

From Eye to Insight



MICA

User Manual

Leica Microsystems CMS GmbH. User Manual, 11xxxxxx, revision 1.0, 2021-12-15



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The instructions contained in the following documentation reflect state-of-the-art technology. We have compiled the texts and illustrations as accurately as possible. Still, we are always grateful for comments and suggestions regarding potential errors within this documentation.

The information included in this manual may be changed without prior notice.

Revision 1.0, edited 2020-12-15 by:

Leica Microsystems CMS GmbH
Ernst-Leitz-Strasse 17–37
D-35578 Wetzlar (Germany)
<http://www.leica-microsystems.com>

Responsible for contents:

Marketing CMS

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1. Important Notes about this Manual



Caution!

This User Manual is an essential component of the product; it must be read carefully before the product is assembled, put into operation or used, and must be kept for future reference.

This User Manual includes important instructions and information related to the operating safety and maintenance of the instrument. .

Text Symbols and Their Meanings:

(1.2)

Numbers in parentheses refer to illustrations; for example, (1.2) refers to Fig. 1, item 2.

→ p. 20

Numbers with a pointer arrow (for example →page 20), point to a certain page of this manual.



WARNING indicates a hazard with a medium degree of risk that, if not avoided, can result in death or serious injury.



CAUTION indicates a potentially hazardous situation with a low degree of risk that, if not avoided, may result in minor or moderate injury.



Caution!
In this manual, additional safety notes are indicated with the triangle symbol shown here, and have a gray background.



Caution! The instrument and its accessories can be damaged when operated incorrectly.



Warning of hazardous electrical voltage! Danger of electric shock!



Warning of optical radiation! Never look directly into the light beam! Wear safety goggles!



Warning of electromagnetic field



Warning of UV radiation! Wear safety goggles!



Warning of hazardous laser radiation – take appropriate safety precautions!



Warning of hand injuries



Instructions for disposing of the instrument, its accessories and consumables.



Ground terminal



Explanatory note

*

Item not contained in all equipment configurations



Manufacturing date, e.g. 11 / 2011 for November 2011



China RoHS 50 years EFUP
(Environmentally friendly use period)

2. Function

The entire system of which this User Manual is part is intended for research applications. The Leica microscope Mica is an inverted light microscope and intended for use as a general lab microscope for routine examinations of biological specimens.

Directives of the European Community (EU Directives)

The microscope described here fulfills the requirements of EU Directives 2014/35/EU concerning the safety of electrical equipment, 2014/30/EU concerning electromagnetic compatibility and the Machinery Directive 2006/42/EC.

According to the VO1194/2012 regulation regarding the implementation of the Ecodesign Directive 2009/125/EC, microscopes are considered special products. The light sources in this instrument are special lamps which are only suitable for microscopes. They are not suitable for general lighting purposes or room lighting.

Reasonably Foreseeable Misuse

The following are prohibited:

- To use the system for any purpose not in accordance with the Declaration of Conformity (e.g. the use of IVD or medical products in accordance with *EU regulation 2017/746 or 2017/45*)
- Operating the system in an inclined position
- Cleaning the system in a way other than specified in the manual
- Modifying the built-in safety circuits in the instrument
- Allowing unauthorized personnel to open the instrument
- Using cables that Leica Microsystems CMS GmbH has not provided or permitted
- Using combinations with non-Leica components that go beyond the scope of the manual

**Caution!**

The manufacturer assumes no liability for damage caused by, or any risks arising from, using the microscope for other purposes than those for which they are intended or not using them within the specifications of Leica Microsystems CMS GmbH.

In such cases, the Declaration of Conformity shall be invalid.

**WARNING****Notes on Handling Laser Devices**

In the standard design without additional laser safety precautions, the microscopes are not suitable for coupling laser radiation (such as to the camera ports), since this radiation poses a hazard for the user (eye injury in particular).

For use of the microscope with lasers, Leica Microsystems CMS GmbH offers special microscope variants with additional safety features. Laser couplings require corresponding safety devices that have to be inspected and installed by trained personnel.

For further information, please contact your authorized Leica Microsystems CMS GmbH representative.

**WARNING**

Due to the special sources of danger of the laser system, only those persons may use the system who have received special training in working with the system, observing the specific hazards of a laser system.

**CAUTION**

Light sources pose a potential irradiation risk (glare, UV radiation, IR radiation). Therefore, lamps may only be operated in closed housing and in an installed condition.

Never look directly into the beam path (blinding hazard).

2. Function



If the hood to the specimen area is open and the UV LED (365nm) is switched on with maximum configured intensity, a distance between the eye and light outlet interface on the objective of <10cm may result in a hazard to the eye.

No hazard for the eye exists in the normal use case (distance between eye and objective >10cm).

When changing specimens with the UV LED (365nm) switched on at maximum intensity, be sure not to exceed a maximum exposure time of the skin (hands) of 60 minutes a day. (actinic UV hazard)

We recommend dimming/deactivating all LEDs before opening.

