

User Manual

Digital Pathology Slide Scanner

LG-S80

Please read the instructions carefully and keep them properly before using the product for future reference.

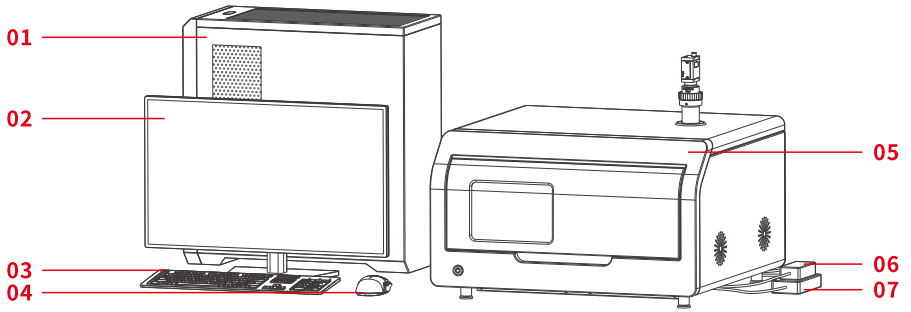
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01 Main Components of the Scanner



- 01 Workstation Host
- 02 Monitor
- 03 Keyboard
- 04 Mouse
- 05 Scanner
- 06 Power Adapter 1
- 07 Power Adapter 2

02 Scanner Precautions

2.1 Slide Specifications

Applicable to standard slides with the following specifications:

Unit (mm)	Min	Max
Width	25	26
Length	75	76
Thickness	0.9	2.2

2.2 Slide Requirements

1. Mounting medium must be fully dried without overflow;
2. Cover glass must not extend beyond the edges of the slide;
3. Labels must not extend beyond the edges of the slide;
4. Both sides of the slide must be clean, free of debris or residual adhesive;
5. Left and right edges of the slide must be clean, free of debris or residual adhesive;
6. No cracks or damage on the slide or cover glass.

2.3 Environmental Requirements

1. Temperature: Ambient temperature must be maintained between +10°C to +35°C;
2. Humidity: Relative humidity must be 25% to 75%;
3. Cleanliness: Recommended cleanroom class is ISO-6 (ISO 14644-1) or higher. Equip the lab with air purification systems to minimize dust and particles, extending the instrument's lifespan;
4. Vibration: Place the instrument on a stable, level bench, away from strong vibration sources.

03 Pre-Operation Checks and Startup

3.1 Connection Check

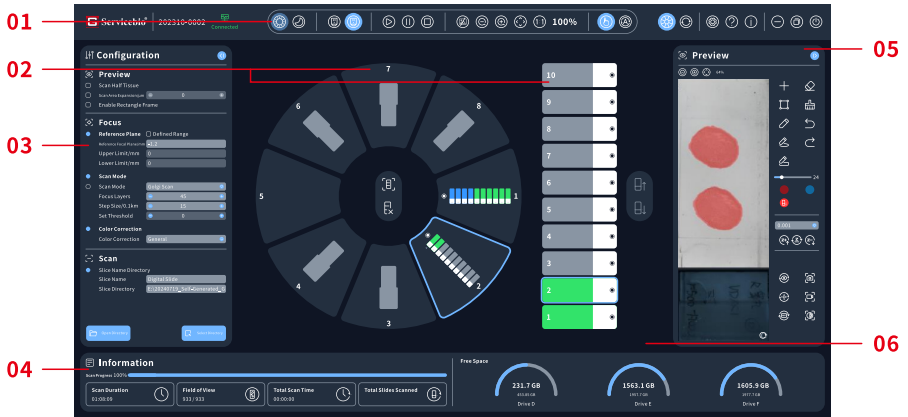
1. Ensure all ports between the scanner and workstation are properly connected: scanning camera port, preview camera port, turntable camera port, communication port, etc.;
2. Verify that Power Adapter
 - (1) Power Adapter;
 - (2) and workstation power are securely connected.

3.2 Startup Preparation

1. Power on the workstation computer;
2. Press the scanner's power switch;
3. Launch the scanner software;
4. After software launch, confirm the scanner performs an automatic full-system reset as prompted;
5. Select a turntable slide holder position, click the "Unload" button to move it to the loading/unloading position;
6. Remove the slide holder, insert the slide with the cover glass facing up (ensure it is centered vertically), then reinsert the holder into the turntable;
7. Repeat steps 5 and 6 to load all slides into the turntable.

