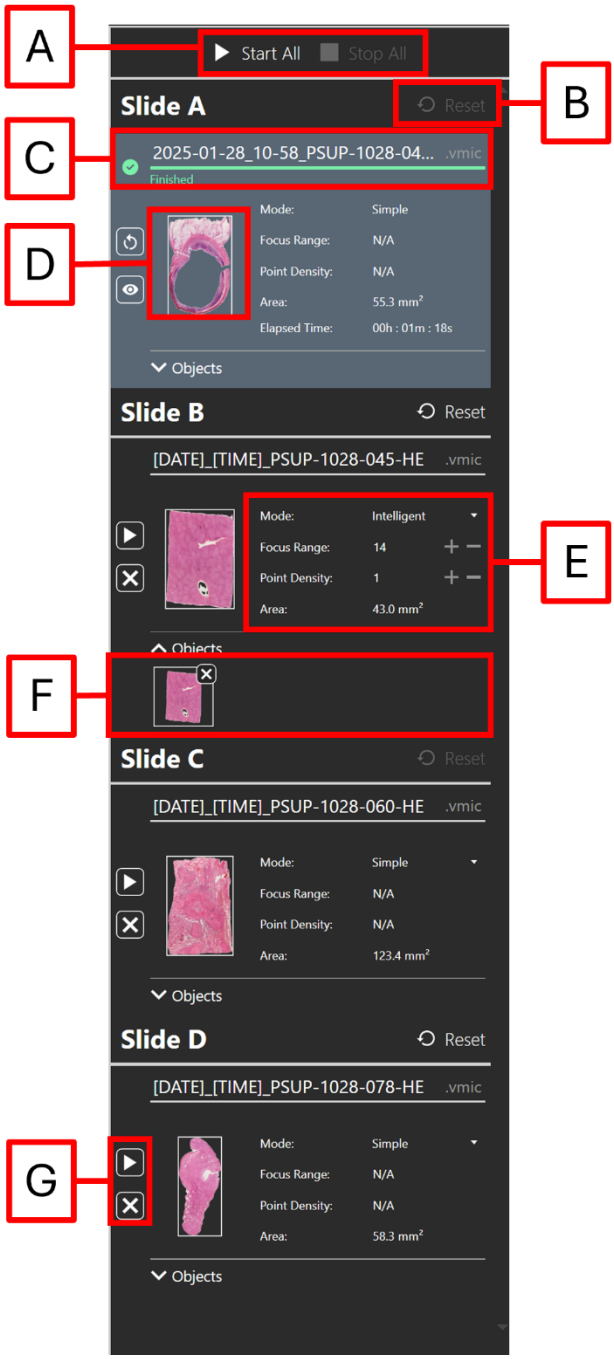


Figure 7-10: Sidebar

At the top, you can see the generated name of the scan file. Clicking it allows you to rename it. The capitalized words inside the brackets are placeholders that will be replaced once the scan is complete. Possible placeholders are:

- [DATE] = scan date
- [TIME] = scan time
- [MODE] = used focus mode

You can modify the file format in the settings.

On the left side, an overview of the entire scan (D) is displayed.

All scan objects are listed at the bottom (F). Here, you can click on each object to highlight it in the Sidebar and in the Main View. To sort the object list by size, click the "Sort by Area" button in the upper right corner. The button "View all" button is hidden for fewer than 10 objects but appears when more are present, allowing you to expand the list to view all objects. Use the "Cross" button on each object to remove them individually from the scan.

Once a scan has started, its current scanning status is displayed at the top under the file name (C).

You can change the scan configuration on the right side (E).
Available Focus-Modes:

- Simple: Only the main focus point is used, and its Z-position is applied to the entire scan.
- Predictive: All focus points are used, and a best-fit plane is calculated through their Z-positions for the tiles.
- Intelligent: A best-fit plane is calculated from the focus points, but each tile is also focused individually using a small auto-focus range.
- Precise: Each tile is focused separately using a large auto-focus range.

Depending on the mode you choose, you can adjust the focus range of the auto-focus or the point density of the focus points.

Beneath these settings, the scan size is displayed in cubic millimeters. Once a scan has started, the elapsed time is also shown.

To remove a scan from the list, press the "Cross" button on the left side (G). To start a single scan, press the "Play" button on the left (G) or start all scans by pressing the "Start All" button at the top of the "Side Bar" (A).

You can stop running scans by pressing the stop button, which is displayed at the left side or the "Stop All" button at the top of the Side Bar.

After a scan is finished, click the button with the "Eye" symbol to open the scan in the viewing software immediately. To rescan a slide, use the "Reset" icon and start the scan again.

If you make changes to the slide, such as modifying scan settings or scanning areas, you can always go back to its initial state by using the "Reset" icon (B).

8 Other Buttons and Actions

8.1 Full Screen

Figure 8-1: Open Full Screen

Figure 8-2: Close Full Screen

By using the "Full Screen" button, you can zoom the "MicroPoint" screen to a full screen without the Windows taskbar. By clicking this button again, the screen will go back to normal mode.

8.2 Further Settings

Figure 8-3: Further Settings

Using the "Further Settings" button, you can adjust additional system settings.

8.2.1 General Settings

With the "General" settings, you can select the application language and you can switch between light mode and dark mode.

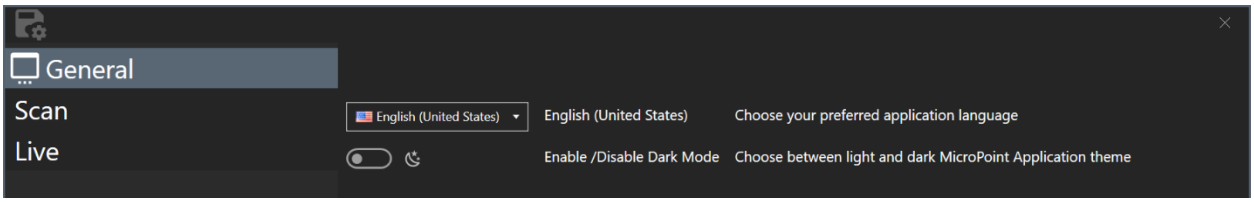


Figure 8-4: General Settings

8.2.2 Live-Mode Settings

Within the Settings of the Live-Mode you can switch between the Tabs "Base" and "Shortcuts".

The Base-Settings contain the following setting options:

- Change how often the "Image Quality Guide" dialog will appear.
- Adjust the mouse wheel zoom in/out speed.
- Set to exit annotation mode automatically or not.
- Set to display the minimap's overlay or not.
- Set to display the scalebar or not.
- Set the speed of the Z-axis when using the focus adjustment shortcut.
- Set the time before the adjusted focus is saved in the focus adjustment shortcut.