3. Safety Notes

3.1 Important Information for Operators and Users

- The owner/operator and user of this product are responsible for proper and safe operation and safe maintenance of the system and for following all applicable safety regulations.
- The owner/operator and user are fully liable for all consequences resulting from the use of the system for any purposes other than those listed in the User Manual or the online help.
- The owner/operator and user are obligated to perform and monitor suitable safety measures (according to national regulations).
- The owner/operator and user are responsible for observing the laser safety regulations according to applicable country-specific regulations.
- The owner/operator and user must ensure that this laser product is started up and operated only by persons who have been trained in the use of the system and the potential dangers of laser radiation.
- The owner/operator and user are fully liable for all consequences resulting from the use of the system if it is opened, improperly serviced or repaired by persons other than authorized Leica service representatives.

3.2 General Safety Notes

This protection class 1 instrument was built and tested in accordance with EN 61010-1/IEC 61010-1, Safety requirements for electrical equipment for measurement, control and laboratory use.

It also meets the requirements of EN / IEC 61326-1, Electrical equipment for measurement, control and laboratory use – EMC requirements.

The product has also been tested in accordance with EN 60825-1 / IEC 60825-1 Safety of laser products

Part 1: Equipment classifications and requirements checked.

The products were also tested in accordance with IEC 62471 "Photobiological safety of lamps and lamp systems" and are a risk of risk group 2 (medium risk). Observe the warning message regarding optical radiation on the previous page.



Caution!

In order to maintain this condition and to ensure safe operation, the user must follow the instructions and warnings contained in this User Manual.

Also note the provided User Manuals of other components (e.g. incubator, Mot.Corr, etc.).

3. Safety Notes

The instruments and accessories described in this manual have been safety-tested and checked for possible hazards.

The responsible Leica Microsystems CMS GmbH affiliate or the main plant in Wetzlar must be consulted whenever the instrument is altered, modified or used in conjunction with non-Leica components that go beyond the scope of this manual.

Unauthorized alterations to the device or noncompliant use shall void all rights to any warranty claims and product liability!

In addition to this manual, the safety notes of the other manuals provided must be observed!

The system may be set up, installed and put into operation only by authorized Leica personnel!

3.3 Electrical Safety

General Specifications

In addition, observe the information about the specifications in the other User Manuals provided!

Supply Unit

For indoor use only.	
Supply voltage:	100 to 240 VAC
Frequency:	50 / 60 Hz
Power consumption:	max. 220 VA
Fuses:	4 A, slow-blowing, Breaking capacity H, 250 VAC, Size: 5x20 mm
Ambient temperature:	15 – 35 °C
Relative humidity:	90 % up to 30 °C, non-condensing
Protection class:	I
Overvoltage category:	II
Pollution degree:	2



Caution!

The microscope may be operated by authorized personnel only.

**WARNING**

The power plug may only be plugged into an outlet equipped with a grounding contact.

Do not invalidate the grounding function by using an extension cord without a ground wire. Any interruption of the ground wire inside or outside of the instrument, or release of the protective conductor terminal, can cause the instrument to become hazardous. Intentional ground interruption is not permitted!

**Caution!**

By connecting it to the grounding connection (ground screw at the back of the electronics box), ancillary equipment connected to the microscope may be brought to the same ground wire potential with its own and/or extra power supply. For connections without a ground protection conductor, Leica Microsystems CMS GmbH Service must be consulted.

**Caution!**

Never use any fuses as replacements other than those of the types and the current ratings listed here. Using other fuses or bridging the fuse holder is not permitted. The use of other fuses poses a fire hazard.

**WARNING**

Before replacing the fuses, be absolutely certain to switch off the main power switch and remove the power cable.

**Caution!**

The microscope's electrical accessory components are not protected against water. Water can cause electric shock.

**CAUTION**

Unplug the power plug before performing cleaning and maintenance work! Protect electrical components from moisture!

**Caution!**

Do not plug in or unplug data lines and control circuits unless the instrument has been shut down; otherwise, the instrument may be damaged.

**WARNING**

By definition, the main circuit breaker of this instrument is the connection between the power cable and instrument port. The user must ensure unobstructed access to the main circuit breaker at all times.

3. Safety Notes



WARNING

Only use power cables, or alternative cables with VDE/HAR codes that minimally fulfill the following conditions: 3x0.75 mm² and 10 A / 250 V.



WARNING

Electrical components must be assembled at least 10 cm from the wall and away from flammable substances.



WARNING

In spite of the low speed, there is a risk of pinching and crushing injuries when moving the scanning stage.
Never put objects or body parts in the travel path!



CAUTION

Light sources pose a potential irradiation risk (glare, UV radiation, IR radiation). Therefore, lamps may only be operated in closed housings and in an installed condition.
Never look directly into the beam path (blinding hazard).

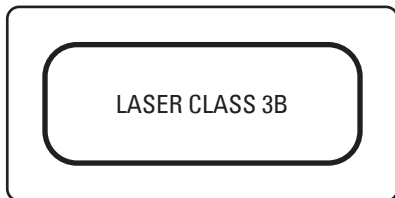
If the hood to the specimen area is open and the UV LED (365nm) is switched on with configured intensity, a distance between the eye and light outlet interface on the objective of <10cm may result in a hazard to the eye.

No hazard for the eye exists in the normal use case (distance between eye and objective >10cm).

When changing specimens with the UV LED (365nm) switched on at maximum intensity, be sure not to exceed a maximum exposure time of the skin (hands) of 60 minutes a day. (actinic UV hazard)

We recommend dimming/deactivating all LEDs before opening.

