



Leica
MICROSYSTEMS

Ivesta 3 Series User Manual

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General Notes

Important Safety Notes

This user manual describes the usage of Ivesta 3 Series and contains important instruction for operating safety, maintenance and the accessory parts.

User manuals are available for you to download and print from our website at www.leica-microsystems.com.

If you purchased an Ivesta 3 (Integrated camera), you can find information on the USB stick together with all relevant user manuals in additional languages. Keep this USB stick in a safe place, where it is available to the user.

For information on the Enersight OSD in stand-alone mode, Enersight Desktop and Enersight Mobile, refer to the website [Microscope Software Platform Enersight](#) or scan the QR code to be directed to Enersight web-page:



To maintain the camera in its original condition and to ensure safe operation, the user must follow the instructions and warnings contained in these user manuals.

The "Safety Concept" booklet contains additional safety information regarding the service work, requirements and the handling of the camera, accessories and electrical accessories as well as general safety instructions.

Before installing, operating or using the camera and the accessories, read the user manuals listed above. In particular, please follow all safety instructions.

Symbols Used

WARNING! Safety hazard!

Failure to comply with the following warnings can cause the following:

- Personal injury!
- Device malfunctions and damage.



WARNING

Serious injuries caused by...

This warning label warns of general hazards that can cause serious or fatal injuries.



WARNING

Electric shock.

This warning label warns of dangerous electrical voltage. The instructions must be followed without fail, otherwise there is a risk of serious or fatal injury.



WARNING

Camera malfunctions and damage.

This symbol warns against touching hot surfaces, such as light bulbs.

NOTICE

This warning label warns of damage to the device and other equipment.

IMPORTANT INFORMATION



This symbol indicates additional information or explanations that are intended to provide clarity.



▶ Read and understand this user manual before using this device.

UK RESPONSIBLE PERSON

Leica Microsystems (UK) Limited
Larch House, Woodlands Business Park, Milton
Keynes, England, United Kingdom, MK14 6FG



Safety Instructions (Continued)

Description

The individual modules fulfill the high requirements for observation and documentation of Ivesta 3 Series stereo microscopes.

Intended use

- ▶ Refer to "Safety Concept" booklet.

Non-intended use

- ▶ Refer to "Safety Concept" booklet.
- ▶ Never use Ivesta 3 Series or its components for diagnostic or surgery procedures if it is not expressly intended for such use.

The camera and accessories described in this user manual have been tested for safety and potential hazards.

The responsible Leica affiliate must be consulted whenever the camera is altered, modified or used in conjunction with non-Leica components that are outside of the scope of this user manual!

Unauthorized alterations to the camera or noncompliant use shall void all rights to any warranty claims.

Place of use

- ▶ Refer to "Safety Concept" booklet.
- ▶ Place electrical components at least 10 cm away from the wall and from flammable substances.
- ▶ Avoid large temperature fluctuations, direct sunlight and vibrations. These conditions can distort the functionality of the camera.
- ▶ In warm and damp climates, give the individual components special care in order to prevent the build-up of fungus.

Safety Instructions (Continued)

Transport

- ▶ Before shipping Ivesta 3 (Integrated camera), please reset the microscope to the factory default, so that no personal data like access details to E-Mail or network remain stored on the camera.
- ▶ Use the original packaging for shipping or transporting the individual modules of the Ivesta 3 Series microscope and the accessory components.
- ▶ In order to prevent damage from vibrations, disassemble all moving parts that (according to the user manual) can be assembled and disassembled by the customer and pack them separately.

Integration in third-party products

- ▶ Refer to "Safety Concept" booklet.

Disposal

After the end of the product's life, please contact Leica Service or Leica Sales on how to dispose of it.

Like all electronic devices, Ivesta 3 (Integrated camera), its components and accessories may not be disposed of as general household waste!



Please observe the national laws and ordinances which, for example, implement and ensure compliance with EU directive WEEE 2012/19/EU.

Legal regulations

- ▶ Refer to "Safety Concept" booklet.

EC Declaration of Conformity

- ▶ Refer to "Safety Concept" booklet.

Health risks

Workplaces with microscopes and cameras facilitate and improve the viewing task, but they also impose high demands on the eyes and muscles of the user. Depending on the duration of uninterrupted work, asthenopia and musculoskeletal problems may occur. For this reason, appropriate measures for reduction of the workload must be taken:

- Optimal arrangement of workplace, work assignments and work flow (changing tasks frequently).
- Thorough training of the personnel, giving consideration to ergonomic and organizational aspects.