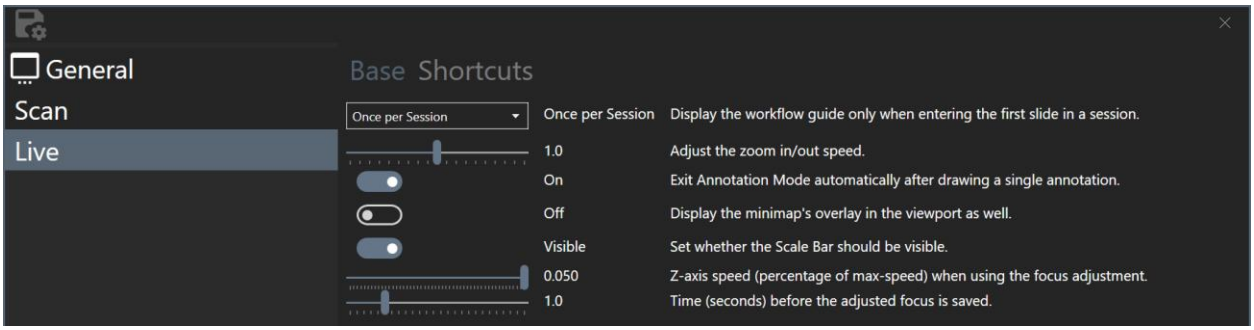


Figure 8-5: Live-Mode Base Settings

The Shortcut-Settings contain a list of all key bindings that are available. Each key binding can be changed by double clicking and then pressing the new key that should be used for the given functionality.

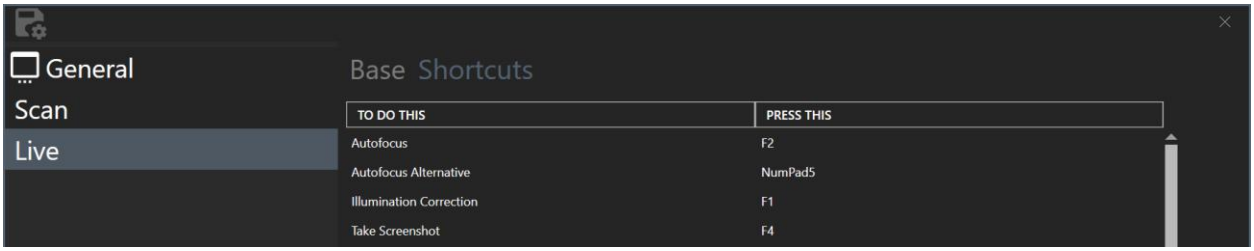


Figure 8-6: Live-Mode Shortcut Settings

8.2.3 Scan-Mode Settings

The Scan-Mode Settings contain the following setting options:

- Choose the startup behavior by selecting the default view and the way objects are treated by default.
- Set the default scanning settings used for all your scans.
- Set the defaults used for the naming structure and the file directory when scans are saved to your hard drive.

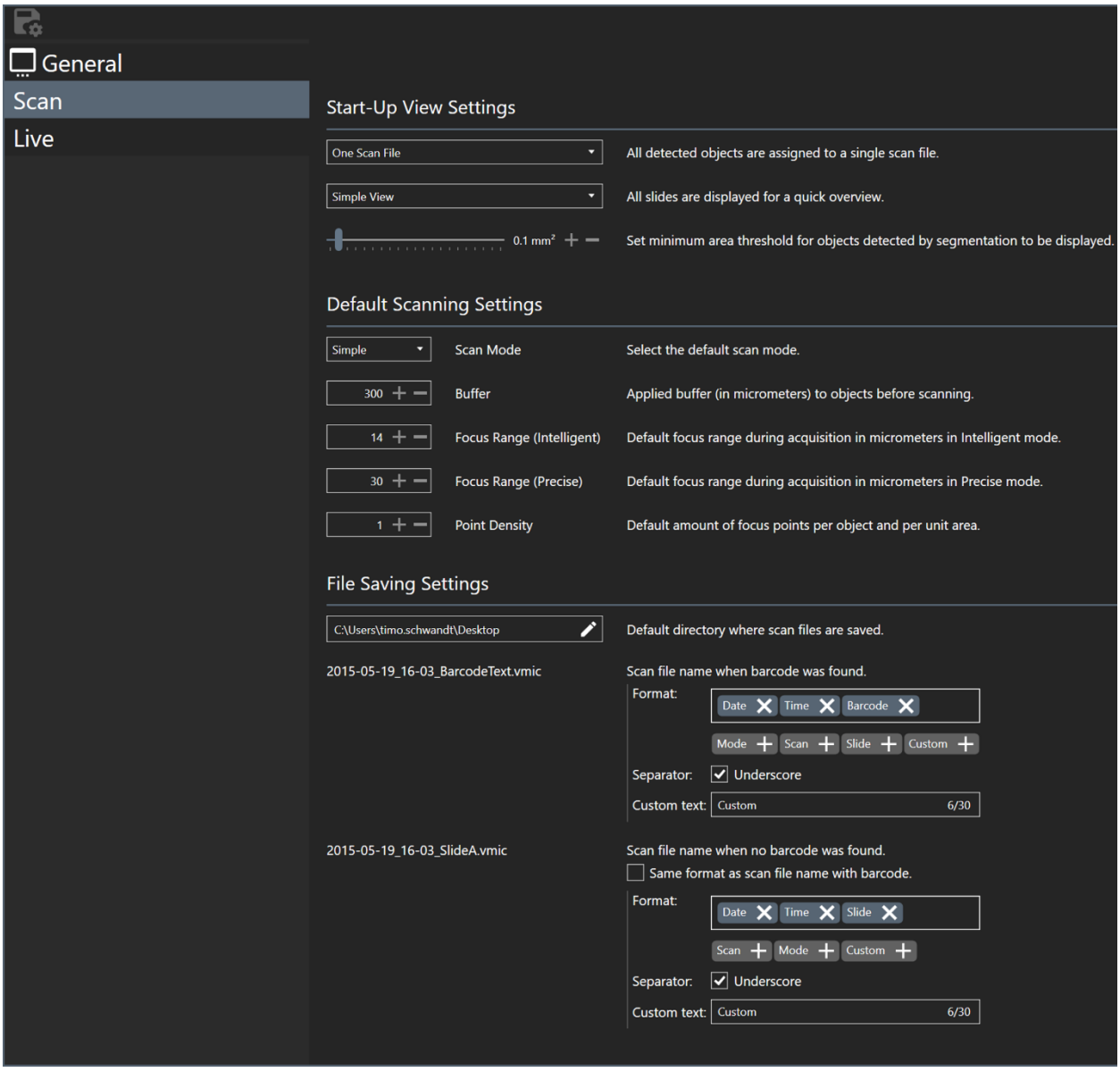


Figure 8-7: Scan-Mode Settings

8.3 Info Screen

By clicking the “Info” button on the top bar, you can open an information screen displaying details about the system.