3.4 Specifications of the Lasers Installed in the Supply Unit



Wavelengths of the lasers contained in the laser box:

405 nm, 488 nm, 561 nm, 638 nm

Typical outputs:

405 nm → 300 mW

488 nm → 60 mW

561 nm → 20 mW

638 nm → 120 mW

Warm-up time: approx. 5 min

Laser type: CW laser (continuous wave)

The specified power outputs are the maximum laser outputs of the individual laser diodes. The actual laser power in the specimen plane is just a fraction of this.

The lasers used correspond to laser class 3B. The overall MICA system meets the requirements of **Laser Class 1**.

3.5 Laser Safety

The supply unit is part of the system and operated in the context of one of the possible combinations. The laser fiber is coupled to the system. The system in all displayed combination options is laser class 1 system in accordance with the requirements of the IEC 60825-1.

The supply unit includes lasers of Class 3B. Due to the laser safety measures, only radiation of laser class 1 is found in the specimen area of the microscope.

As long as all laser protection devices are correctly installed, you do not have to take any special safety precautions.

The laser may be operated only when the complete system is fully installed. The laser beam is completely enclosed until it exits the objective.

The laser function can only be used with the hood/lid of the instrument closed.

3.5.1 Safety notes for handling the laser



The user is not permitted to open the instrument!

The laser system is encapsulated. It may be repaired or replaced by personnel authorized by Leica CMS only. Incorrect handling of the laser can cause injuries!

3. Safety Notes



WARNING

If other operation or adjustment devices than those listed here are used or other procedures are carried out, dangerous beam exposure may result.

Risk of injury!



WARNING

To be classified as a Class 1 laser product according to IEC/EN60825-1 and fulfill the electrical safety regulations, all safety devices, safety interlocks and safety systems of the laser product must be in operational condition.

Deactivating or damaging these safety devices or any intervention in any of these safety devices may lead to serious eye injuries, physical injuries or property damage. In these cases, Leica Microsystems CMS shall not assume any liability.



WARNING

Never deactivate the laser protection devices.



WARNING

Never look directly into a laser beam or a reflection of the laser beam. Avoid all contact with the laser beam.



WARNING

Do not introduce any reflective objects into the laser beam path.



WARNING

All unoccupied positions in the objective nosepiece must be closed using the supplied covers.



WARNING

Never disconnect a fiber optic cable.



Caution!

Only persons authorized by Leica CMS are permitted to open the supply unit.

4. Transport and Storage

4.1 Transport



Caution!

Transport and storage at -20 °C to +85 °C and max. 90% humidity.

For shipping or transporting the system and its accessory components, the original packaging should be used.



CAUTION

At a full load, the system weighs more than 230 kg. The user must take corresponding precautions for transporting the instrument. The microscope with the table may only be moved/shifted by rolling it on the castors at the table. Lifting the table with the microscope is prohibited.

Stow the supply unit below the microscope table. Castors are attached at the bottom of the table for this purpose as well. The supply unit may only be lifted by a team of 2 persons. In this case, hold the supply unit at its bottom.

- Mica including antivibration table 190 kg
- Supply unit 40 kg



Caution!

The supply unit and the desk may only be rolled, not lifted.

4.2 Ambient Conditions



Caution!

This system must not be used at elevations of more than 2000 m above sea level.

This system, in combination with the incubator, must not be exposed to direct sunlight or be located below a air-conditioning system, as this could have an impact on the temperature control and/or condensation.



Caution!

Protect the system from excessive temperature fluctuations. Such fluctuations can lead to the accumulation of condensation, which can damage the electrical and optical components.

Operating temperature: 15 – 35 °C.

4. Transport and Storage



Caution!

Do not use this instrument near sources of high electromagnetic radiation (for example, unshielded, intentionally operated ultra-high frequency sources), because these can disrupt proper operation.

We recommend operating the instrument in ESD-protected areas as well assessing the electromagnetic environment and giving corresponding instructions before operating this instrument.

This instrument has been developed and tested in accordance with CISPR 11 Class A. It can cause radio interference in a household environment. In this case, you may have to take measures to eliminate the interference.

We recommend assessing the electromagnetic environment before setting up the instrument and then giving corresponding instructions.

4.3 Installation Location

Work with the system should be performed in a dust-free room that is free of oil vapors, other chemical vapors and extreme humidity. At the workstation, large temperature fluctuations, direct sunlight and vibrations should be avoided. These conditions can distort measurements and longer microscopic scans.

Permitted ambient conditions:

Temperature 15 – 35 °C

Relative humidity maximum 90% up to 30°C

Microscopes in warm and warm-damp climatic zones require special care in order to prevent fungus contamination. Also make sure to follow the installation instructions in the microscope's manual!



Caution!

The supply unit must be operated in upright position because otherwise the function of the safety device is not guaranteed.



Caution!

The supply unit must be set up so that the power voltage input is not obstructed and the instrument can quickly be disconnected from the power supply if necessary.



Caution!

Electrical components must be assembled at least 10 cm from the wall and away from flammable substances.



Caution!

Do not cover the ventilation slots. Risk of overheating

4.4 Disposal

Once the product has reached the end of its service life, please contact Leica Microsystems GmbH Service or Sales about disposal.

Please observe and comply with the national and federal laws and regulations implementing the WEEE EC directive, for example.



Note!