The ergonomic optical design and construction of microscopes and cameras from Leica are intended to reduce the exertion of the user to a minimum.

Safety Instructions (Continued)

Microscope safety and EMC

Ivesta 3 (Integrated camera) has been designed, produced and tested in compliance with:

- EN 61010-1: Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements (for microscope)
- EN 62368-1: Audio/video, information and communication technology equipment - Part 1: Safety requirements (for optional external power supply only)
- Radio interference suppression in compliance with EN 55011 Class A
- EN 61326-1, Electrical equipment for measurement, control and laboratory use – EMC requirements

Ivesta 3 (Integrated camera) meets the requirements of EU directives:

- 2014/35/EU Low voltage directive
- 2014/30/EU EMC directive
- 2011/65/EU RoHS directive
- 2009/125/EC + VO EU 2019/1782
Ecodesign requirements for energy-related products only applicable for external power supply

and carry the CE mark.

Intended for indoor use only in all EU member states, EFTA states and Switzerland.

Ivesta 3 (Integrated camera) must be disposed of in accordance with EU directive WEEE 2012/19/ EU.

EMC precautions

Prior to the installation of Ivesta 3 (Integrated camera), the electromagnetic environment needs to be evaluated.

It is the responsibility of the operator to ensure

compliance with the environment.

If the instrument is being installed in any other environment than an INDUSTRIAL, it cannot be guaranteed that the equipment does not interfere with other electronic devices.

INDUSTRIAL environments are part of a separate power network, in most cases supplied by a high- or medium-voltage transformer, dedicated for the supply of installations feeding manufacturing or similar plants.

Strong electromagnetic fields in the immediate vicinity of the device can lead to a malfunction of the screen display.

NOTICE

If Ivesta 3 (Integrated camera) is being installed in any other environment than an INDUSTRIAL, it cannot be guaranteed that the radiated electromagnetic emissions are not interfering with other electronic devices.

End User License Agreement (EULA)

This End User License Agreement is entered into by and between Leica Microsystems ("Leica") and you, the end user, as the context requires, either individually or as an authorized representative of the company or organization acquiring and/or using this camera ("User").

Ivesta 3 (Integrated camera) can be used in a network and offers functionality such as automated submission of images to an E-Mail recipient defined by the User, or copying of images to a SMB file server selected by the User. Therefore, passwords will need to be chosen by the User which passwords will be stored on the camera in a separate password file. Direct access to the password file is denied; passwords are stored with an encryption which follows the Advanced Encryption Standard (AES), with a block and key size of 128 bits.

During any firmware update this password file will be deleted and the User will need to reenter the passwords.

When sending or forwarding Ivesta 3 (Integrated camera) to third parties for any reason, or when returning Ivesta 3 (Integrated camera) to Leica for service or maintenance, the User should always reset the microscope to factory settings.

Use of network and/or other connectivity functionality provided by or with this camera are at the User's discretion and risk; specifically, the User assumes full responsibility for network operation and safety. Leica does not guarantee any particular network safety standard and declines all responsibility, without limitation, for unauthorized access, security breach, data loss or corruption, or any financial or legal consequences thereof.

Introduction

The Ivesta 3 Series

Congratulations on obtaining your new Leica stereo microscope from the Ivesta 3 Series. We are convinced it will exceed your expectations, as this instrument embodies all the qualities you associate with Leica Microsystems: excellent objectives, high-quality engineering, and reliability. Furthermore, the modular design ensures that the Leica stereo microscope adapts perfectly to your needs – no matter which accessories you require for your tasks.

Thanks to the parfocal system with simultaneously large working distances and object fields, you can always view your microscopic specimens accurately – from the complete image to the finest detail.

The Ivesta 3 Series provides a high degree of flexibility in choosing equipment, thanks primarily to the modular configuration and the compability that Leica has painstakingly maintained for decades. The optic carriers, eyepieces, stands, and more can be combined in any way you choose, allowing you to create the stereo microscope that best suits your needs.

Despite this, you will notice that the controls and individual components do not differ significantly. Whichever configuration you choose, you will quickly feel right at home with your new stereo microscope.

Though the reliability and robustness of Leica stereo microscopes is world-renowned, like any high-tech product, the Ivesta 3 Series requires a certain degree of care and attention. Therefore, we recommend that you read this manual. It contains all the information you need regarding operation, safety and maintenance. Simply observing a few guidelines will ensure that even after years of intensive use, your stereo microscope will continue to work as smoothly and reliably as on the very first day.