Figure 8-8: Info Button

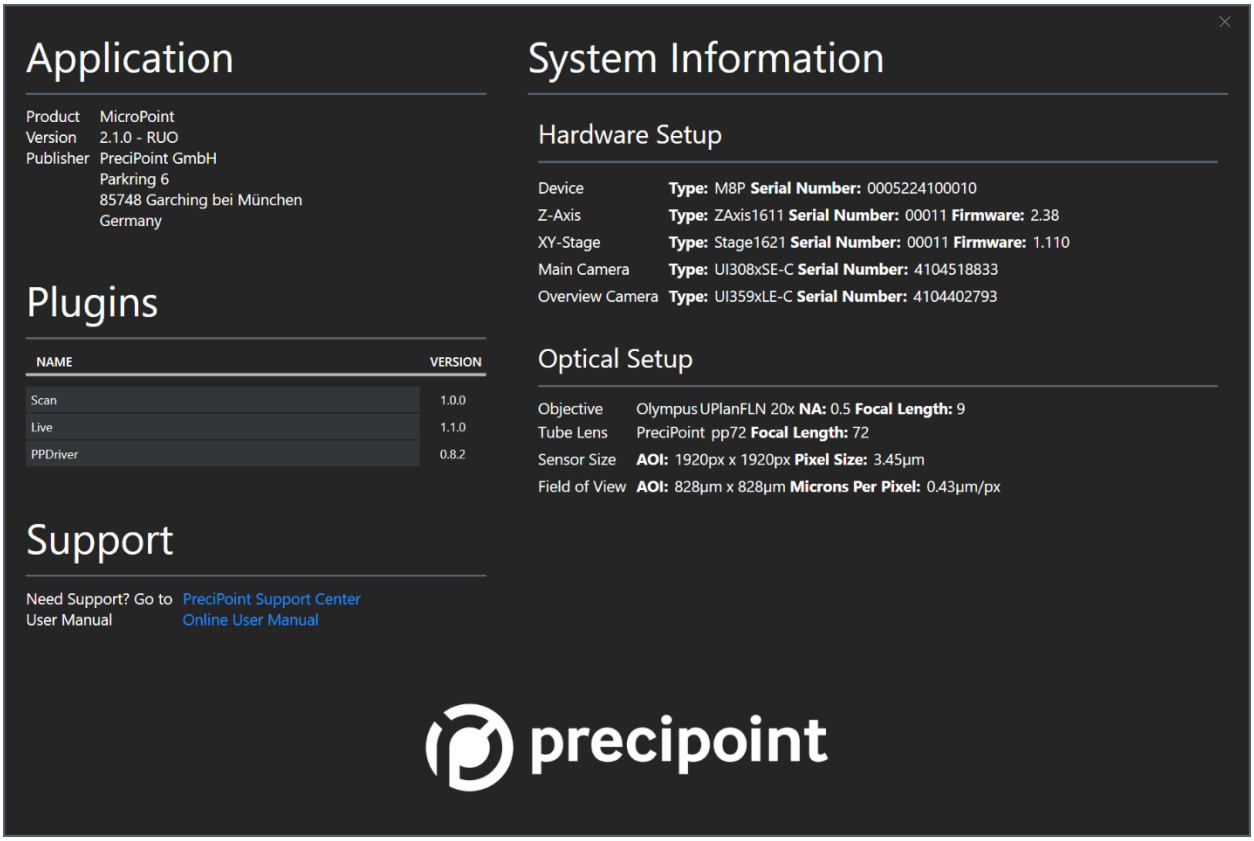


Figure 8-9: Information Screen

8.4 Additional Software Functions

8.4.1 Tooltip

The "Tooltip" is a small pop-up window in the application. It will show a description of an element of the graphical user interface. By hovering over each button in the application, a short message is displayed describing its function as well as the shortcut to run them with keyboard and/or mouse. A list with all shortcuts can be found in Chapter 16 "Shortcut List".

9 Changing Slides and Tray

Before every use, ensure that the optical components of the device and the inserted slides are clean. For cleaning instructions, see Chapter 11.

9.1 Slide Dimensions

Use only slides with the following dimensions:

Length	75 mm – 76 mm
Width	25 mm – 26 mm
Thickness	0.9 mm – 1.2 mm
Cover Glass Thickness	0.17 mm

9.2 Insert Slides into Tray

Hold the tray, take the slide from the label side, and push the left edge ① against the mechanical spring at the left side of the tray. Align the white area on the tray with the label.

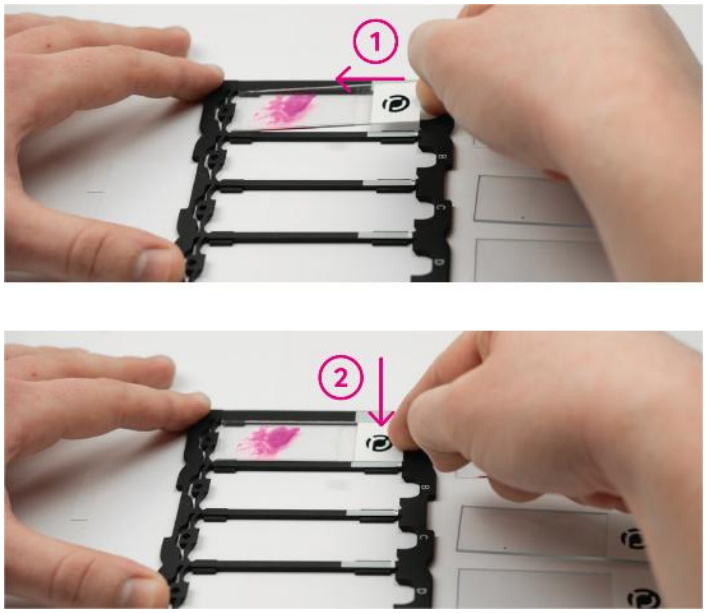


Figure 9-1: Putting Slide into Tray

While pushing gently into the spring, press the label down ②. A clicking sound will be heard when the slide is correctly inserted. Ensure that the slides are placed into the tray in the right position and fit without protruding upwards or sideways.