Like all electronic devices, the microscope, its accessory components and consumables must never be disposed of with general household waste.

5. Overview of the Instrument

5.1 Mica

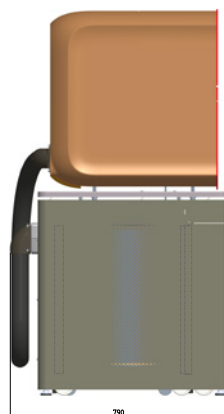
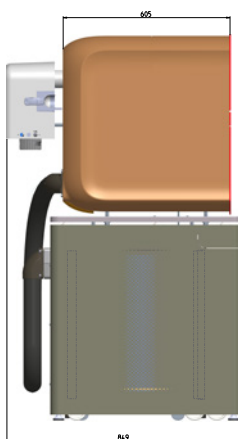
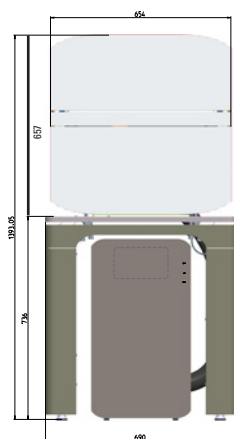
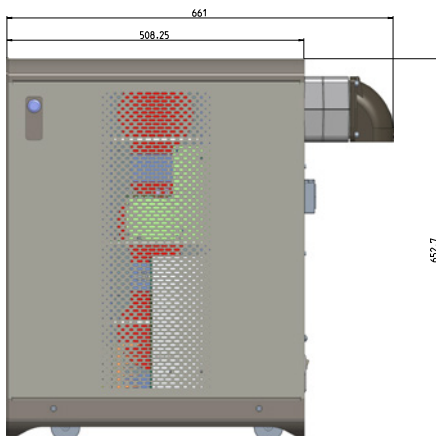
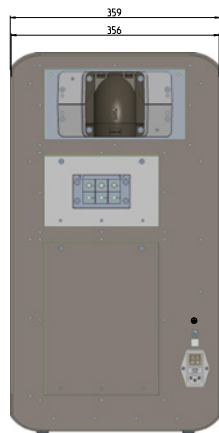


Abb. 1 Overview of the Instrument Mica

- 1 Hood
- 2 Status indicator
- 3 SmartMove

5.1.1 Status LED

Status of LED	Status
Off	Instrument switched off
White	All components are initialized
White 2 sec. flashing	Experiment in progress
Red 2 sec. flashing	Incubator heating up. The desired temperature has not been reached yet
White 0.1 sec. flashing	Ongoing experiment has been canceled



- Mica without antivibration table 100 kg
- MICA including antivibration table 190 kg
- Supply unit 40 kg

5. Overview of the Instrument

5.2 Supply Unit

Before you can switch on the instrument using the Power on/off push button on the side, make sure that the I/O main switch on the rear side of the supply unit is in position I and the power cable is inserted.

1. Power on/off: Press switch once to switch on. Press and hold for 3 seconds to switch off.
2. Interlock key: When the lasers are not needed, the key can be switched off.
3. Interlock indicator: Lights up when the interlock is switched on and the lasers are available.



5.3 Incubator

Time for warm-up and CO₂ supply approximately 8 hours



Note:

Observe the instructions in the included User Manual of the incubator.



Note:

Before starting the experiment, check the level of the CO₂ supply and/or ensure that sufficient CO₂ is ensured over the running time of the experiment.



Caution!

The temperature probe may only be positioned at the location intended for this



Note:

Use approved table inserts only. Table inserts without approval can cause increased gas consumption.

The airflow could cause specimens that do not correspond to a standard Microtiter plate, Petri dish or microscope slide to vibrate.

Ventilate the instrument sufficiently after using the incubator. This helps to prevent condensation.

5.4 Auto Immersion

If you have removed the water cap and replaced it, check the cap to make sure it fits correctly. If the cap is attached correctly, it clicks into place, is not tilted and the specimen protector is not jammed.



Note:

Regularly check to ensure that enough fresh water is present.
Check the fluid residue tank regularly.

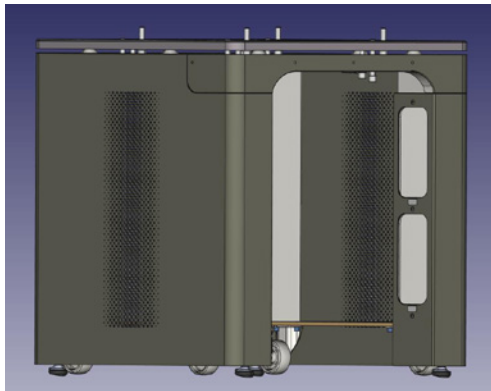
5.5 CORR objectives

Use the objectives only within the specifications for refractive index, the thickness of the specimen holder and working distance.

5.6 Antivibration Table

The table has built-in antivibration properties. Do not lock the black baseplate, do not bridge it with other objects that could transmit vibrations and do not touch during imaging.

Up to three bottles can be stored in the legs of the table. One square 1 liter bottle in the left leg. For more information, refer to the incubator manual. Two 500 ml round bottles in the right leg. The upper bottle contains water for the immersion of the objective (optional). The lower bottle functions as a collection point when liquids are inadvertently spilled in the main unit.



