logos biosystems

iRIS™ DIGITAL CELL IMAGING SYSTEM

User Manual

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Ver 1.3
2015.11.18

DISCLAIMER

The contents of this document are subject to change without notice.

The iRiS™ Digital Cell Imaging System is an electrical laboratory instrument for scientific research use only.

It is not a medical, therapeutic, or in vitro diagnostics device.

Do not disassemble the device on any occasion. This will invalidate your warranty.

TRADEMARKS

The trademarks used in this documents are the property of Logos Biosystems, Inc.

The WEEE (Waste Electrical and Electronic Equipment) symbol indicates that users of this instrument have the responsibility of returning and disposing of WEEE in an environmentally friendly manner. Follow the waste ordinances of your region for proper disposal provisions.

The CE mark indicates that this instrument conforms to all applicable European Community provisions for which this marking is required. Users must be aware of and follow the conditions described in this manual for operating the instrument. The protection provided by the instrument may be impaired if the instrument is used in a manner not specified by this manual.

Protective earth (Ground)

FCC COMPLIANCE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at the user's own expense.

Contents

Safety Information

Before using the iRiS™ Digital Cell Imaging System, read this manual carefully to ensure that you know how to operate it safely and correctly. Keep this manual in an easily accessible location for future reference. Read the information provided and use the instrument as specified in this manual.

1 Place the instrument on a flat surface and avoid vibrations from other devices.

2 Leave sufficient space around the instrument for air circulation and cooling. Take care that the instrument does not overheat during long and continuous operation.

3 Operate the instrument in the conditions described in the Environmental Conditions for Operation.

4 Wear proper personal protective equipment (PPE) when handling samples.

5 Do not touch the instrument or its components with wet hands.

6 Make sure that the input voltage is compatible with the instrument's power supply voltage.

7 Use the power cord and AC adapter provided. Ensure that the power cord is firmly plugged into the instrument and the power source.

8 Turn the instrument on only after connecting the power cord to both the power source and the instrument. Turn the instrument off before disconnecting the power cord and/or moving the instrument.

9 If the instrument emits smoke, disconnect the power cord immediately from the outlet and contact your local distributor or Logos Biosystems.

10 This instrument uses ultraviolet LEDs that are as Class 3B in accordance with IEC/EN 60825-1. Always turn the instrument off before changing LED filter cubes.

11 Do not expose the instrument to intense ultraviolet light.

12 Use only components provided or authorized by Logos Biosystems.

13 Do not disassemble the instrument in any event. If the instrument is malfunctioning or broken, please contact your local distributor or Logos Biosystems. Disassembling the instrument invalidates its warranty.

Environmental Conditions for Operation

Operating Power	100 – 240 VAC, 1.5 A
Electrical Input	12 VDC, 5.0 A
Frequency	50/60 Hz
Installation Site	Indoor use only
Operating Temperature	10-35℃
Maximum Relative Humidity	20-80%
Altitude	≤2,000 m
Pollution Degree	2

1 Product Information

1.1 Product Overview

Due to advancements in optical technology, the quality of cell imaging data has increased dramatically since the conception of the microscope. However, user experience has not improved at the same rate. Complex alignment processes, long setup procedures, and time consuming adjustments require extensive training to master.

The iRiS™ Digital Cell Imaging System is a digital microscope that pairs high-performance optics and a user-friendly software interface to create a smooth and seamless user experience. Anyone can obtain sharp and beautifully vivid images in seconds with the iRiS™.

1.2 Key Features

Compact, space-efficient design
The iRiS™ maximizes space and eliminates the need for complicated and messy connections to multiple devices such as lamps, lasers, power supplies, cameras, and computers.

Proven quality objectives
The finest objective lenses made in Japan deliver excellent images.

Efficient LED light sources
Long-lasting (~50,000 hours of consistent illumination) and reliable LED filter cubes with adjustable intensities produce optimal brightfield, phase contrast, and fluorescence images.

Tricolor fluorescence
Changeable LED filter cubes with hard-coated filters are fitted close to the objective turret to be highly sensitive to even faint florescence signals.

Scientific-grade CMOS camera
An ultra-low-noise scientific-grade CMOS camera maximizes the signal-to-noise ratio to produce high-resolution images.

Time lapse and Z-stack images
User-friendly software facilitates time lapse and Z-stack image acquisition.

Image analysis software
Onboard analysis software allows the user to capture and analyze images in one sitting.

Built-in computer
A dual core CPU supports immediate and rapid analysis. 128 GB of internal storage allows for data and images to be saved directly to the system.

Fast start up, shut down
Using LED light sources make warm up and cool down times unnecessary. Simply start and go.

1.3 Product Contents

The iRiS™ Digital Cell Imaging System contains the following components:

iRiS™ Digital Cell Imaging System Starter Kit (Cat # I10999)

		Component	Quantity
Main		iRiS™ Digital Cell Imaging System Main Body *with Mechanical Stage*, 4 Objectives**, and 3 LED Filter Cubes*** (factory installed)*	1
Accessories	A	Tool Kit****	1
	B	Light Protection Box	1
		Vessel Holder Frame	1
	C	Insert Plate	1
		Universal Holder	1
		25 mm x 75 mm Slide Holder, Two Positions	1
	D	Power Cord with AC Adapter	1
		HDMI Cable	1
	E	Wireless Mouse	1
		USB Drive, 4 GB	1

** The mechanical stage cannot be added post-purchase.*

*** Included objectives: TC PlanAchro 4X Ph, TC PlanFluor 10X, TC PlanFluor 20X, TC PlanFluor 40X*

**** Included LED filter cubes: DAPI (Ex375/28, Em460/50), EGFP (Ex470/30, Em530/50), RFP (Ex530/40, Em605/55)*

***** The tool kit includes four hex wrenches (1.5, 2.5, 3.0, and 4.0 mm), one 2.5 mm Phillips screwdriver, and one 2.5 mm flat-head screwdriver.*

iRiS™ Digital Cell Imaging System Main Body with Mechanical Stage (Cat # I10997)

		Component	Quantity
Main		iRiS™ Digital Cell Imaging System Main Body *with Mechanical Stage* (factory installed)*	1
Accessories	A	Tool Kit****	1
	B	Light Protection Box	1
		Vessel Holder Frame	1
	C	Insert Plate	1
		Universal Holder	1
		25 mm x 75 mm Slide Holder, Two Positions	1
	D	Power Cord with AC Adapter	1
		HDMI Cable	1
	E	Wireless Mouse	1
		USB Drive, 4 GB	1

iRiS™ Digital Cell Imaging System Main Body (Cat # I10998)

		Component	Quantity
Main		iRiS™ Digital Cell Imaging System Main Body	1
Accessories	A	Tool Kit****	1
	B	Light Protection Box	1
	C	Insert Plate	1
	D	Power Cord with AC Adapter	1
		HDMI Cable	1
	E	Wireless Mouse	1
		USB Drive, 4 GB	1

1.4 Product Specifications

Instrument Type	Benchtop digital imaging system
Optics	Infinity-corrected, RMS-threaded objectives with 45 mm parfocal distance
Objectives	5 positions, included objectives vary per order
Computer	Built-in dual core CPU, 128 GB SSD internal storage
Display	Full HD LCD, 1920 x 1080 pixels (not included)
Stage	Mechanical
Camera	Monochrome scientific-grade CMOS, 1.3 MP
Focusing	Motorized
Condenser Working Distance	50 mm
Transmitted Light	Brightfield & phase contrast
Fluorescence Channels	Up to 3
LED Filter Cubes	3 changeable positions, included LED filter cubes vary per order
Epifluorescence Imaging	√
Onboard Image Analysis	√
Time Lapse Imaging	√
Z-Stack Imaging	√
Image Format	8 or 16-bit TIFF, JPG, BMP, or PNG (12-bit dynamic range), 1280 x 1024 pixels
Outputs	4 USB, LAN, D-Sub, HDMI
Power	Input: 12 VDC, 5.0 A, 50-60 Hz; Output: 100-240 VAC, 1.5 A
Dimensions (H x W x D)	270 mm x 295 mm x 440 mm (10.6″ x 11.6″ x 17.3″)
Weight	17 kg (370 lb)

1.5 Product Description

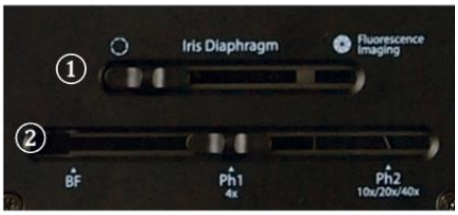
① Power Button
② Fine Focusing Knob
③ Coarse Focusing Knob
④ Objective Turret Wheel
⑤ USB Ports (2)
⑥ Stage

① Stage Control Knob
② D-SUB Port
③ HDMI Port
④ USB Ports (2)
⑤ LAN Port
⑥ Power Cord Port

① White LED Filter Cube
② Phase Annuli
③ Vessel Holder Frame Arm
④ Vessel Holder Frame
⑤ Insert Plate
⑥ Stage

① Coarse Focusing Knob
② LED Filter Cube Selection Tail
③ Stage X-Axis Knob
④ Stage Y-Axis Knob

① Fine Focusing Knob



① Iris Diaphragm Slider
② Phase Annuli Slider

2 Installation

2.1 Unpacking

Upon receiving the product package, unpack and inspect the unit and its accessories to check that all parts have been included (see Section 1.3: Product Contents) and that no damage occurred during shipping. The warranty does not cover damage that may occur during shipping and handling. Any damage claims must be filed with the carrier. Contact your local distributor or Logos Biosystems if anything is missing.