9.3 Place Tray into XY-stage

In the start position of the R8 or the "Slide Selection" window of "MicroPoint", the XY-stage and the Z-axis move, so that the tray can be easily placed into its designated opening. The magnets in the tray ensure a correct placement.

Figure 9-2: Putting Tray under Microscope

Ensure that the tray is placed into the stage in the right position. The slide label and lettering on the tray signs must be on the right side.

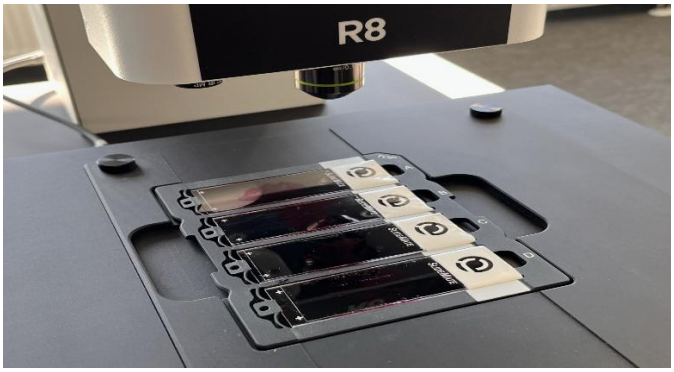


Figure 9-3: Final Position of Tray under Microscope

Take care when using the slides and trays to prevent glass breakage. Slides and trays should be free of contamination to ensure high image quality.

9.4 Remove Tray from XY-stage

To remove the tray from the XY-stage, use the indentation on the right to reach under the tray and gently pull it upward (as seen in Chapter 9.3, Figure 9-2).

9.5 Remove Slides from Tray

To remove the slide from the tray, hold the tray and gently push the label side towards the spring ①. Then lift the slide out of the slot and remove it ②.

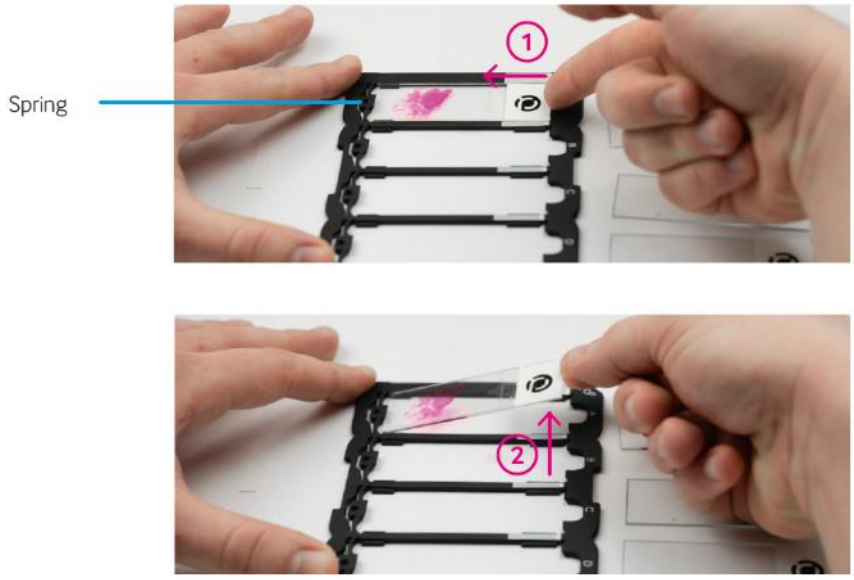


Figure 9-4: Remove Slide from Tray

9.6 Change Slide and Tray

Before changing of slides and tray, you must make sure that the Z-axis is in the upper position. The system will be in this position either for:

a. adding a tray upon the microscope start, or

b. changing the tray when the microscope is running over the "Change Tray (Slides)" button.

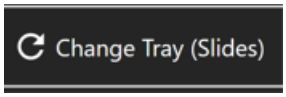


Figure 9-5: Button for Changing Tray

Do not use the device with other trays than those provided by PreciPoint.

9.7 Slide Tray

The "Slide Tray" is a portable holder where a maximum of 4 slides can be inserted and fixed with a mechanical spring and placed into the XY-stage. Each of the four slots is named A to D from top to bottom. The white markings on the right can be used to confirm whether a slide has been inserted correctly or not. The slide orientation must be such that their labels match the markings. In the tray, there are embedded magnets to correctly place the tray on the XY-stage.

10 Accessories

10.1 StreamPoint

StreamPoint is a software accessory that facilitates streaming of the primary monitor content from the host PC connected to the R8 microscope (the "provider") to a remote PC (the "consumer"). At the same time, it enables the control of the host PC and MicroPoint by sending inputs from input devices (mouse, keyboard, and ErgoPointer) connected to the remote PC.

For a full and detailed description of StreamPoint and its usage, please check out the related Instructions for Use (User Manual) of StreamPoint.

10.1.1 StreamPoint Status View in MicroPoint

If the StreamPoint app is installed on the host PC, MicroPoint displays the status of "StreamPoint" in the title bar. The status can appear in one of three states:

- Gray - "Streaming Disabled": The provider has not enabled streaming.
- Blue - "Streaming Enabled": Streaming is enabled, but no consumer is currently connected.
- Green - "Streaming In Progress": Streaming is active, and a consumer is currently connected.

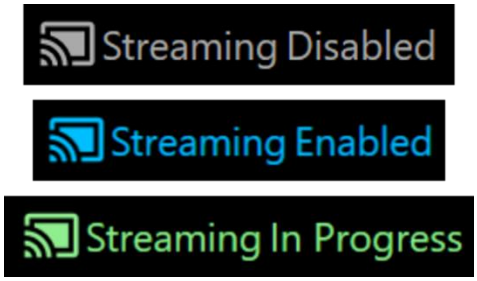


Figure 10-1: StreamPoint Status View

10.1.2 StreamPoint App and Web App

To build up a streaming connection, the provider on the host PC must start the StreamPoint app and enable streaming for the consumer. The remote consumer then connects via the StreamPoint web app. After the connection is established successfully, the consumer can take over the control of MicroPoint.

For a full and detailed description of StreamPoint and its usage, please check out the related Instructions for Use (User Manual) of StreamPoint.

10.2 ErgoPointer

The "ErgoPointer" is an external USB input device used to control the Live mode of the microscope, either locally or remotely via StreamPoint (section 10.2.1). It stimulates the experience of a traditional microscope by providing similar control functionality.