Desk right side

6. Instrument Setup

6.1 Switching on

The instrument is shipped fully configured as standard. All hardware components, such as the lasers and cameras, are preconfigured, and the required software is already installed.

When changing the configuration, installing updates, switching to a new PC etc., individual components have to be reconfigured and adjusted.

- The power switch on the supply unit is switched on. The laser now undergoes a warm-up phase (approx. 5 min). The emission warning indicator lights up when the lasers are active.



Caution!

The system may be set up, installed and put into operation only by authorized Leica personnel!

6.2 Notes on Handling the Instrument Hood



Caution!

If the hood closes significantly faster and/or the user notices that one or both gas spring(s) no longer have their full force or that a gas spring is damaged, contact Leica Service and stop using the instrument

- Always use both hands to open and close the hood

Opening the Hood:

- Press "Open" button
- The hood "pops" open just a bit
- Grab the hood on its sides and guide it up to the upper position.

Closing the Hood:

- Lay both hands onto the housing
- Press hood down until the locking bolt rests on the lock
- Press the housing with both hands and increased pressure until the hood engages with the lock

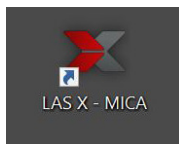
7. Operation

7.1 Starting the software

! Caution!

Do not start the software until the microscope and all other components have been switched on!

Start the software by clicking the Mica symbol on the desktop:



LAS X symbol on the desktop

Mica is ready to operate.

7.2 Software help

The software has a help feature for the controls directly in the software. The help feature explains the use of the system along the controls in the workflow step. Click the large "?" in the top right of the control panel (left side) to start the help feature at Step 1. Click "?" at the top right corner of any element to start the help feature at the relevant step. For more in-depth information and explanations, refer to the online help. You can reach this using the "Help" link in the in-software help feature.

7.3 Online Help

The online help can be called up in three ways:

- In the in-software help feature
- Via the Help menu
- With the key combination CTRL + F1

Via the Help menu

Click the Help menu on the menu bar. The menu drops down and reveals the following search-related options:

7.4 The User Interface

After the software is started, the user interface of the system is visible. It is structured into interface tabs, following the workflow, from left to right as follows:

A) Sample Definition: Entering information about the specimen

B) Live & Acquire: Image acquisition

C) Results: View and management of the results including analysis of the images using structure detection or classic image processing grouped under Results.

D) Process: Image processing tools

E) Learn: Training the structure detection



A) Sample Definition

Each experiment begins with the "Sample Definition". The entries made here are necessary to optimize the system and the imaging parameters ideally for the specimen.

- **Project:** The specification of the experiment and of the sample determines the storage location and helps in retrieval of the data. Stored experiments can be loaded via "load recent projects".
- **Carrier type:** Selection of one of the supported specimen holders: Microscope slide, Petri dish or multi-well plate.
- **Characteristics:** Selection of either "adherent", "detached" or "dynamic" and "fixed" or "living".
- **Staining:** Specification of all fluorophores in the specimen and optional assignment of the designation of the stained structures.
- **Mounting Medium:** Specification of the embedding medium/refractive index
- **Environmental Control:** For a system with Environmental Control, you can use the "Environmental Control" window to set the climate conditions (temperature, humidity, CO₂ content).

Sample Finder

The Sample Finder provides navigation aid by detecting the relevant specimen areas and generating a focused overview.

The specimen holder is found and displayed by pressing **"Overview Sample"** in x, y and z.

Overview Carrier generates a general overview of the specimen holder and can also be carried out after the "Overview Sample".

Pressing the **"Prefocus"** key starts only the focusing function of the Sample Finder and can be used if (for example) the overview is not to be generated.

Pressing the **"Loading Position"** key moves the specimen holder into the front right loading position.

All activities of the "Sample Definition" tab are stored and closed by pressing the **"confirm and go to live & acquire"** key.



B) Live & Acquire

The **"Live & Acquire"** operating window is selected by pressing and is divided as follows:

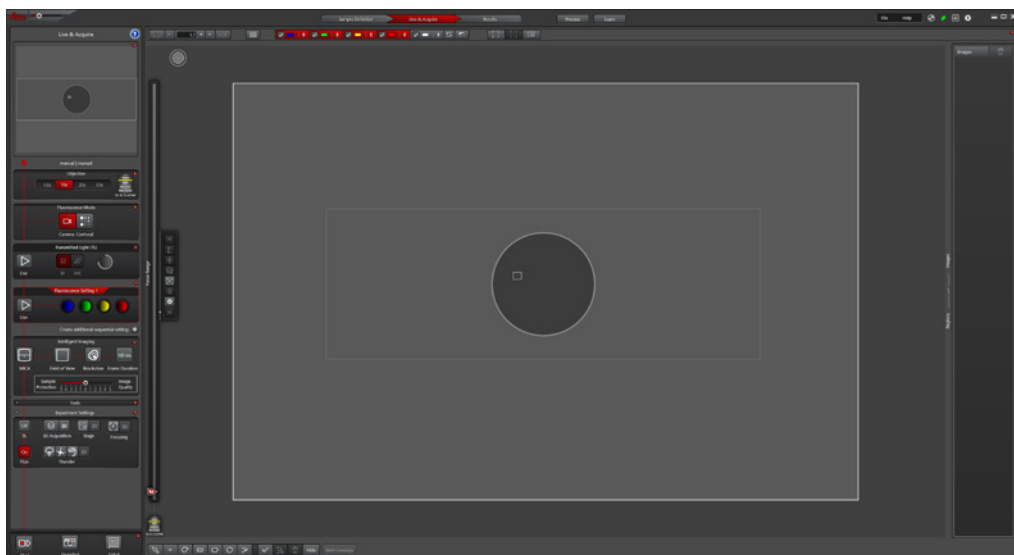
- The controls on the left
- The viewer in the middle
- A list of acquired images and acquisition regions on the right (can be expanded/collapsed and available in conjunction with the Navigator only).