04 Scanning Software Overview

4.1 Main Interface
























- 01 Operation Bar** Controls for slide scanning and other operations
- 02 Turntable** Controls for turntable slide holders and slides
- 03 Configuration** Adjust scan parameters
- 04 Scan Progress** Displays real-time scan status
- 05 Preview** Slide preview and annotation tools
- 06 Image Display** Shows real-time scan images

4.2 Operation Bar

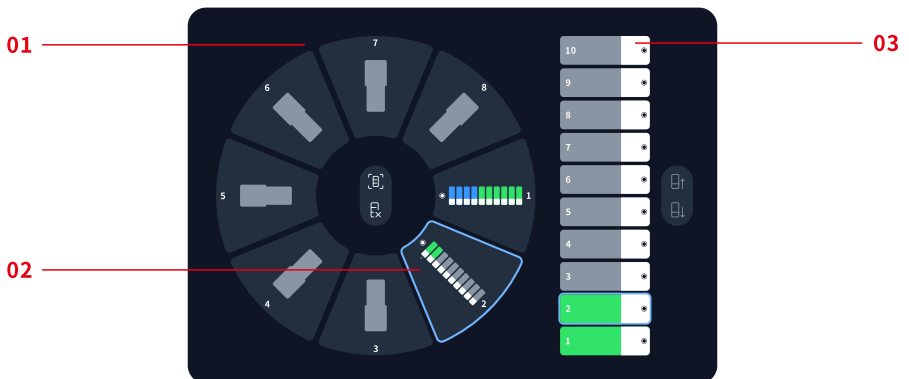


Functions of operation bar buttons are listed below:

Icon	Name	Function
	Brightfield Scan	Brightfield scanning mode for white-light slides
	20× Objective	Switch to 20× objective lens
	40× Objective	Switch to 40× objective lens
	Start Scan	Initiate scanning process
	Pause Scan	Pause scanning (available in auto mode)
	Stop Scan	Terminate scanning process
	Display Image	Show real-time scan images
	Zoom Out	Reduce image size
	Zoom In	Enlarge image size
	Fit to Window	Resize image to fit window
	Original Size	Display image at 100% scale
	Manual Mode	Manual slide loading/placement mode
	Auto Mode	Automatic scanning of slides on turntable







Icon	Name	Function
	Turntable Display	Show/hide turntable module
	System Reset	Perform full-system reset
	Parameter Setup	Configure scan parameters
	Help	Open user manual
	About	Display software version and info
	Minimize	Minimize window
	Maximize/Restore	Maximize/restore window
	Exit	Close software

4.3 Turntable

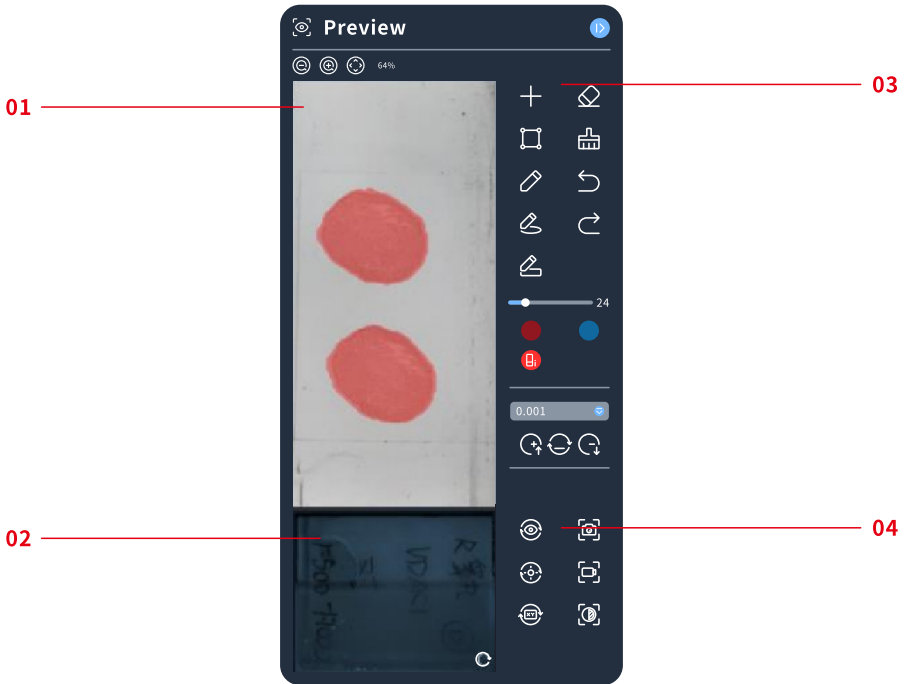


- 01 **Turntable** Holds 8 slide holders; select positions as needed
- 02 **Slide Holder Status** Indicates presence, slide count, and status of holders
- 03 **Slide Holder Details** Shows slide count and status for selected holder; select specific slides