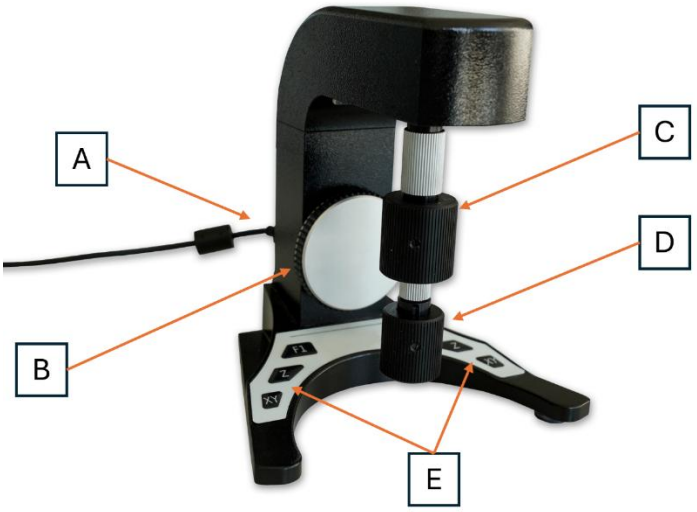


Figure 10-2: ErgoPointer Device

10.2.1 Connection

Local

To use the ErgoPointer locally, connect it to your host PC using the provided USB cable. The USB port is located at the back of the device (A). Once connected, the ErgoPointer is automatically recognized by MicroPoint and it is immediately usable in Live mode (Plug & Play).

Remote via StreamPoint

To use the ErgoPointer as a StreamPoint consumer (section 10.1), connect it to the consumer PC using the provided USB cable. The USB port is located at the back of the device (A). Next, activate the input device in the browser. Click the ErgoPointer icon in the top-right corner of the StreamPoint web app and allow ErgoPointer input. Once allowed, the ErgoPointer input is captured and transmitted via StreamPoint to the provider, enabling control of the microscope's Live mode.

For a full and detailed description of the usage of ErgoPointer with StreamPoint, please check the related Instructions for Use (User Manual) of StreamPoint.

MicroPoint Status

The current connection status of the ErgoPointer is displayed in MicroPoint's title bar.

Figure 10-3: Icons Displaying ErgoPointer Connection Status

The icon on the left shows the connection of an ErgoPointer connected locally via USB. The icon on the right shows a connection via StreamPoint. A green icon signifies that a device is connected on the corresponding channel (locally or via StreamPoint). A gray icon indicates that no device is connected on that channel.

10.2.2 Functionalities

After the connection is established, you can use the ErgoPointer controls to move the microscope stages or trigger software functions in MicroPoint's Live mode.

- To move over the tissue, use the X- and Y-wheels (C + D).
- To adjust the zoom level or focus in manual mode, use the Z-wheel (B). You can also adjust focus manually by using the Z-wheel in combination with a keyboard key defined in the settings.
- To activate software features such as initiating autofocus or switching magnification levels, use the buttons (E). The buttons on the left and right sides are mirrored. Button functions are fully customizable in the settings (see Section 10.2.3).

10.2.3 ErgoPointer Settings

These settings are located within the Live mode settings and are accessible through their respective tab. This tab is visible only when an ErgoPointer device is connected, either locally or via StreamPoint.

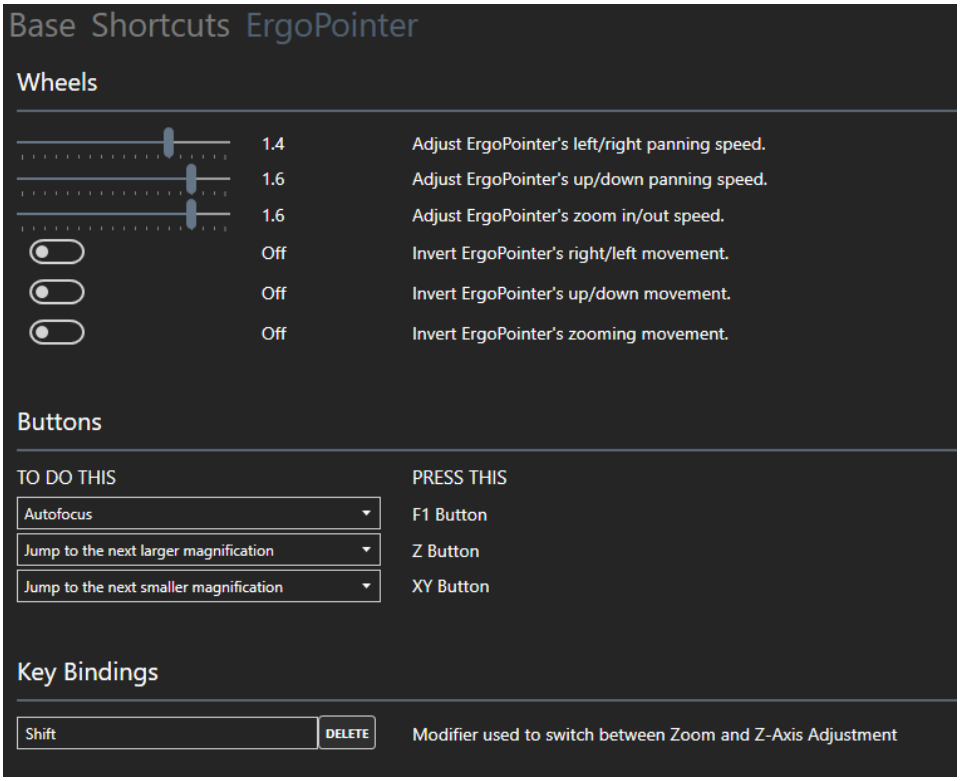


Figure 10-4: ErgoPointer Settings View

Users can adjust the scroll speed of each axis and invertthe direction of each axis as needed.

Each ErgoPointer button can be assigned a specific function from a predefined list. To change a button's action, click the dropdown and select a desired option.

The keyboard key used for switching between zooming and manual focus adjustment with the Z-wheel can be configured by double-clicking on the control and pressing the desired key.

NOTE: When using the ErgoPointer via StreamPoint, these settings can still be modified; however, changes will also apply to any locally connected ErgoPointer.