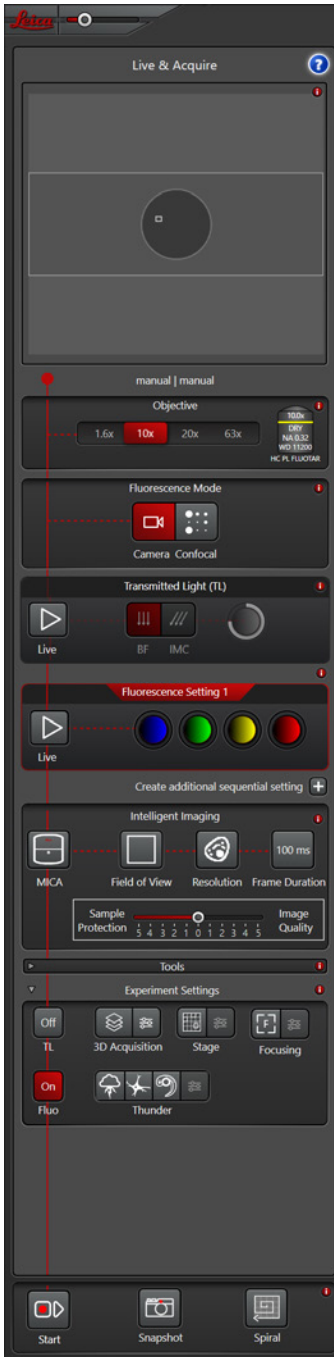
The controls

For easier navigation through the controls, the most important functions are on a Workflow line (red, left edge from top to bottom)

The controls are used for the following:

- **Navigator Minioverview:** Keeping the overview of the current position of the objective and the currently displayed image section at any time.
- **Objective:** Allows you to select different objectives
- **Fluorescence Mode:** Allows toggling between widefield and confocal
- **Transmitted Light:** Activates the transmitted light axis for bright field or modulation contrast (IMC). And enables you to go live in real time in transmitted light, to adapt the signal and the IMC contrast.





- **Fluorescence Setting:** Enables the fluorescence axis. Individual fluorophores can be switched on or off by clicking in the middle. Likewise, the signal of individual fluorophores can be changed compared to the overall slider (Protection – Quality, see Intelligent Imaging). You can adjust the LUT by right-clicking. The ring around the elements reflects the color and intensity of the main excitation.

You can use the plus sign to generate an additional panel that can be filled by dragging and dropping the fluorophore indicators and sequentially added.

- **Intelligent Imaging:** Enables you to adjust all parameters relevant for acquisition (excitation & detection) based on the signal strengths available in the specimen and the specifications: Field of View, Resolution, Frame Duration and Sample Protection – Image Quality Slider.
- **Field of View:** Enlarge or reduce the image section
- **Resolution:** Increases the resolution of the image in X and Y and adapts the confocality in the confocal.
- **Frame Duration:** Adapt the exposure time (widefield) and/or the number of averaging processes in the confocal
- **Sample Protection – Image Quality Slider:** Balancing between the desired signal strength (usually associated with greater photostress in the specimen) and the photostress in the specimen (usually associated with increased photobleaching or phototoxicity).

- **Tools:** Functions that are run once but do not participate in the experiment. These include: One-time running of the Autofocus or Smart-CORR software, Live Analysis and FluoSync Calibration, Relight, Live IQ on/off and opening the information panel.
- **Experiment Settings:** These settings will be considered during the acquisition.
 - on/off: TL images are acquired
 - on/off: Fluorescence images are acquired
 - on/off: 3D stack acquisition including the settings
 - on/off: A time-lapse series including the settings
 - on/off: The regions plotted in the Navigator including the settings
 - on/off: A focus strategy including the settings
 - on/off: LIGHTNING (for confocal images only)
 - the THUNDER options (for widefield images only)
- Panel for starting the experiment (including all positions, points in time and planes), a snapshot and a spiral scan.

Viewer

Mica allows you to choose whether to select the specimen in the Navigator or in the multichannel viewer. The toggle switch is in the top left corner and can be moved to any desired position.

In the Viewer, the contrast of the display of the acquired images can be adapted manually or set to autocontrast.