Turntable button functions:


Icon	Name	Function
	Turntable Recognition	Manual holder recognition (cancelable)
	Unload Holder	Unload selected holder
	Multi-Select Holders	Select/deselect holders for recognition or auto scan
	Multi-Select Slides	Select/deselect slides for auto scan
	Load Slide	Transfer selected slides to scan platform and preview
	Unload Slide	Return slides to selected holder positions

4.4 Preview



- 01 **Tissue Area** Displays tissue preview image
- 02 **Label Area** Displays slide label image
- 03 **Annotation Area** Draw tissue masks or annotations
- 04 **Preview Controls** Auto-preview, auto-focus, live scan

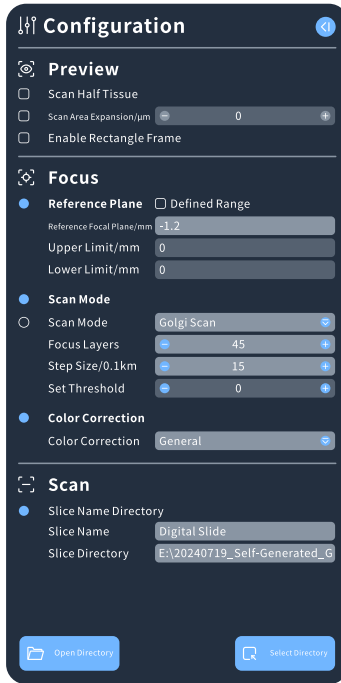
Preview button functions:

Icon	Name	Function
	Zoom Out	Reduce preview image size

Icon	Name	Function
	Zoom In	Enlarge preview image size
	Fit to Window	Resize preview image to fit window
	Positioning	Move stage to selected position after preview
	ROI Selection	Drag to define scan region (ROI)
	Brush Mask	Draw custom scan masks
	Ellipse Mask	Draw elliptical scan masks
	Rectangle Mask	Draw rectangular scan masks
	Eraser	Erase mask areas
	Clear All	Clear all masks
	Undo	Undo last action
	Redo	Redo last action
	Brush Size	Adjust brush/eraser size
	Slide Present	Indicates if a slide is on the stage



Icon	Name	Function
	Step Size	Set objective lens motor step size
	Objective Up	Manually raise objective lens
	Objective Reset	Reset objective Z-axis motor
	Objective Down	Manually lower objective lens
	Auto Preview	Run automatic preview
	Auto Focus	Run automatic focus
	Stage Reset	Reset objective and stage position
	Capture Image	Single scan camera capture
	Live Scan	Continuous scan camera capture
	White Balance	Set camera white balance on blank tissue area
	Rotate Label	Rotate label image 90° clockwise

4.5 Configuration



Configure preview, focus, and scan parameters.

Configuration button functions:

Icon	Name	Function
	Open Directory	Open slide directory in file explorer
	Select Directory	Choose folder for slide storage

4.6 Information



Displays scan progress, scan duration, and remaining disk space.

05 Scanning Software Operations

5.1 Manual Scanning

5.1.1 Loading Slides via Turntable

1. Select Manual Mode

Click the "Manual Mode"  button on the operation bar.


2. Turntable Slide Recognition

- (1) Select slide holders via the turntable's multi-checkbox ; if none selected, all holders are recognized;
- (2) Click the "Turntable Recognition" button  to initiate holder recognition;
- (3) Wait for completion or click  again to cancel.

3. Select Slides to Scan

- (1) Click a holder position  on the turntable;
- (2) Check slide status in the holder details panel;
- (3) Select desired slide positions .





4. Load and Preview Slides

- (1) Click the "Load Slide"  button next to the slide holder details in the turntable module;
- (2) Wait for the transfer module to automatically move the slide from the holder to the scanning platform;
- (3) Wait for the auto-preview process to complete; the preview module will display the slide label image, tissue preview, and scan mask.