11 Device Care, Cleaning, and Disinfection

- To maintain optimal optical performance, clean the optical components of the device (Objective(s) and the XY-stage) regularly and clean the used slides before inserting them into the platform.
- If optical surfaces are polluted by dust or dirt, first turn off the device and clean the surface by blowing it off (e.g., with a syringe) before attempting to wipe the surface clean.
- Optical surfaces should be cleaned with a lint-free cloth, lens tissue, or cotton swab moistened with a commercially available glass cleaner.
- Never apply undue force or scrub surfaces when cleaning/disinfecting. This will result in scratches influencing the optical performance.
- For disinfecting the device, you must use Lysoformin® or Lysoform®.
- Avoid excessive use of solvents. The fuzz-free cloth, lens tissue, or cotton swab should be moistened gently with solvent, but not be wet enough for the solvent to seep around the lens and leak inside the XY-stage.
- No other maintenance tasks are necessary.
- As the microscope uses LED for primary illumination, lamp replacement is rarely required. Please contact PreciPoint GmbH Support if you experience problems.
- Please check the conditions for the storage and operation environment of the device (explained in Chapter 14.5).

12 Device Characteristics

If the device does not perform as mentioned in this chapter, contact PreciPoint Support. See Chapter 17 for contact information.

12.1 Main Device Characteristics

Parameter	R8 20x	R8 40x
The flatness of the main illumination across FoV	The minimum intensity value is ≥98% of the maximum intensity	The minimum intensity value is ≥98% of the maximum intensity
The flatness of overview illumination across FoV	The minimum intensity value is ≥95% of the maximum intensity	The minimum intensity value is ≥95% of the maximum intensity
Optical resolution*	550 lp/mm	1050 lp/mm
XY-stage positioning precision	6 µm	6 µm
Z-axis trigger precision	0,95 µm	0,95 µm
Autofocus precision	3,06 µm	1,27 µm
Stitched image pixel correlation	>= 0,85	>= 0,85

*Resolution at 1:1 magnification

12.2 Other Device Characteristics

Parameter	R8 20x	R8 40x
Depth of field	3,1 µm	1,3 µm
Field of view (w x h)	828 µm x 828 µm	414 µm x 414 µm
Camera resolution*	0,43 µm/px	0,22 µm/px
Digital image size (w x h)	1920 x 1920 pixel	1920 x 1920 pixel
XY-stack images (15 x 15 mm²)	441	1681
Capture time (15 x 15 mm²)	~20 s	~80 s

*Resolution at 1:1 magnification

13 Troubleshooting

This user manual contains a small selection of frequently asked questions and cases of troubleshooting. In case of further questions, please visit https://precipoint.com/support/ (scan the QR-code provided here), contact PreciPoint GmbH (contact details in Chapter 17), your local vendor, or certified PreciPoint Partner.

For common operational advice and troubleshooting, read the text in the pop-ups in "MicroPoint". Else, please contact PreciPoint Support.

FAQ1: You see tiling in the image.

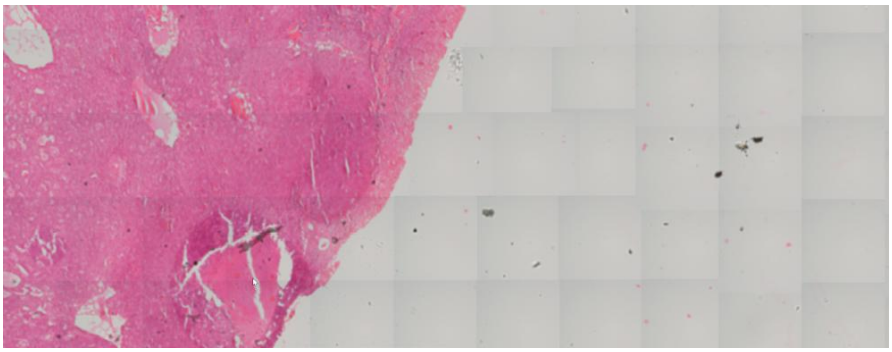


Figure 13-1: Tiling in the Image

- Possible Solution: Perform an IC. See Chapter 6.2.2.

FAQ2: One or more hardware components do not initialize when starting the software.

- Possible Cause #1: No power supply. Close the software and check if the power cable of the device is connected properly and whether the switch on the rear side of the device is set to "I".
- Possible Cause #2: No connection between the device and the computer. Close the software and check if the USB 3.0 cable is connected properly to the marked USB 3.0 port of the device as well as the computer.
- Possible Cause #3: Other reasons. Close the software and switch off the device. Restart the computer. Start the software again.

FAQ3: Software becomes unresponsive.

- **Possible Solution:** Close the software by using the "X" icon on the top right or through the "Windows Task Manager" by pressing "Ctrl+Alt+Del". Turn off the device by using the power switch at the back. Wait for at least 10 seconds, and then turn on the device again. Restart the software.

FAQ4: Illumination correction error message.

For error messages regarding the illumination correction, follow the instructions in the pop-up window. In case errors still occur, please contact PreciPoint Support.

FAQ5: Auto Focus does not work correctly.

Ensure illumination correction is performed. Afterward, set the focus manually via the "Manual Focus".

FAQ6: The hard disk has insufficient free space.

If the hard disk of the operating system does not have enough free space for the software to store images properly this can lead to errors. The different modes react differently to this situation:

- **Live Mode:** The disc capacity is not checked in advance. Although this mode doesn't persist image files, it stores image tiles temporarily while using the mode. If the disc space runs out, no more image tiles can be stored and displayed, and an error message will be displayed.

  Consider deleting files from your hard drive to ensure that the software can work as intended.

- **Scan Mode:** The disc capacity is checked before the scanning process is started. The software calculates the disc space that is approximately needed and displays a warning message if it is possible that the space is insufficient. The user can choose to cancel the process and make sure to provide more free disc space or continue and risk errors while scanning. If the chooses to continue, it could happen that the system runs out of space. In this case the scanning process fails, and an error message is displayed to the user.