We wish you the best of success in your work! after all, you are now equipped with the best tool!

What Your Stereo Microscope has to Offer You

The optical system of the Ivesta 3 Series stereo microscopes consists of two beam paths converging at 10°. The objective pairs of each optical path are positioned close together, so the stereo microscopes can be of very "slender" design, especially towards the base of the instrument. The advantages of this design are that it has a small space requirement for use on bonders and in machine applications, unobstructed access to specimens, plenty of space for tools and a completely clear view of the object field.

The Greenough system enables cost-effective correction of aberrations such as chromasia, image field curvature, and distortion with minimal effort. In all Ivesta 3 Series microscopes the optimum corrected center of the objective ensures high image quality. This provides superior optical performance with large, level and undistorted fields of view and chromatically optimized, high-contrast images.

Patented FusionOptics Technology

The Ivesta 3 Series features the Leica patented FusionOptics technology and deliver you finest details in 3D. While the right channel delivers you a high-resolution image at the largest possible numerical aperture, the left channel presents an image with high depth of field. This results in an image perception with outstanding richness of details and exceptional depth of field at the same time.

Photography

Ivesta 3 (C-mount) is equipped with an integrated video/phototube, which allows the simple, fast mounting of digital cameras. Ivesta 3 (Integrated camera) has USB ports that allow saving files on USB thumb drive and sharing via network and allow image sharing via Ethernet connection.

Apochromatic correction

The Ivesta 3 Series is a completely apochromatically corrected Greenough system. The modern optical technology of the Ivesta 3 Series corrects chromatic aberration perfectly, removes bothersome color seams and displays pin-sharp images of even the finest enlarged detail. Contrast, brilliance, image sharpness, resolution, color fidelity and image precision are unsurpassed.

The benefit of apochromatic correction is best seen in specimens that have a fine, low-contrast structure such as large animal cells, cilia plants or metallic microelectronic structures.

The technical features of the individual models can be found in chapter "Technical Data", page 56".

Microscopes of Ivesta 3 Series



Ivesta 3



Ivesta 3 (C-mount)



Ivesta 3 (Integrated camera)

Overview of Ivesta 3 and Ivesta 3 (C-mount)

1. *Leica microscope camera (available for Ivesta 3 (C-mount))*
2. *C-mount adapter and video/photo tube (in Ivesta 3 (C-mount))*
3. *Eyepieces*
4. *Adjustable tube: Interpupillary distance adjustable from 50 to 76 mm*
5. *Fixing screw for optics carrier in the microscope carrier*
6. *Threads for fastening the light arm (both sides and rear)*
7. *Focusing drive*
8. *Magnification changer, right drive knob with magnification scale*



Overview of Ivesta 3 (Integrated camera)

1. *Integrated camera*
2. *Eyepieces*
3. *Adjustable tube: Interpupillary distance adjustable from 50 to 76 mm*
4. *Fixing screw for optics carrier in the microscope carrier*
5. *Threads for fastening the light arm (both sides and rear)*
6. *Focusing drive*
7. *Magnification changer, right drive knob with magnification scale*



Overview of Ivesta 3 (Integrated camera) (Continued)

Firmware for Ivesta 3 (Integrated camera) is constantly being updated. Be sure to keep your camera up-to-date by checking the download section on the camera's website. There you will find new firmware and instructions on how to update your camera. You may also contact your Leica representative for help.

Real 4K monitor

The integrated HDMI output allows the microscope image to be displayed on a high-definition (HD-capable) monitor, where the following resolutions are possible:

- 3,840 × 2,160 (4K UHD). To be used on 4K monitors.
- 1,920 × 1,080 (Full-HD). This resolution provides the characteristic imaging performance for a Full-HD-capable monitor.

Energisight On-Screen Display (OSD)

Your microscope comes with a dedicated operating system (On-Screen Display menu, OSD menu) to provide stand-alone functionality. The user interaction is enabled via an on-screen display which superimposes a graphical user interface on the microscope image.

For information on the On-Screen Display (OSD) in stand-alone mode, refer to Tutorials or the OSD User Manual.

Energisight Desktop

Your Ivesta 3 (Integrated camera) includes a Quick Start Guide with a download link to the latest "Energisight Desktop" software.

Energisight Mobile

Your microscope can be operated with Mobile Application "Energisight Mobile". Please download it free of charge from Google Play or App Store.