5. Define Scan Area

Use the following buttons in the preview module  to draw the scan mask boundaries.

6. Set Reference Focal Plane

- (1) Click the "Positioning"  button in the preview module, move the crosshair to the desired focus area on the tissue preview image, and click to position the platform;
- (2) Click the "Auto Focus"  button to initiate the auto-focus process;
- (3) Wait for completion or click "Auto Focus"  again to cancel;
- (4) After auto-focus, the value  displayed below the objective lens controls is the focal height;

(5) Enter this value into the "Reference Focal Plane"  field in the configuration module.

7. Configure Scan Settings



(1) Focus Settings

Enable/disable depth of field (DOF) extension (set layers and step size), deblurring, and adjust image dehazing;

(2) Scan Settings

Enter the slide name and select.

8. Start Scanning

Click the "Start Scan"  button on the operation bar. To cancel, click "Stop Scan" .

9. Post-Scan Process


(1) Select the slide position  in the turntable holder details and click the "Unload Slide"  button;

(2) Wait for the transfer module to return the slide to the turntable holder;

(3) Repeat steps 3~9 for all slides.

10. Unload Slides

(1) Click the holder position  on the turntable;

(2) Click the "Unload Holder" button .

(3) Wait for the holder to rotate to the loading/unloading position, remove the slides, and place them in a storage box;

(4) Repeat to unload all slides.

11. Shutdown

(1) Close the scanning software;

(2) Turn off the scanner power adapters;


(3) Shut down the workstation.

5.1.2 Manual Slide Placement

1. Select Manual Mode


Click the "Manual Mode"  button on the operation bar.

2. Place Slide Manually

(1) Ensure the scanning platform is at the zero position. If not, click the "Stage Reset"  button in the preview module;

(2) Place the slide cover glass facing up on the platform, aligning it to the top-right corner.






3. Manual Preview

- (1) Click the "Auto Preview"  button in the preview module;
- (2) Wait for the auto-preview to display the label image, tissue preview, and scan mask.

4. Define Scan Area

Use the following buttons in the preview module          to draw the scan mask boundaries.

5. Set Reference Focal Plane

- (1) Click the "Positioning"  button in the preview module, move the crosshair to the desired focus area on the tissue preview image, and click to position the platform;
- (2) Click the "Auto Focus"  button to initiate the auto-focus process;
- (3) Wait for completion or click "Auto Focus"  again to cancel;
- (4) After auto-focus, the value  displayed below the objective lens controls is the focal height;
- (5) Enter this value into the "Reference Focal Plane"  field in the configuration module.

6. Configure Scan Settings

(1) Focus Settings

Enable/disable depth of field (DOF) extension (set layers and step size), deblurring, and adjust image dehazing;

(2) Scan Settings

Enter the slide name and select.

7. Start Scanning

Click the "Start Scan"  button on the operation bar. To cancel, click "Stop Scan" .

8. Post-Scan Process

After scanning, manually remove the slide from the platform.

9. Shutdown

- (1) Close the scanning software;
- (2) Turn off the scanner power adapters;
- (3) Shut down the workstation.

5.2 Automatic Scanning

1. Select Auto Mode

Click the "Auto Mode"  button on the operation bar.

2. Select Slides

(1) Select Holders

Check the holder multi-select box  in the turntable module; if none selected, all holders are included.

(2) Select Slides

Click a holder position , then check the slides to scan in the holder details panel .

3. Configure Scan Settings

(1) Focus Settings

Set the reference focal plane, enable DOF extension (layers/steps), deblurring, and dehazing;

(2) Scan Settings

Enter slide names and select the storage directory.

4. Start Scanning

Click "Start Scan"  to proceed, "Pause Scan"  to pause, or "Stop Scan"  to cancel.

5. Post-Scan Process

(1) Check the turntable status for flagged slides with scan errors;

(2) Rescan flagged slides using manual mode procedures.

6. Shutdown

(1) Close the scanning software;

(2) Turn off the scanner power adapters;

(3) Shut down the workstation.

06 Troubleshooting

6.1 Image Quality Issues

1. For minor issues (e.g., blurry tissue), adjust scan settings (increase DOF layers/steps) and rescan;
2. For severe issues (e.g., missing tissue, positioning errors), contact technical support.

6.2 Software Errors

Restart the software and instrument as prompted. If issues persist, contact support.

6.3 Hardware Errors

For hardware faults (e.g., motor noise, collisions), contact technical support immediately.

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