C: Results / Automatic

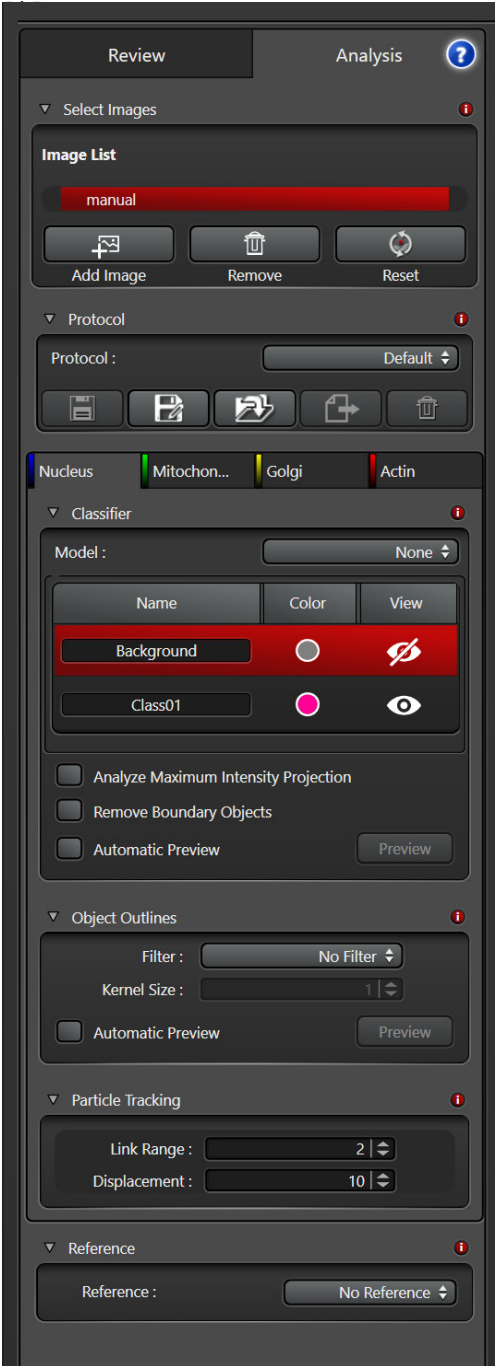
This area is structured into "Review" and "Analysis".

Review

- In the left-hand area, select an image to be displayed in the viewer. If the image has already been analyzed, the results are displayed on the right-hand side.

Analysis

- Enables a model to be applied to the acquired images and is divided into the following areas:
- **Select Images:** Add image(s) and/or collections to the Image List. All images in the list are analyzed.
- **Classifier:** Select up to one model per fluorophore.
- **Object Outlines:** Use the filter if you want to evaluate only the outline around the actual objects.
- **Particle Tracking:** (available only for time series) Control the conditions under which two objects are identified as the same at different points in time.
- **Reference Channel:** Select the channel with the objects as a mask for further analysis. The evaluation includes counting objects and evaluating intensities for each object in the reference channel.



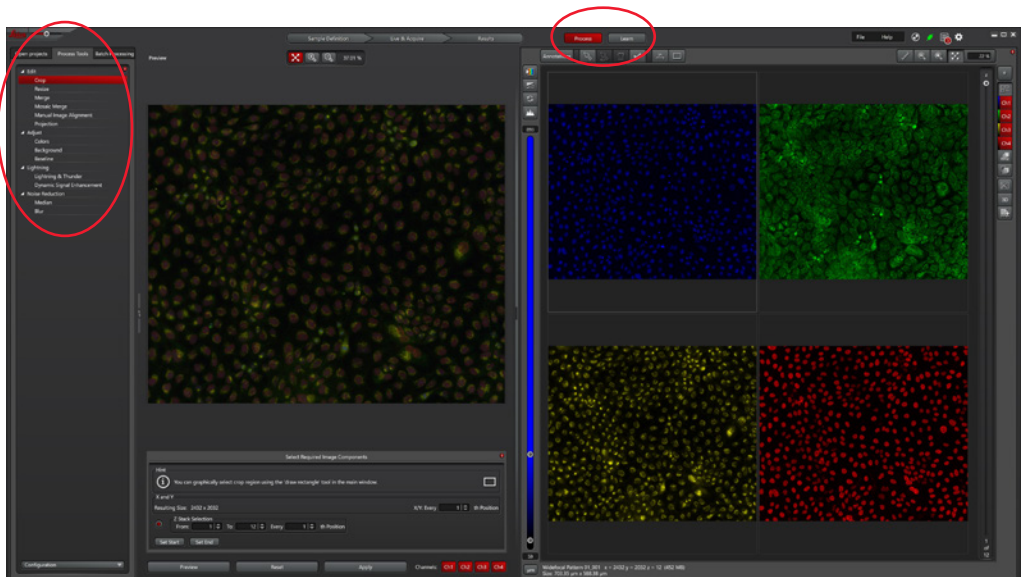
D) Process

Within the **Process** tab, you have access to various image processing tools, such as **Crop** or **Merge**.

- You can adjust the contrast, brightness and gamma using "Adjust".
- Within "Noise Reduction", tools such as Median Filter or "Blur" give you the ability to minimize noise.
- In addition, you can edit your images after acquisition using THUNDER and Lightning.

For additional information, please refer to the on-line help.