To remove the main body from the packaging, lift the main body by grasping its base firmly with both hands at diagonally opposite ends.

! **Caution!** *Do not hold or lift the main body by its top/cover.*

Place the main body on a clean and level surface devoid of vibration. Leave sufficient space around the main body to prevent overheating. For more details, see the Environmental Conditions for Operation.

2.2 Stage Assembly

1 Place the insert plate into its spot on the stage.

2 Move the vessel holder frame arm to the front right corner of the stage using the stage control knobs.

3 Use the 2.5 mm hex wrench from the tool kit to screw the vessel holder frame to the vessel holder frame arm. The screw is attached to the vessel holder frame.

4 Move the vessel holder frame to the center of the stage using the stage control knobs.

2.3 Connections

1 Remove the bubble wrap protecting the camera's USB cable. Insert the USB into the bottom USB port. Make sure the connection is secure.

! **Important!** *The camera USB must be connected to the bottom USB port.*

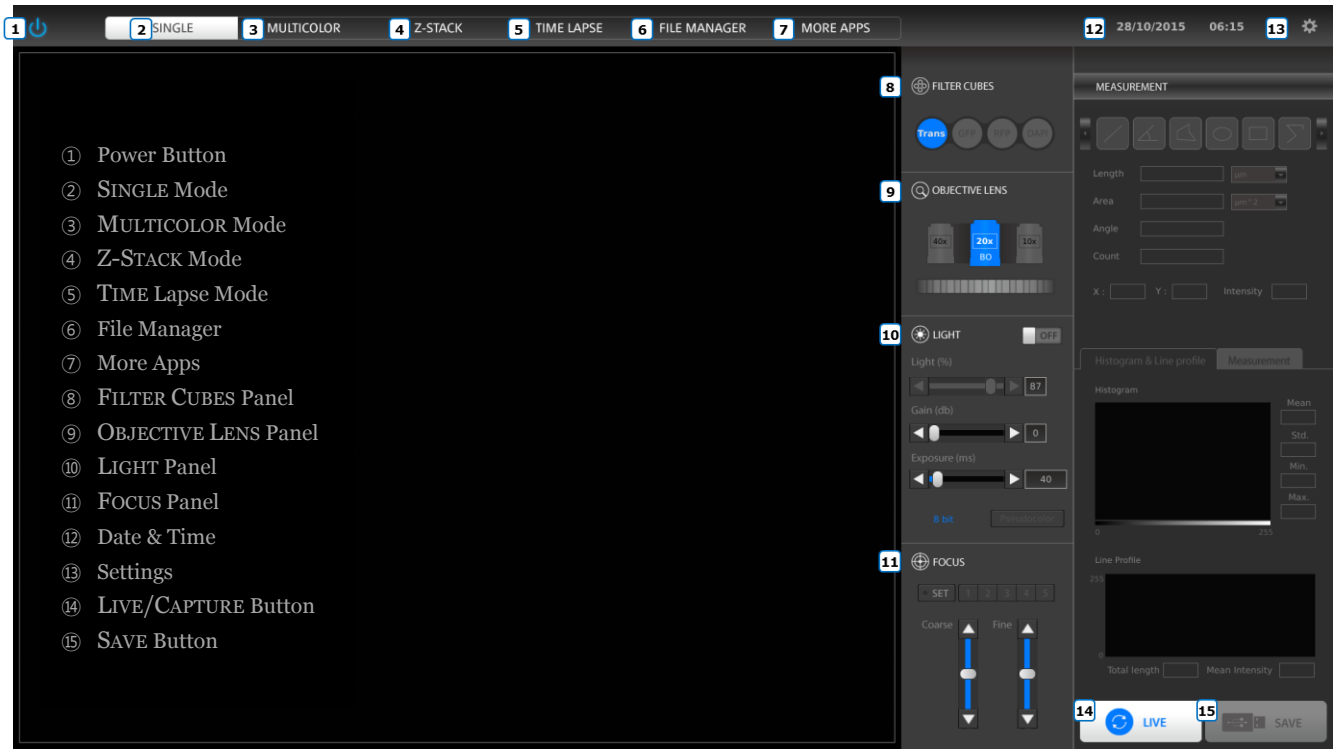
2 Connect an HDMI-compatible monitor to the iRiS™ via the HDMI cable.

3 Plug the wireless mouse receiver into a USB port.

4 Insert the connector of the AC adapter into the power inlet of the instrument. Connect the power cord to the AC adapter. Connect the power cord to an electrical outlet.

3 Operation

3.1 Initial Display Screen



3.2 General Operation

3.2.1 Diaphragm Selection

The amount of light can be adjusted by moving the iris diaphragm slider. For transmitted light imaging, slide the iris diaphragm slider to the left. For optimal fluorescence imaging, slide the iris diaphragm slider to the right.

3.2.2 Phase Annuli Selection

The phase annuli slider can be adjusted for brightfield or phase contrast imaging with the three annuli for transmitted light imaging: BF for brightfield imaging, Ph1 4X for phase contrast imaging at 4X magnification, and Ph2 10X/20X/40X for phase contrast imaging at 10X, 20X, or 40X magnification.

3.2.3 Objective Selection

The iRiS™ objective turret has five tapped holes for objective lenses. The user can select an objective by turning the objective turret wheel. The objectives installed in positions 2-4 (TC PlanFluor 10X, TC PlanFluor 20X, and TC PlanFluor 40X, respectively) are significantly longer in size than the TC PlanAchro 4X Ph in position 1. When moving the objective turret (especially to/from the TC PlanFluor 20X and TC PlanFluor 40X):

1 Lower the objective turret by using a preset focus position, the FOCUS panel, or the coarse focus knob.

2 Turn the objective turret to the desired objective using the objective selection wheel.

! **Caution!** *If the objective turret has not been sufficiently lowered, the objectives will hit the insert plate and may be damaged.*

3 Raise the objective turret as needed by using a preset focus position, the FOCUS panel, or the coarse focus knob.

The OBJECTIVE LENS panel displays the name and magnification of the selected objective and its directly adjacent objectives. The selected objective is highlighted in blue. The names, magnifications, and locations of each objective may be modified in the Settings OBJECTIVE LENS panel.

3.2.4 LED Filter Cube Selection

The iRiS™ has three LED filter cube slots for fluorescence illumination and one white LED filter cube for transmitted illumination. To select the desired LED filter cube, move the LED filter cube selection tail inward or outward. The FILTER CUBES panel shows the LED filter cube options and their respective pseudocolors. The selected LED filter cube is highlighted in blue. Each LED filter cube can be renamed and its pseudocolor assigned in the Settings FILTER CUBES panel.

3.2.5 Light Intensity

The LIGHT panel gives the user control over the intensity (%), gain (db), and exposure time (ms) of the selected LED filter cube. The user can turn the light source on or off by clicking the ON/OFF switch. The user can set each selection to the desired value by dragging the scroll bars, clicking the arrowheads, or rotating the wireless mouse wheel while hovering over the bars in the LIGHT panel. The user can colorize the image by clicking the Pseudocolor button.