14 Specifications and Dimensions

14.1 Components

Component	Description
Microscope	PreciPoint R8 Digital Light Microscope
Software	MicroPoint with R8 Live and/or R8 Scan plugin is the software which runs on the computer connected to the microscope. It represents the user interface and contains the software steering the R8 functions.
Minimum Lifetime	3 years

14.2 Accessories

Monitor Specifications and Dimensions	
Feature	**Details**
Monitor Display Size	27" or 32"
Monitor Display Format	17:9 or 16:9
Monitor Resolution	QHD or UHD
Monitor Min. Brightness	250 cd/m^2
Monitor Min. Contrast	1000:1
Monitor Display Colors	1.07B
Monitor Power Supply	110 V – 240 V AC
Monitor Display Port	Display Port 1.4 connection
Host PC Specifications and Requirements	
Specification	**Minimal Requirements**
PC Processor	Intel Core i7 (8^{th} Gen or newer); Intel® Core™ i7-12700
PC Ram	16 GB, 2 x 8 GB, DDR5 Non-ECC Memory
PC Storage	512-GB-SSD, PCIe, NVMe™, Class 35, M.2
Specification	**Minimal Requirements**
PC GPU	NVIDIA Quadro T1000, 4 GB
PC Connectivity	USB 3.0
PC OS	Windows 10 Pro x64 Windows 11 Pro (recommended)

ErgoPointer Input Device	
Name	**Article number**
ErgoPointer VC	00-27-322-2600
StreamPoint	
Name	**Version**
StreamPoint	1

14.3 General R8 Microscope Specifications

Feature	Details
Item Number R8	PP00052241
Power Plug	C14 power plug
Electrical Consumption	Max. 84 W
Power Supply	110 V – 240 V AC, 50 Hz– 60 Hz

14.4 R8 Microscope Dimensions

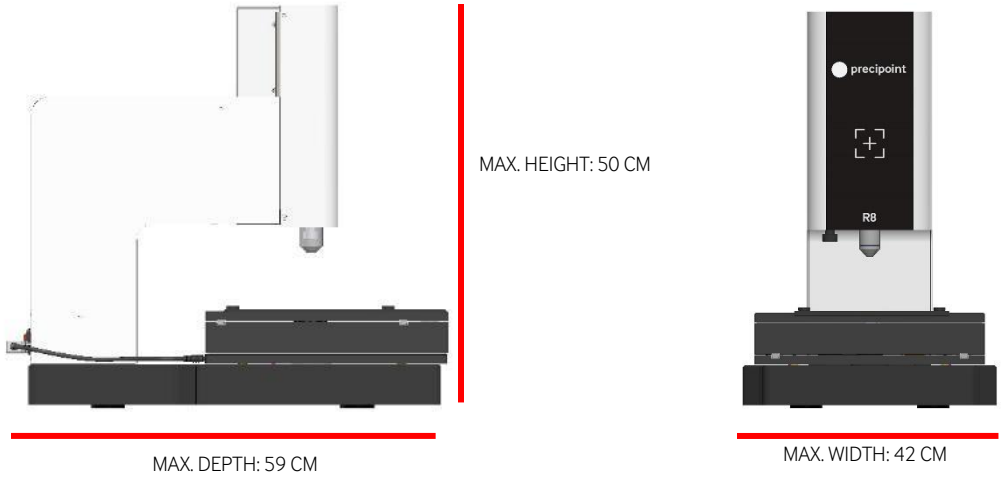


Figure 14-1: Basic Dimensions of the Device

Feature	Details
Weight	25 kg
Height at Maximum Z-axis Extension	50 cm
Feature	**Details**
Maximum Width	42 cm
Maximum Depth Operating Area	59 cm

14.5 Environmental Conditions

Feature	Details
Transport Temperature	-10 ˚C – +55 ˚C
Transport Humidity	20 % – 80 %
Temperature (Storage)	-10 ˚C – +55 ˚C
Humidity (Storage)	20 % – 80 %
Altitude (Storage)	-15 m – 10.000 m
Temperature (Operating)	10 ˚C – 35 ˚C
Humidity (Operating)	20 % – 80 %
Altitude (Operating)	-15 m – 2.000 m

14.6 Objective Information

Feature	Details
Main Objective R8 20x	Olympus UPLFLN20X-2; 0.5 NA
Main Objective R8 40x	Olympus UPLFLN40X-2; 0.75 NA
Overview Objective	Lensagon B10M7224

14.7 Camera Information

Feature	Details
Main Camera	IDS Imaging Development Systems UI-3080SE-C-HQ
Main Camera Sensor	Sony IMX250LQR-C, CMOS Color, Global Shutter, 5MP
Overview Camera	IDS Imaging Development Systems, UI-3591LE-C-HQ Rev. 2
Overview Camera Sensor	ON Semiconductor AR1820HSSC00SHEA0, Global Shutter, 18MP

14.8 Compliance Specifications

Feature	Details
Safety	IEC 61010-1
EMC	DIN EN 61326-1
CE	Directive 2006/42/EC on Machinery Directive 2014/35/EU (Low Voltage Directive) Directive 2014/30/EU (EMC Directive) Directive 2011/65/EU (RoHS Directive) Directive 2012/19/EU (WEEE Directive)

14.9 Declaration of Conformity

EU-Konformitätserklärung

EU Declaration of Conformity

1. Name und Anschrift des Herstellers / Name and address of the manufacturer: PreciPoint GmbH, Parking 6, 85748 Garching b. München

2. Bevollmächtigter für technische Unterlagen: / Authorized representative for technical file: Dominik Gerber (PRRC), Parkring 6, 85748 Garching b. München

3. Gegenstand der Erklärung / Object of the Declaration: R8 (Digitales Lichtmikroskop) / R8 (Digital light microscope)

04262402090713	04262402090720
04262402090737	04262402090744
04262402090751	04262402090768
04262402090775	04262402090782
04262402090706	

4. Der oben beschriebene Gegenstand der Erklärung erfüllt die einschlägigen Harmonisierungs-rechtsvorschriften der EU:
The object of the declaration described above is in conformity with the relevant EU harmonization legislation:

   Richtlinie 2006/42/EG des Europäischen Parlaments und des Rates vom 17. Mai 2006 über Maschinen und zur Änderung der Richtlinie 95/16/EG (Neufassung)
   Directive 2006/42/EC of the European parliament and of the council of 17 May 2006 on machinery, and amending Directive 95/16/EC (recast)

   Richtlinie 2014/35/EU des europäischen Parlaments und des Rates vom 26. Februar 2014 zur Harmonisierung der Rechtsvorschriften der Mitgliedstaaten über die Bereitstellung elektrischer Betriebsmittel zur Verwendung innerhalb bestimmter Spannungsgrenzen auf dem Markt (Neufassung).
   Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits (recast).

   Richtlinie 2014/30/EU des europäischen Parlaments und des Rates vom 26. Februar 2014 zur Harmonisierung der Rechtsvorschriften der Mitgliedstaaten über die elektromagnetische Verträglichkeit (Neufassung).
   Directive 2014/30/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility (recast).

   Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller. Die technische Dokumentation gemäß Anhang VII der Richtlinie 2006/42/EG wurde erstellt und ist am Unternehmensstandort verfügbar.
   This declaration of conformity is issued under the sole responsibility of the manufacturer. The technical documentation in accordance with Annex VII of Directive 2006/42/EC has been prepared and is available at the company site.