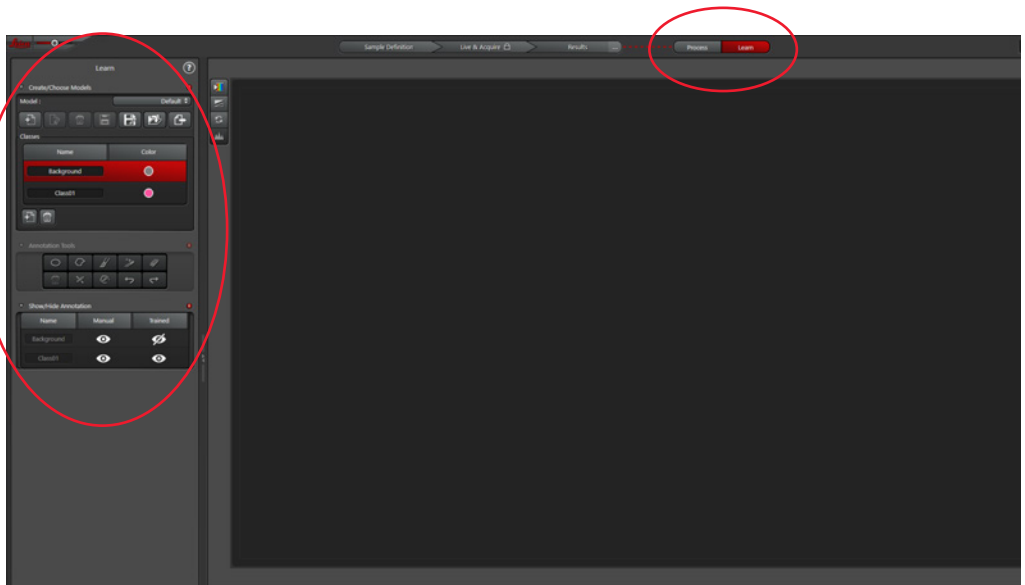
E) Learn



E) Learn

Enables you to train the machine learning feature and is subdivided into the following areas:

- **Create/Choose Model:** Create a new model or open an existing one to add more training material.
- **Annotation Tools:** The image processing tools for drawing in examples for the classes configured above
- **Show/Hide Annotation:** Enable or disable the overlay of the training data (Manual) and the preview of what has been learned (Trained).
- **Images for Training:** Add images to be trained.
- **Full Training:** Carrying out the training.



7.5 First Experiment

1st step: Filling out the "Sample Definition"

- Assign a project and a specimen name.
- Enter the specimen holder concerned.
- Enter the properties of your specimen.
- Specify all fluorophores present in the specimen.
- Changing the embedding medium if necessary
- Run the Sample Finder using **Overview Sample**.
- Then, click **Confirm and go to Live & Acquire**

2nd step: First picture

- Use the Navigator to move to a relevant location in the specimen.
- Click **Live** in one of the corresponding panels to start the control and obtain a live image.

3rd step: Running an experiment

- In **Experiment Settings**, you can now configure multi-position experiments, time-lapse series or stack acquisitions.
- Clicking **Start** begins acquisition of the experiment.



8. Care



Unplug the power plug before performing cleaning and maintenance work!
Protect electrical components from moisture!

Instruments in warm and warm-damp climatic zones require special care in order to prevent fungus contamination.

The instrument should be cleaned after each use, and the optics must be kept extremely clean.

8.1. Dust Cover



Note:

To protect against dust, cover the instrument and accessories with the dust cover after each use.

8.2. Cleaning



Caution:

Residual fiber and dust can create unwanted background fluorescence during fluorescence microscopy.

Cleaning Coated Parts

Dust and loose dirt particles can be removed with a soft brush or lint-free cotton cloth.

Clinging dirt can be cleaned as necessary with a low-concentrated soap solution, petroleum ether or ethyl alcohol.

For cleaning coated parts, use a linen or leather cloth that is moistened with one of these substances.



Caution!

Acetone, xylene or nitro-containing thinners can harm the instrument and thus must not be used.

Test cleaning solutions of unknown composition on a less visible area of the unit first. Be sure that coated or plastic surfaces do not become matted or etched.

9. EU-Declaration of Conformity

Download:

<http://www.leica-microsystems.com>

Search for your instrument here.

If you have any further questions or require technical support, please contact your country's Leica branch office or your local contact person directly. The appropriate contacts can be found on the Internet at:

<http://www.leica-microsystems.com>

有害物质标记表

Hazardous Substance Marking Table

部件名称 Part Name	有害物质 Hazardous Substances					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印刷电路板 Printed circuit boards	×	○	○	○	○	○
电子元器件 Electronic components	×	○	○	○	○	○
机械部件 Mechanical parts	×	○	○	○	○	○
电缆和电缆配件 Cables and cable accessories	×	○	○	○	○	○
显示屏 Displays	×	○	○	○	○	○
光源 Light sources	×	×	○	○	○	○
光学 Optics	×	○	×	○	○	○

这些表是按照 SJ/T 11364 的规定编制。
This table is prepared in accordance with the provisions of SJ/T 11364.

○：表示该有害物质在该部件所有均质材料中的含量均在 GB/T 26572 规定的限量要求以下。
Indicates that said hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement of GB/T 26572.

×：表示该有害物质至少在该部件的某一均值材料中的含量超出 GB/T 26572 规定的限量要求。
Indicates that said hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement of GB/T 26572

有害物质标记表涵盖了这里列出的产品。

The “Hazardous Substance Marking Table” covers the here listed products.

显微镜	控制	光源	光学和照相机	电源和服务模块
Microscopes	Controls	Light Sources	Optics and Cameras	Power Supply and Service Modules

www.leica-microsystems.com