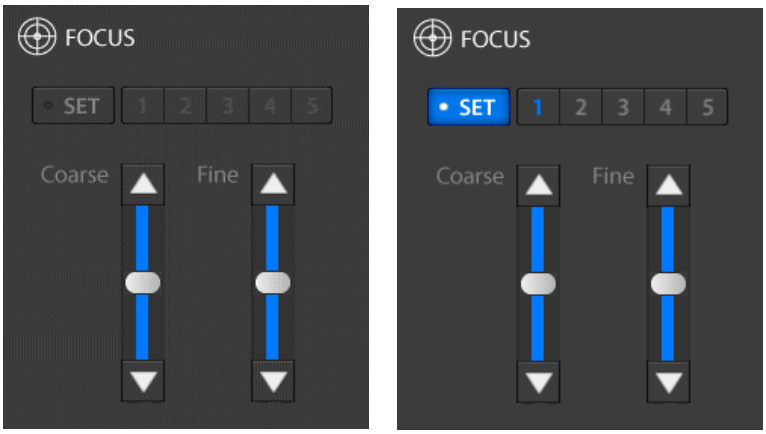
3.2.6 Focusing

The iRiS™ has a motorized focusing module, which allows the user to adjust the focus by manually manipulating the focus knobs, dragging the scroll bars, clicking the arrowheads, or rotating the wireless mouse wheel while hovering over the focus bars in the FOCUS panel. The preset focusing speed of and distance moved can be adjusted in the Settings.

The focus memory feature allows the user to preset focus positions using the FOCUS panel.

To preset positions:

1 Move the focal plane to the desired position (move the objective turret) and click the Set button. The Set button is highlighted in blue when selected.



2 Select the number that you want the position stored on.

! **Important!** *Do not touch the focus knobs during the process.*

3 Repeat the process for the various positions you want stored. Numbers with stored positions will be highlighted in blue.

Select a number to move the objective to the preset position.

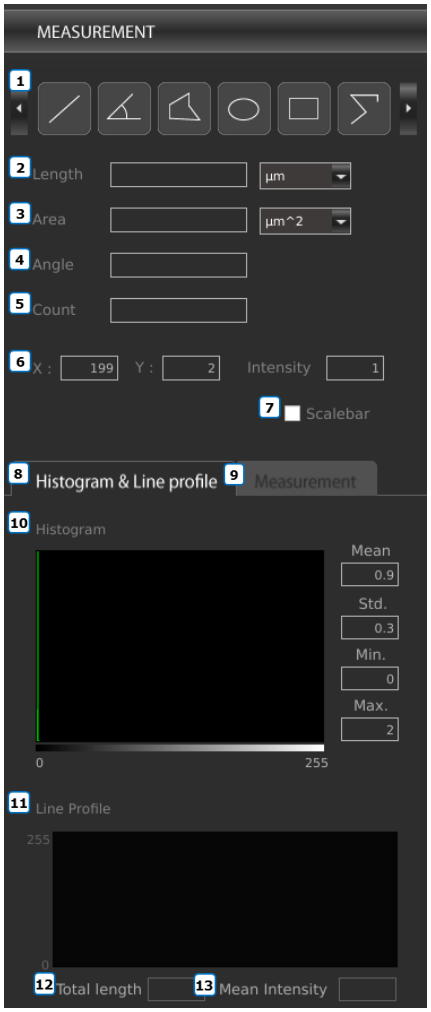
Preset focus positions may be erased in the Settings FOCUS panel.

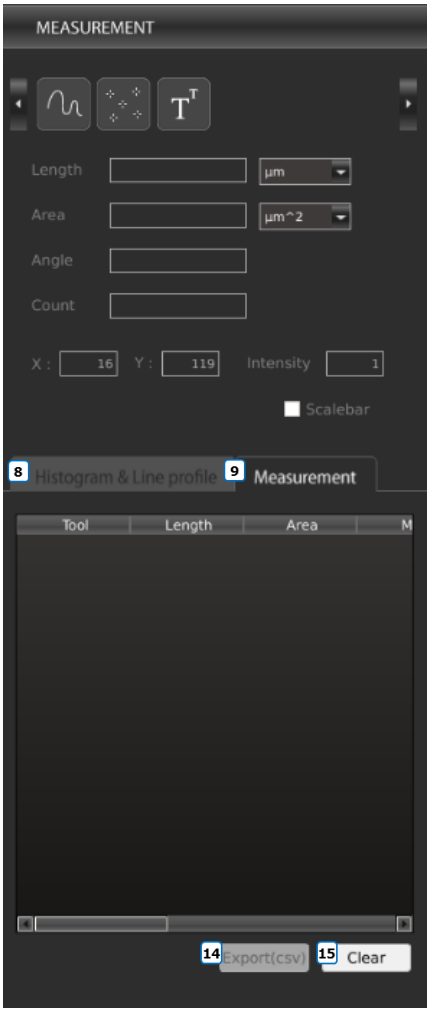
3.3 Single Mode

In SINGLE mode, the user can capture an image in one channel and perform simple measurements.

3.3.1 Measurement Control Panel

When SINGLE mode is selected, the right panel becomes the MEASUREMENT control panel.





① Tools
- Straight line
- Angle
- Polygon
- Oval
- Rectangle
- Segmented line
- Freehand line
- Count
- Text

② Length
③ Area
④ Angle
⑤ Count
⑥ Position and Intensity
⑦ Scale Bar
⑧ Histogram & Line Profile
⑨ Measurements
⑩ Histogram
⑪ Line Profile
⑫ Total Length
⑬ Mean Intensity
⑭ Export Button
⑮ Reset Button

3.3.2 Acquiring, Saving, and Analyzing Images in Single Mode

1 Place the sample into the appropriate vessel holder and onto the stage.

2 (optional) Cover with the light protection box.

3 Adjust the iris diaphragm slider as needed.

4 Adjust the phase annuli slider as needed.

5 Select an objective. The selected objective will be highlighted in blue in the OBJECTIVE LENS panel.

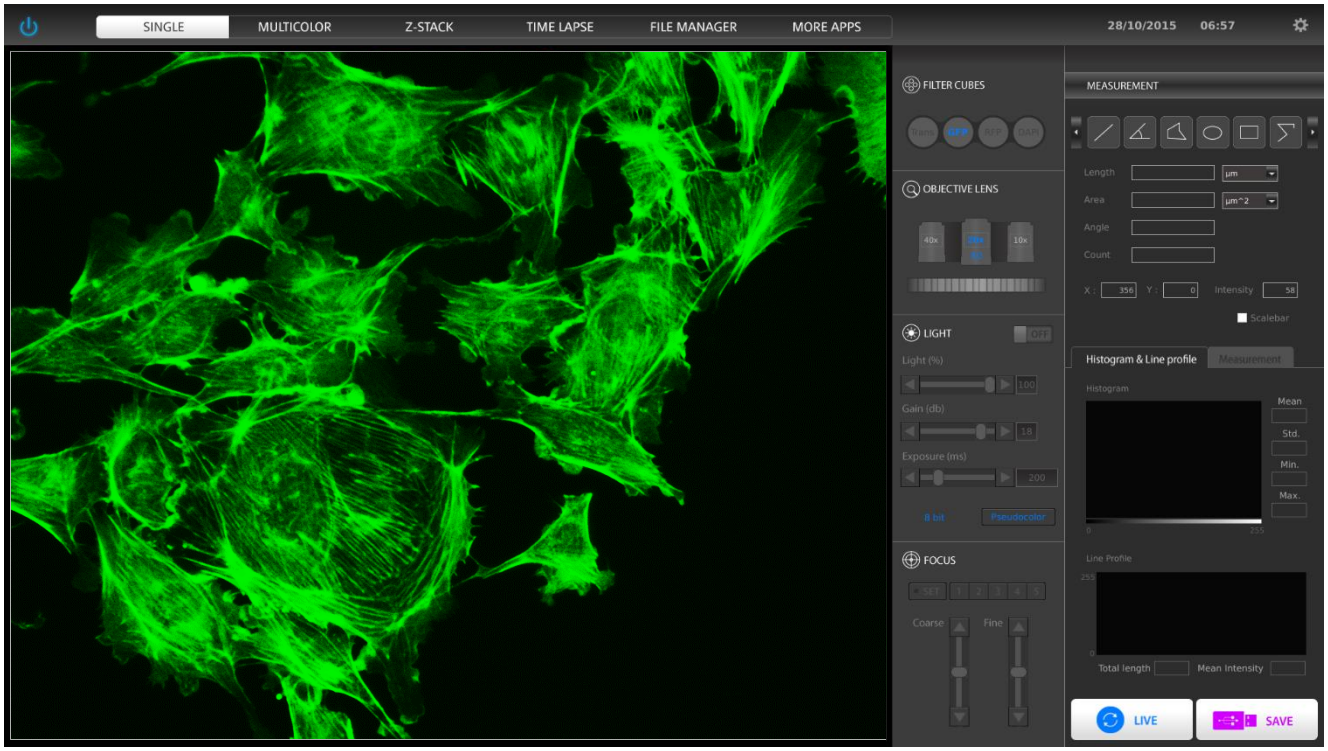
6 Select an LED filter cube. The selected filter cube will be highlighted in blue in the FILTER CUBES panel.