5. Name, Anschrift und Kennnummer der benannten Stelle, die das EG-Baumusterprüfverfahren durchgeführt hat, sowie die Nummer der EG-Baumusterprüfbescheinigung;
   Name, address and identification number of the notified body which carried out the EC type-examination and the number of the EC type-examination certificate:
   n/a

6. Name, Anschrift und Kennnummer der benannten Stelle, die umfassende Qualitätssicherungssystem genehmigt hat:
   The name, address and identification number of the notified body which approved the full quality assurance system:
   n/a

15 Warranty Description

The R8 (the device) and its components are only allowed to be operated with techniques and processes described in this user manual. The device must not be modified by you unless instructed to do so by the manufacturer.

The manufacturer does not take any responsibility for damage caused by usage not complying with the instructions provided in this manual or modifications done to the device by you.

Please note the following warranty for R8:

1. Manufacturer warranty for material and product quality starts at the time of delivery.

2. In case of malfunction, please inform the manufacturer immediately. See Chapter 17 for contact information.

3. If notified of such a defect, the manufacturer will at its own discretion choose to repair the device or deliver a replacement. In some cases, a repair of the device might be required to be undertaken by the user. In these cases, the manufacturer will provide the necessary parts and instructions.

4. The manufacturer does not assume warranty for defects caused by natural wearing (especially the worn parts and consumables) and improper use or unauthorized changes to the device.

5. Operation of the equipment out of the functions described in this manual, and negligence or replacing the equipment or its components will invalidate all warranty rights.

6. Unless otherwise instructed in writing by the manufacturer, only the staff of the manufacturer is entitled to open the device, unscrew, or unfix parts. Non-compliance with this leads to loss of warranty.

16 Shortcut List for Live-Mode

Key	Command
General:	
Alt + Enter	Full screen mode on/off
Alt + F4	Close the application
Slide Selection:	
Number Key 1	Toggle selection of slide 1
Number Key 2	Toggle selection of slide 2
Number Key 3	Toggle selection of slide 3
Number Key 4	Toggle selection of slide 4
Ctrl + A	Toggle selection of all 4 slides
Enter	Acquire all selected slides
Esc	Closes the dialog, and returns to "Slide Inspection View" of the last viewed slide (only if any slides are already acquired, else disabled)
Overview Map	
Ctrl + Tab	Go to the next acquired slide
Ctrl + Shift + Tab	Go to the previous acquired slide
Label Viewer	
Ctrl + S	Open "Label Viewer"
Arrow left	Rotate label counterclockwise (if "Label Viewer" is open, else disabled)
Arrow right	Rotate label clockwise (if "Label Viewer" is open, else disabled)
Enter, Esc	Close "Label Viewer" (if "Label Viewer" is open, else disabled)

Toolbar	
F1	Start "Illumination Correction"
Esc	Close "Illumination Correction" dialog (if the dialog is open, else disabled)
F2 or NumPad 5	Perform "Auto Focus" at the Viewport center
Mouse Middle Button	Perform "Auto Focus" at the current mouse position
F3	Open/Close "Manual Focus"
F4	"Create Screenshot"
Esc	Close file explorer opened by "Create Screenshot" (if file explorer is open, else disabled)
Enter	Save the screenshot to the location opened in the File Explorer (if File Explorer is open, else disabled)
F5	Fit Viewport to screen
Ctrl + T	Initiate "Change Tray" procedure
Standard Dialogs	
Enter	Affirm dialog (e.g., "Change Tray" dialog; if the dialog is open, else disabled)
Esc	Cancel dialog (e.g., "Change Tray" dialog; if the dialog is open, else disabled)
Navigation	
Mouse Wheel	Zoom Viewport in/out
NumPad +	Zoom in Viewport
NumPad -	Zoom out Viewport
NumPad 8	Move camera/view upwards
NumPad 2	Move camera/view downwards
NumPad 4	Move camera/view to the left
NumPad 6	Move camera/view to the right

Navigation	
Ctrl + 1 or NumPad 1	Zoom Viewport to 0.2x magnification
Ctrl + 2	Zoom Viewport to 1.25x magnification
Ctrl + 3	Zoom Viewport to 2.5x magnification
Ctrl + 4	Zoom Viewport to 5x magnification
Ctrl + 5	Zoom Viewport to 10x magnification
Ctrl + 6	Zoom Viewport to 20x magnification
Ctrl + 7	Zoom Viewport to 40x magnification
Ctrl + 8	Zoom Viewport to 60x magnification
Ctrl + 9	Zoom Viewport to 100x magnification
NumPad 7	Zoom Viewport to the objective magnification
Manual Focus	
Shift + Mouse Wheel	Zoom Viewport in/out
Mouse Wheel	Move Z-axis up/down with fine drive
Ctrl + Mouse Wheel	Move Z-axis up/down with coarse drive
NumPad 9	Move Z-axis up
NumPad 3	Move Z-axis down
Enter	Set the current Z-position as the local focus plane
R	Recenter live tile
Ctrl	Activate coarse drive for Z-axis control bar
Annotations	
Mouse Right Button	Enter/Exit annotation mode with the last used, or if first time, then with the default annotation
Ctrl + L	Line

Annotations	
Ctrl + P	Polyline
F6	Show Cross
Ctrl + R	Ruler
Ctrl + M	Enter annotation mode with the "Marker" annotation or leave annotation mode
Ctrl + A	Select all annotations made
Del	Delete all selected annotations

17 Support, Service, and Sales

Headquarter	Customer Support	Sales
PreciPoint GmbH Parkring 6 85748 Garching b. Muenchen Bavaria, Germany	Tel: +49 (0) 89 2152532-98 support@precipoint.de https://precipoint.com/support	Tel: +49 (0) 89 2152532-99 sales@precipoint.de
Tel: +49 (0) 89 2152532-0 https://precipoint.com/	Get access to our support platform here:	Send email here:

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PreciPoint Products & Sales

For the latest information on PreciPoint products and services, please visit https://precipoint.com/.

Disclaimer

PreciPoint Field Representatives should be contacted immediately for assistance in the event of any instrument malfunction. Installation of hardware should only be performed by a PreciPoint Service Engineer or a PreciPoint Partner.

18 Notice

Any serious incident that involves or has occurred in relation to the R8 shall be reported to PreciPoint.

19 Index

20 List of Figures

21 Version History

Version	Description of changes	Date
V 1.0	Initial Version	2024-11-12
V 1.1	Including description for R8 Scan; Updated due to new product releases (see GTINs in chapter 2.3)	2025-05-20