7 Click LIVE. Make sure the light is on. Adjust the intensity, gain, and exposure as needed.

8 Adjust the focus as needed.

9 Adjust the light intensity, gain, and exposure as needed. Activate the Pseudocolor function as needed.

10 Capture the image by clicking CAPTURE.



11 Save the captured image by clicking SAVE. Captured images can be saved in monochrome or with pseudocolor as TIF, JPG, BMP, or PNG (12-bit dynamic range) to the built-in SSD drive or an external USB drive.

12 (optional) Analyze the captured image using the available measurement tools.

13 (optional) Save the image along with its drawn measurements by clicking SAVE and selecting *Save including drawings and annotations* in the Save window.

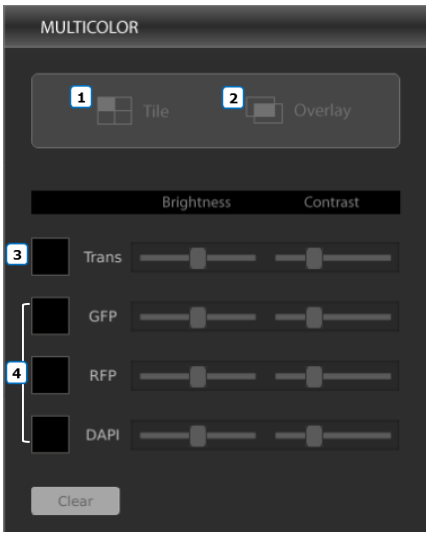
14 (optional) Export measurement data as a CSV file by selecting the Measurement tab and clicking the Export(csv) button.

3.4 Multicolor Mode

In MULTICOLOR mode, the user can capture up to four different images (3 fluorescence channels, 1 transmitted light channel) of the same field sequentially. The captured images can be displayed in Tile or Overlay format. The brightness and contrast of each channel by clicking their respective boxes and moving their sliders.

3.4.1 Multicolor Control Panel

When MULTICOLOR mode is selected, the right panel becomes the MULTICOLOR control panel.



① Tile View
② Overlay View
③ Transmitted Light Channel
④ Fluorescence Channels

3.4.2 Acquiring and Saving Images in Multicolor Mode

1 Place the sample into the appropriate vessel holder and onto the stage.

2 (optional) Cover the sample with the light protection box.

3 Adjust the iris diaphragm slider as needed.

4 Adjust the phase annuli slider as needed.

5 Select an objective. The selected objective will be highlighted in blue in the OBJECTIVE LENS panel.

6 Select an LED filter cube. The selected filter cube will be highlighted in blue in the FILTER CUBES panel.

7 Click LIVE. Make sure the light is on. Adjust the intensity, gain, and exposure as needed.

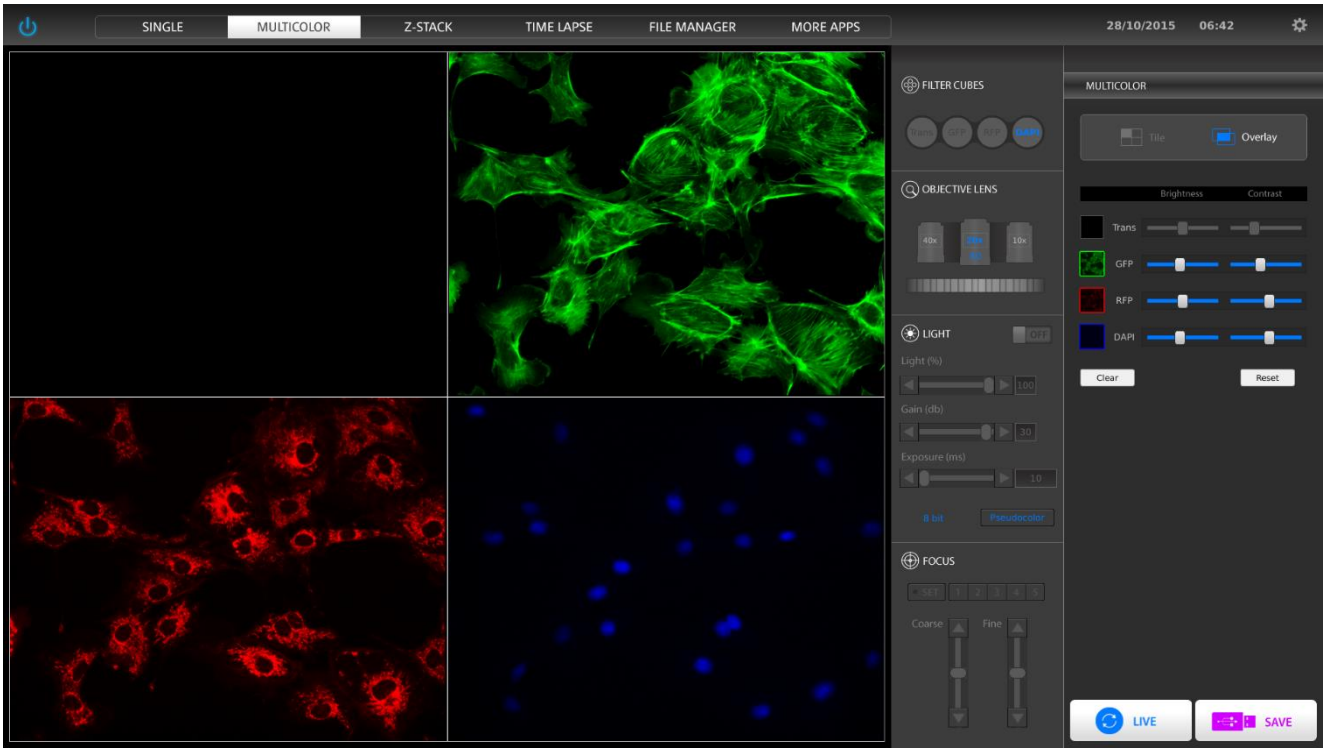
8 Adjust the focus as needed.

9 Adjust the light intensity, gain, and exposure as needed.

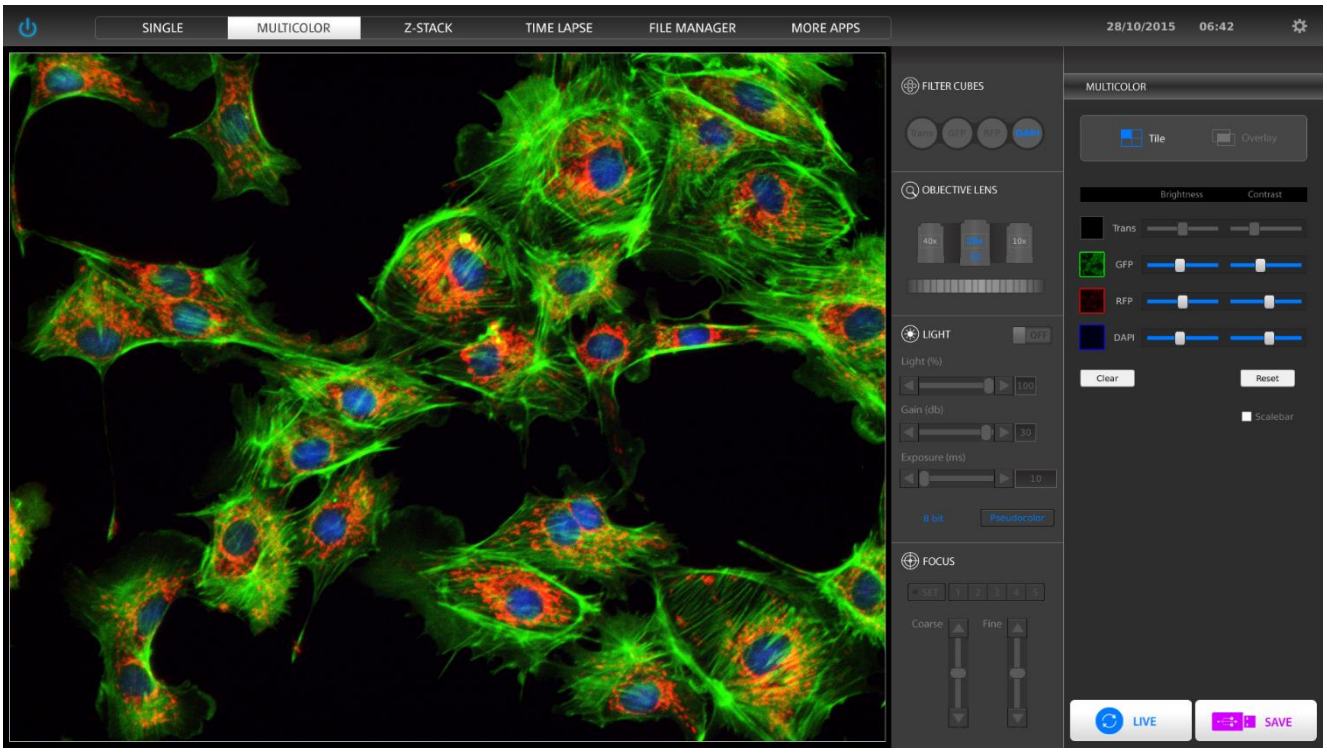
10 Activate the Pseudocolor function as needed.

11 Capture the image by clicking CAPTURE.

12 Change the LED filter cube and repeat steps 7-11 to acquire images for each fluorescence channel. If needed, the user may click Clear to delete captured images and start over.



13 Click Overlay to show a merged image of all the channels. Click Tile to see the images of all the channels separately.



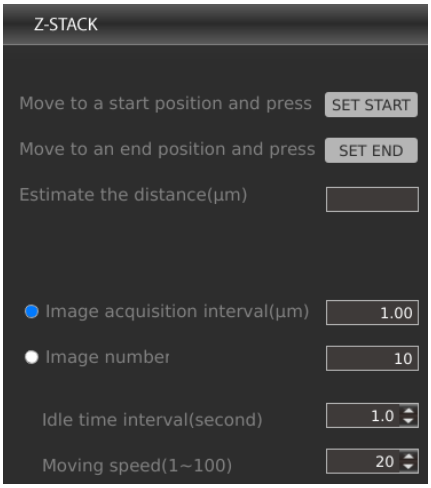
14 Adjust the brightness and contrast of each channel as needed by clicking their respective boxes and moving their sliders. Click Reset to undo image adjustments.

15 Save the captured images by clicking SAVE. Captured images can be saved in monochrome or with pseudocolor as TIF, JPG, BMP, or PNG (12-bit dynamic range) to the built-in SSD drive or an external USB drive. The images can be saved as their individual channels and as an overlay image.

3.5 Z-Stack Mode

3.5.1 Z-Stack Control Panel

When Z-STACK mode is selected, the right panel becomes the Z-STACK control panel.



3.5.2 Acquiring Images in Z-Stack Mode

1 Move the focal plane to the desired start position and click Set Start. Move the focal plane to the desired end position and click Set End. The estimated distance (µm) is automatically calculated.

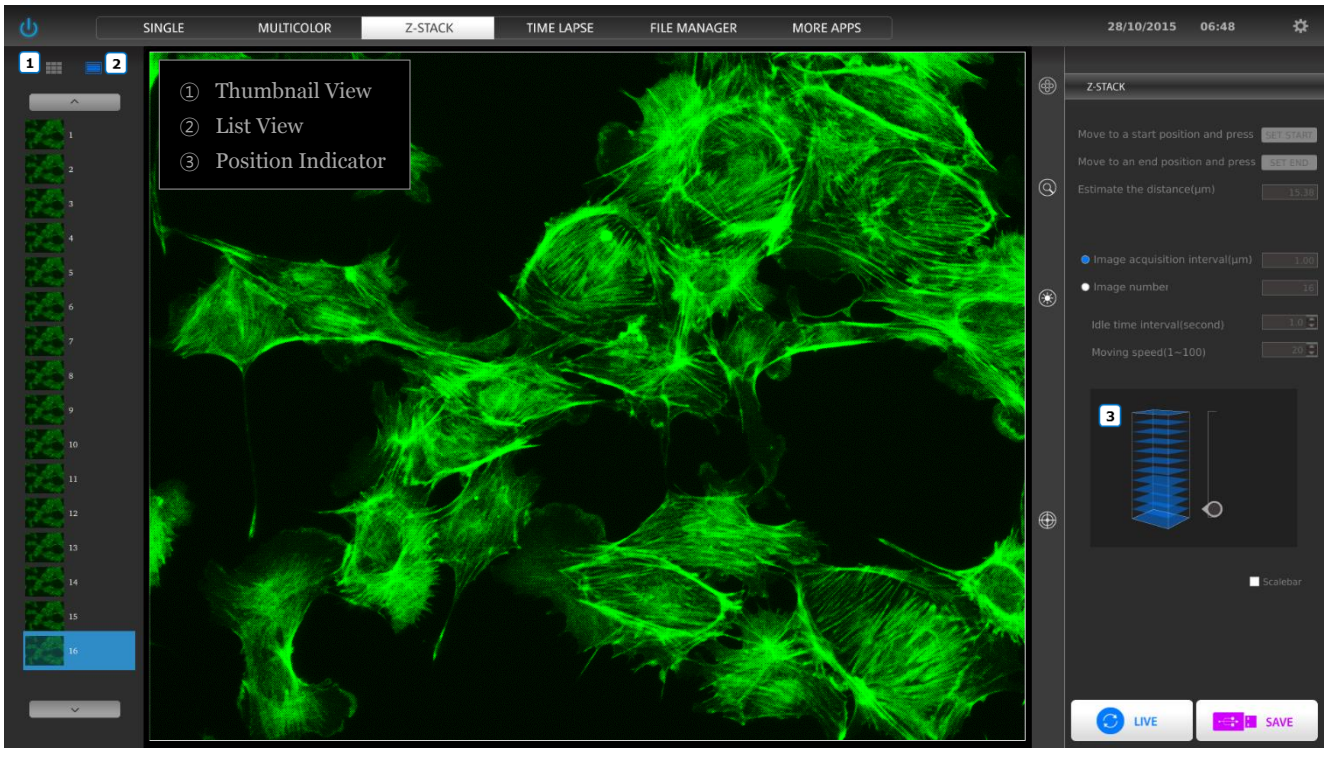
2 Select the [Image acquisition interval (µm)] or [Image number] and enter the desired value.

3 Adjust the idle time interval as desired. Adjust the moving speed as desired.

4 Click RUN.

! **Important!** *Do not touch the focus knobs during Z-stack imaging.*

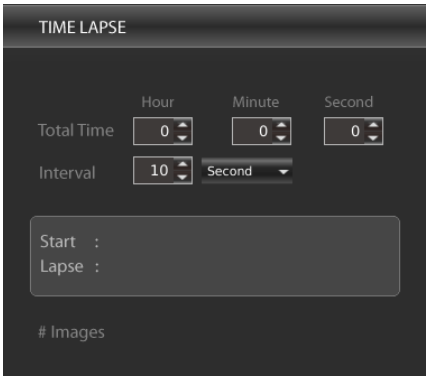
5 Click the list icon to view the images numbered in order. Click the thumbnail icon to view the series in a larger form. The selected focal plane is shown in the position indicator in the Z-STACK control panel.



3.6 Time Lapse Mode

3.6.1 Time Lapse Control Panel

When TIME LAPSE mode is selected, the right panel becomes the TIME LAPSE control panel.



3.6.2 Acquiring Images in Time Lapse Mode

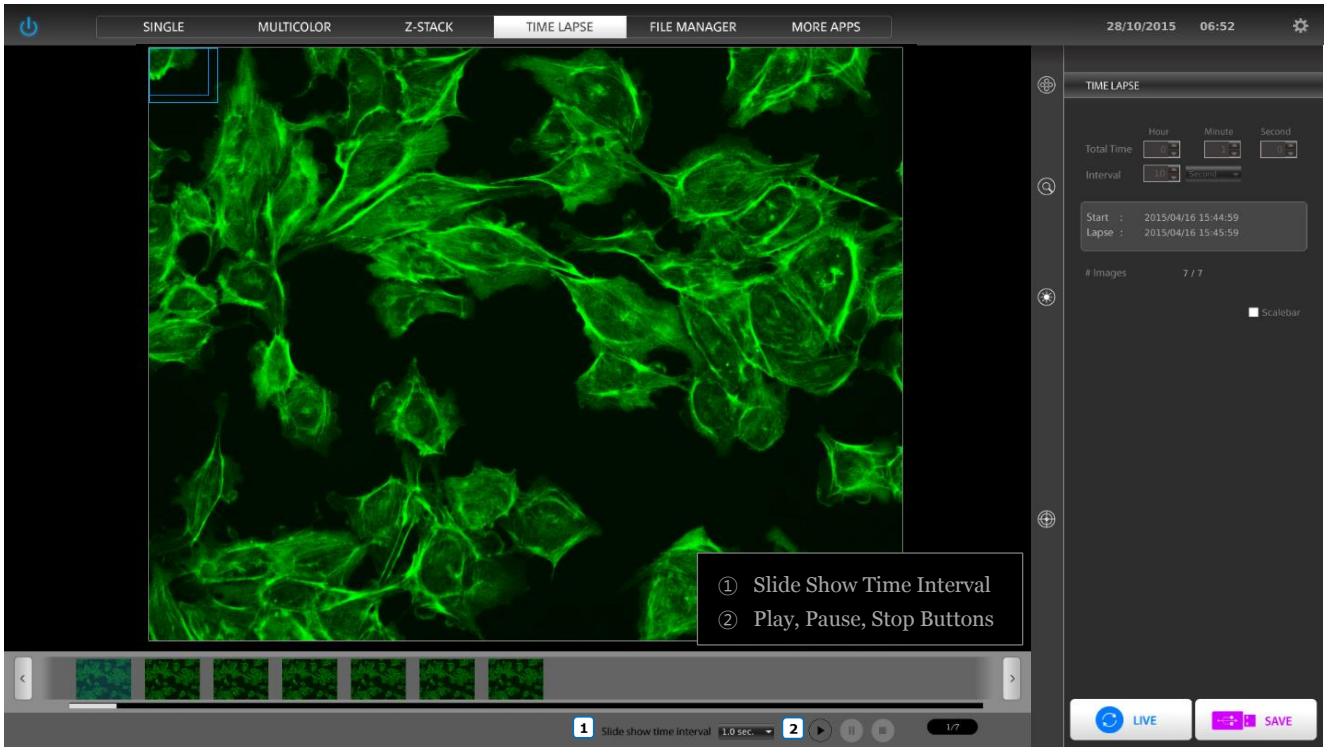
1 Enter the total imaging time.

2 Enter the intervals at which images should be captured. The number of images to be captured is automatically calculated.

3 Click RUN.

! **Important!** *Do not touch the focus knobs during time lapse imaging.*

4 (optional) Modify the length of the composite slide show and play it.

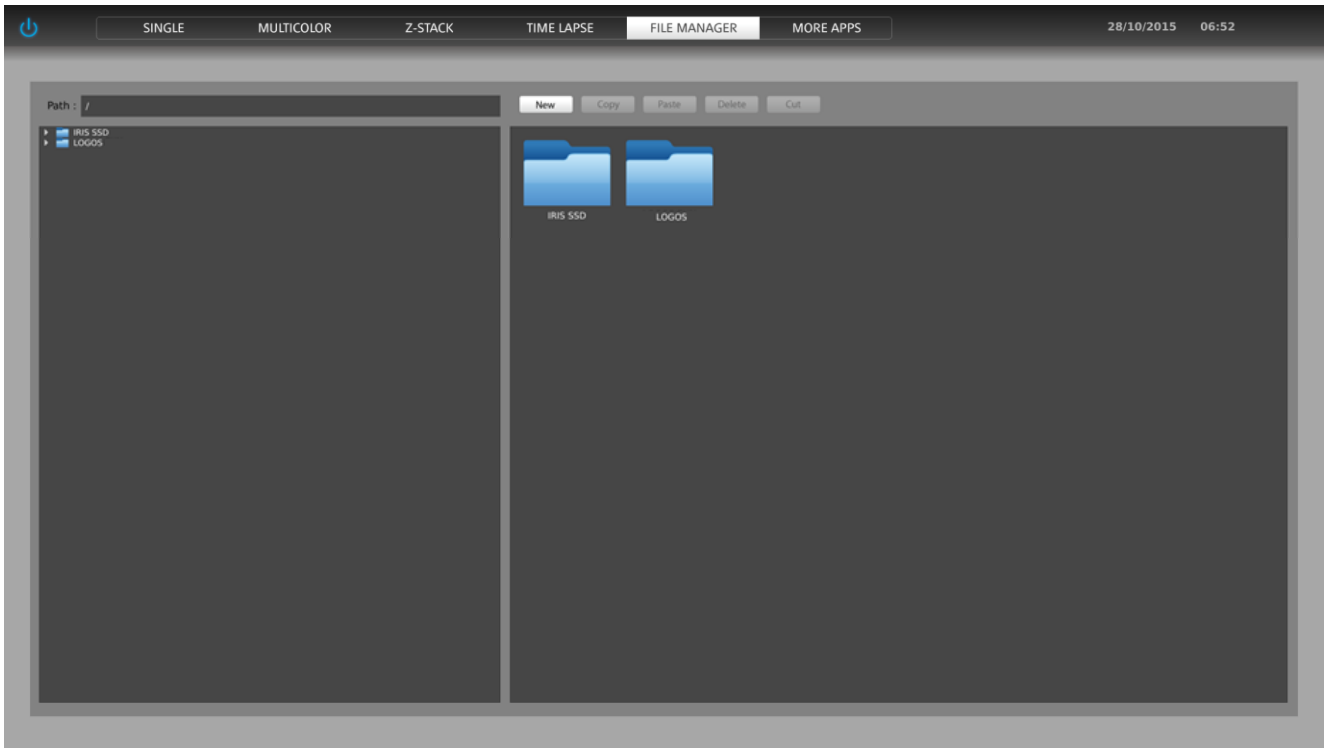


4 Saving Images

Captured images can be saved in monochrome or with pseudocolor as TIF, JPG, BMP, or PNG (12-bit dynamic range) to the built-in SSD drive or an external USB drive.

Saved images can be organized by selecting the FILE MANAGER option in the initial display screen.

Folders are easily created, edited, or deleted.



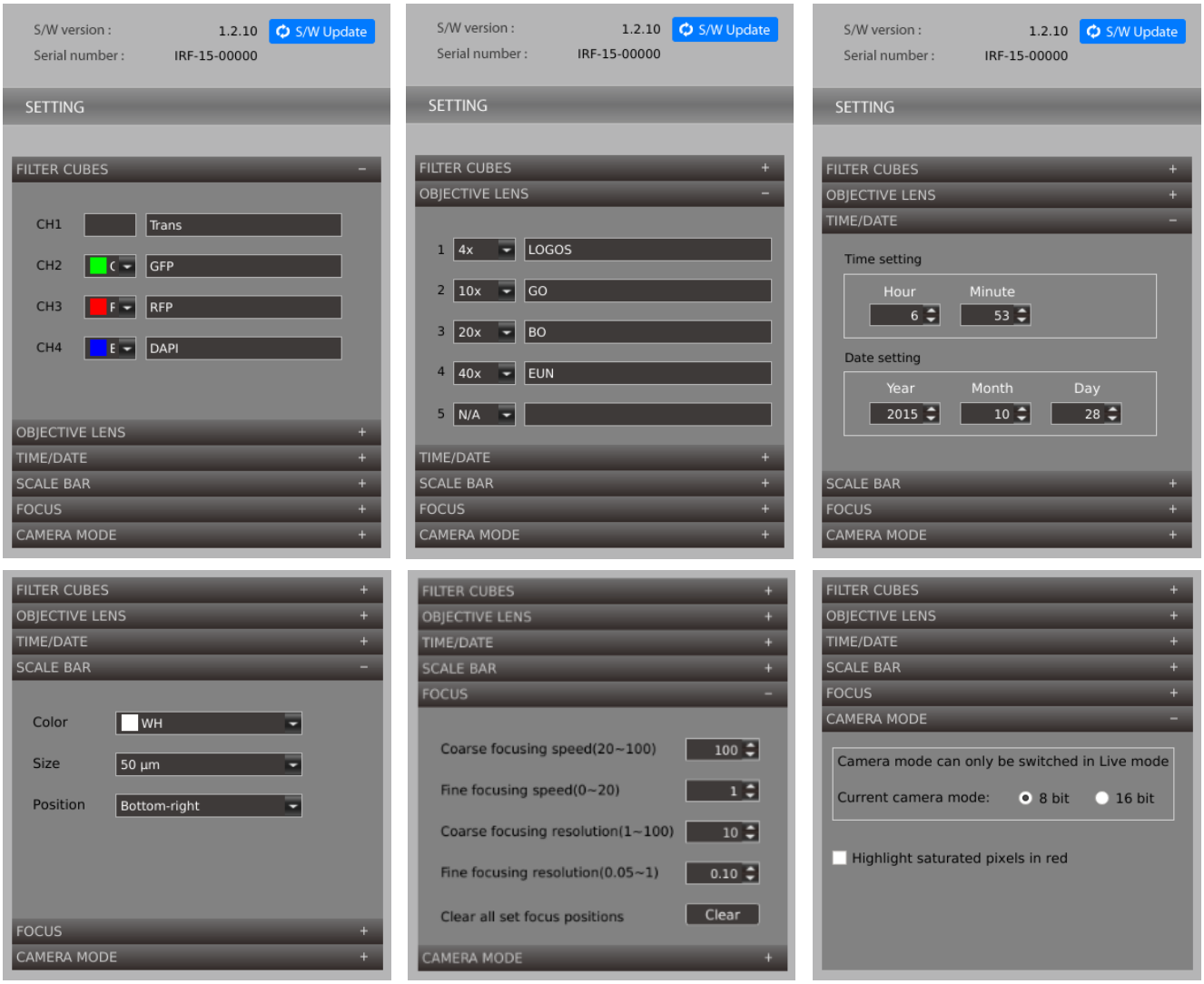
5 Settings

When the Settings button is selected, the right panel becomes the Settings control panel.

The top of the control panel displays the serial number and software version.

Each panel can be expanded or collapsed by clicking the +/- buttons.

Save any or all changes by clicking the APPLY button. Undo changes by clicking the CANCEL button.



S/W UPDATE

Download the most recent version of software from the Logos Biosystems website (www.logosbio.com) into the root directory of a USB drive. Connect the USB drive to a USB port in the instrument. Click the S/W Update button in the Settings control panel. Do not turn the instrument off during the update.

FILTER CUBES

The FILTER CUBES panel offers the option to change LED filter cubes and their corresponding pseudocolors. After installing LED filter cubes, enter the name of and desired pseudocolor for each LED filter cube in its respective location.

OBJECTIVE LENS

The OBJECTIVE LENS panel offers the option to change objectives. After installing objectives, enter the name of and magnification for each objective in its respective location.

TIME/DATE

The TIME/DATE panel allows the user to adjust the date and time.

SCALE BAR

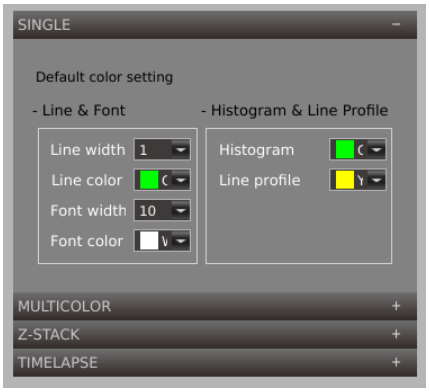
The SCALE BAR panel allows the user to modify the color, size, and position of the scale bar.

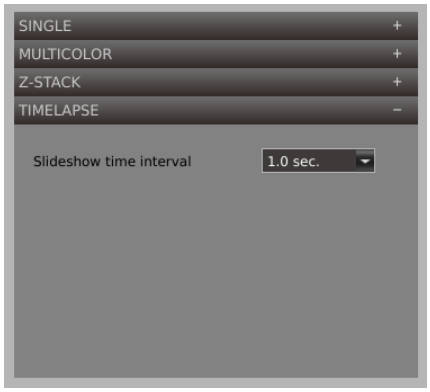
FOCUS

The FOCUS panel allows the user to adjust the predetermined focusing speed and distance moved with each manipulation. Preset focus positions may be erased by clicking the CLEAR button.

CAMERA MODE

The CAMERA MODE panel allows the user to choose to capture images in 8 or 16 bit. The user may select to highlight saturated pixels in red.





SINGLE

The SINGLE panel allows the user to adjust the appearance of measurement marks, the histogram, and the line profile. The user may modify the color or width of lines and text. The user can modify the color of bars and lines in the histogram and line profile, respectively.

TIME LAPSE

The TIME LAPSE panel allows the user to modify the preset interval between images in the composite time lapse slide shows.

MULTICOLOR, Z-STACK

No additional settings are provided at present.

6 Maintenance

6.1 Routine Cleaning and Care

Clean the surfaces of the instrument with a soft cloth dampened with distilled water or 70% ethanol. Immediately wipe again with a dry cloth. Do not pour or spray liquids directly onto the instrument. Do not wet electrical wires or connections in order to avoid electrical shock or damage. If liquid is spilled on the instrument, turn off the power and wipe dry immediately.

Use only optical-grade cleaning materials to clean optical components. Do not use Kim Wipes or tissues.

Do not exchange components between instruments unless they have been provided or authorized by Logos Biosystems.

6.2 Installation and Removal of Components

Carefully follow the instructions below to install and/or remove objective lenses and LED filter cubes.

6.2.1 Vessel Holder Frame and Insert Plate

1 Turn the instrument off.

2 Move the vessel holder frame to the front right corner of the stage using the stage control knobs.

3 Use the 2.5 mm hex wrench from the tool kit to unscrew the vessel holder frame from the vessel holder frame arm.

4 Lift and remove the vessel holder frame from the vessel holder frame arm.

5 Move the vessel holder frame arm into the instrument using the stage control knobs.

6 Remove the insert plate from the stage.

7 Proceed to *Section 6.2.2: Objectives* or *Section 6.2.3: LED Filter Cubes*.

6.2.2 Objectives

1 Move the objective turret. The position of each objective lens can be identified by numbers in the center of the turret.

2 Unscrew and remove the objective lens from the objective turret.

3 Replace it with the desired objective lens and screw it in securely.

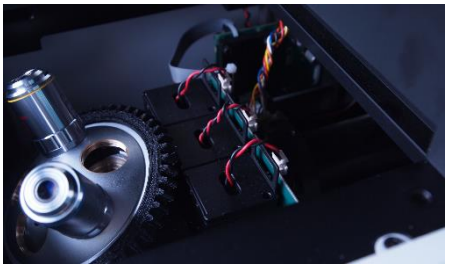
4 Reinstall the insert plate and vessel holder frame.

5 Turn on the instrument and change the objective lens information in the Settings.

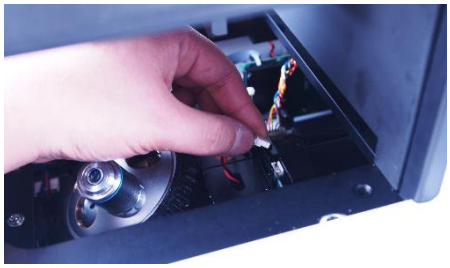
6.2.3 LED Filter Cubes

1 Unscrew the screws from the four corners of the stage with the 4.0 mm hex wrench from the tool kit.

2 Remove the stage from the instrument to reveal the LED filter cubes.



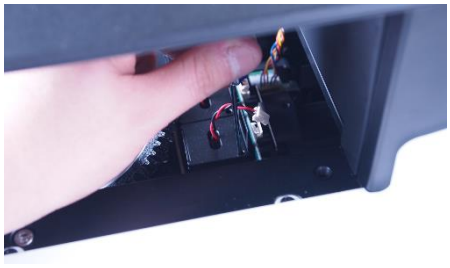
3 Unplug the connector of the LED filter cube from the instrument.



4 Undo the screw in the LED filter cube with the flat-head screwdriver from the tool kit.

5 Pull out the LED filter cube.

6 Insert the desired LED filter cube, screw it in securely, and connect its connector to the instrument.



7 Reinstall the stage, insert plate, and the vessel holder frame.

8 Turn the instrument on and change the LED filter cube information in the Settings.

7 Troubleshooting

Problem	Possible Cause	Solution
Image quality	Misaligned overlay image	Recapture images in each color (channel). Do not touch the stage or focusing knobs while capturing images.
	Dim transmitted light image	1 Set the phase annuli slider to the proper position. 2 Open the iris diaphragm. 3 Remove the light shield box, if present.
	Dim transmitted light image with TC PlanFluor lenses	Set the phase annuli slider to the BF position. TC PlanFluor lenses are not corrected to the phase ring.
	Uneven focus	Place the sample flat on the stage. Make sure the sample thickness is uniform.
	Trouble focusing on a coverslipped sample	Place the slide with the coverslip facing up.
	Trouble focusing on a coverslipped sample with Plan Apochromat lenses	Place the slide with the coverslip facing down. Plan Apochromat lenses are corrected to 0.17 mm thick coverslips.
	Black screen	1 Click the ON button in the LIGHT panel 2 Ensure that the objective turret has clicked into position 3 Ensure that the phase annuli slider is in the proper position 4 Center the sample over the objective.
Software	Image irresponsive to changes in focus or stage position	Click the ON button in the LIGHT panel.
	Inactive ON/OFF switch in LIGHT panel	Verify that the LED filter cube selection tail and the objective turret have clicked into position.
	Inactive SAVE button	Capture the image first. The SAVE button is only active after an image has been captured.
Mechanical	No place for sample on vessel holder frame	Use the appropriate vessel holder.
Data saving and/or transfer	Too many files on SSD	Image acquisition and analysis may become slower when there are too many saved files on the SSD drive. Delete or move files to an external drive.
	Incompatible USB	Some USB drives are undetectable or incompatible. Use the USB supplied with the instrument or make sure that your USB is compatible with the instrument. The USB must be Ver 2.0.
Software update	Incompatible USB	Some USB flash drives are undetectable or incompatible. Use the USB supplied with the instrument or make sure that your USB is compatible with the instrument. The USB must be Ver 2.0.
	More than one software version on the USB	Delete previous versions of software from the USB before downloading new software.
	Incorrectly saved or damaged software	1 Use the USB supplied with the instrument or make sure that your USB is compatible with the instrument. 2 Download the file again into the root directory of the USB drive. 3 Insert the USB drive properly. 4 Click the S/W Update button again. If the problem persists, contact your local distributor or Logos Biosystems.

8 Ordering Information

	Cat #	Product	Quantity	
Main Body	I10997	iRiS™ Digital Cell Imaging System Main Body with Mechanical Stage	1 unit	
	I10998	iRiS™ Digital Cell Imaging System Main Body Only	1 unit	
	I10999	iRiS™ Digital Cell Imaging System Starter Kit	1 unit	*
Objective Lenses	I10001	TC PlanAchro 4X Ph (NA 0.13, WD 17.3)	1 unit	*
	I10002	TC PlanAchro 10X Ph (NA 0.25, WD 7.6)	1 unit	
	I10003	TC PlanAchro 20X Ph (NA 0.4, WD 7.0)	1 unit	
	I10004	TC PlanAchro 40X Ph (NA 0.65, WD 2.8)	1 unit	
	I10005	TC PlanFluor 4X (NA 0.13, WD 17.5)	1 unit	
	I10006	TC PlanFluor 10X (NA 0.3, WD 7.5)	1 unit	*
	I10007	TC PlanFluor 20X (NA 0.4, WD 7.5)	1 unit	*
	I10008	TC PlanFluor 40X (NA 0.6, WD 2.9)	1 unit	*
	I10013	Plan Apochromat Fluor 1.25X (Coverslip-Corrected, NA 0.04, WD 3.7)	1 unit	
	I10014	Plan Apochromat Fluor 4X (Coverslip-Corrected, NA 0.13, WD 17.2)	1 unit	
	I10009	Plan Apochromat Fluor 10X (Coverslip-Corrected, NA 0.3, WD 8.6)	1 unit	
	I10010	Plan Apochromat Fluor 20X (Coverslip-Corrected, NA 0.65, WD 0.7)	1 unit	
	I10011	Plan Apochromat Fluor 40X (Coverslip-Corrected, NA 0.8, WD 0.2)	1 unit	
	I10012	Plan Apochromat Fluor Oil 100X (Coverslip-Corrected, NA 1.25, WD 0.19)	1 unit	
LED Filter Cubes	I10101	DAPI (Ex375/28, Em460/50)	1 unit	*
	I10102	EGFP (Ex470/30, Em530/50)	1 unit	*
	I10103	RFP (Ex530/40, Em605/55)	1 unit	*
	I10104	mCherry (Ex580/25, Em645/75)	1 unit	
	I10105	ECFP (Ex436/20, Em480/40)	1 unit	
	I10106	EYFP (Ex500/20, Em535/30)	1 unit	
	I10107	DSRed (Ex530/40, Em620/60)	1 unit	
	I10108	Cy5 (Ex620/60, Em700/75)	1 unit	
	I10109	Cy7 (Ex710/75, Em810/90)	1 unit	
	I10110	Cy3/TRITC Long Pass (Ex530/40, Em570lp)	1 unit	
	I10111	GFP Long Pass (Ex470/40, Em500lp)	1 unit	
	I10112	Cy5 Long Pass (Ex620/60, Em665lp)	1 unit	
	I10113	Custom Filters	1 unit	
Vessel Holders	I10200	Vessel Holder Frame	1 unit	*
	I10201	Universal Holder	1 unit	*
	I10202	25 mm x 75 mm Slide Holder, Two Positions	1 unit	*
	I10203	35 mm Petri Dish Holder, Four Positions	1 unit	
	I10204	60 mm Petri Dish Holder, Two Positions	1 unit	
	I10205	100 mm Petri Dish Holder, One Position	1 unit	
	I10206	25 cm^2 Nunc T-25 Flask Holder, Two Positions	1 unit	
	I10207	75 cm^2 Nunc T-75 Flask Holder, One Position	1 unit	
	I10208	25 cm^2 BD/Greiner T-25 Flask Holder, Two Positions	1 unit	
	I10209	75 cm^2 BD/Greiner T-75 Flask Holder, One Position	1 unit	
	I10210	Glass Hemocytometer Holder, One Position	1 unit	

** Included in the iRiS™ Digital Cell Imaging System Starter Kit (I10999)*

9 Instrument Warranty

Logos Biosystems, Inc. (“Company”) warrants to the original purchaser (“Purchaser”) that the instrument (“Instrument”), if properly used and installed, will be free from defects in materials and workmanship and will conform to the product specifications for a period of one (1) year (“Warranty Period”) from the date of purchase. If the Instrument under this limited warranty fails during the Warranty Period, the Company, at its sole responsibility, will:

1) within and up to 30 calendar days of purchase, refund the purchase price of the Instrument to the Purchaser if the Instrument is in original conditions; or,

2) after 30 calendar days of purchase, only replace or repair the Instrument for up to the Warranty Period without issuing a credit.

In no event shall the Company accept any returned instrument (including its components) that might have been used or contaminated in some labs, including but not limited to, HIV or other infectious disease or blood-handling labs. This limited warranty does not cover refund, replacement, and repair incurred by accident, abuse, misuse, neglect, unauthorized repair, or modification of the Instrument. This limited warranty will be invalid if the Instrument is disassembled or repaired by the Purchaser.

In case that the Company decides to repair the Instrument, not to replace, this limited warranty includes replacement parts and labor for the Instrument. This limited warranty does not include shipment of the Instrument to and from service location or travel cost of service engineer, the costs of which shall be borne by the Purchaser. Every effort has been made to ensure that all the information contained in this document is correct at its publication. However, the Company makes no warranty of any kind regarding the contents of any publications or documentation as unintended or unexpected errors including occasional typographies or other kinds are inevitable. In addition, the Company reserves the right to make any changes necessary without notice as part of ongoing product development. If you discover an error in any of our publications, please report it to your local supplier or the Company. The Company shall have no responsibility or liability for any special, incidental, indirect or consequential loss or damage resulting from the use or malfunction of the Instrument.

This limited warranty is sole and exclusive. The Company makes no other representations or warranties of any kind, either express or implied, including for merchantability or fitness for a particular purpose with regards to this Instrument. To obtain service during the Warranty Period, contact your local supplier or the Company’s Technical Support team.

Out of Warranty Service

Please contact your local supplier or the Company’s technical support team in order to obtain out-of-warranty service. If necessary, repair service will be charged for replacement parts and labor hours incurred to repair the Instrument. In addition, the Purchaser is responsible for the cost of shipping the Instrument to and from the service facility and, if necessary, the travel cost of a service engineer.

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