Google Play Store



Apple Store

User-friendly even in the smallest detail

Ivesta 3 (Integrated camera) reacts differently to different light sources. The white balance is set to match LED illumination from Leica at the factory.

In general, utilization of LED illumination from Leica is recommended.

Overview of Ivesta 3 (Integrated camera) (Continued)



The integrated 12-megapixels-camera has many possibilities for various applications and conditions of use.



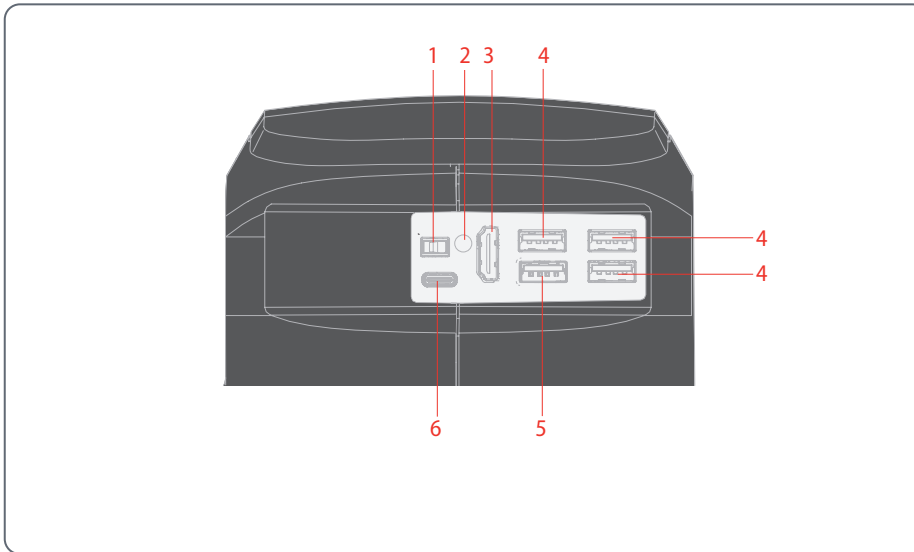
In order to keep your camera up to date and to benefit from newest functions you should update the camera's firmware from time to time. Detailed instructions about this topic can be found in the download section of Ivesta 3 (Integrated camera) on our website.

Power Ivesta 3 (Integrated camera)

Power can be provided to the microscope in the following ways:

- External USB power supply
- USB connection to the PC via USB-C/A cable

Operating Elements and Connectors of Ivesta 3 (Integrated Camera)



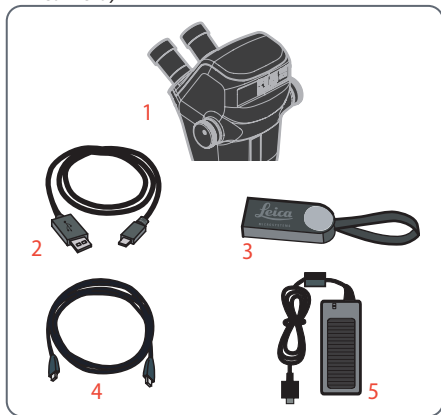
1. ON / OFF button
2. Status LED
3. HDMI port for monitor (stand-alone mode)
4. 3× USB port for
 - mouse,
 - keyboard,
 - Wi-Fi dongle or
 - USB-to-Ethernet adapter (USB Type-A)
5. USB SPEED port (insert USB thumb drive for data storage here) (stand-alone operation)
6. PC / power supply connection (USB Type-C)

Standard Delivery and Optional Accessories of Ivesta 3 (Integrated camera)

Standard delivery

Standard delivery of Ivesta 3 (Integrated camera) includes:

1. *Ivesta 3 (Integrated camera)*
2. *USB-C/USB-A cable (for PC or power supply connection)*
3. *USB stick*
4. *4K HDMI cable, for connecting to an HD/4K monitor*
5. *Power supply unit Ivesta 3 (Integrated camera)*



Optional accessories

1. *Wi-Fi dongle*
2. *USB-to-Ethernet adapter*
3. *HD/4K monitor*
4. *Handswitch/Footswitch*
5. *Barcode scanner*

Wi-Fi dongle

The Wi-Fi dongle enables you to work under wireless condition with Ivesta 3 (Integrated camera).

Due to different country restrictions, there are different versions of Wi-Fi dongles available.

To get the latest information about the availability of Wi-Fi dongles in your specific country, please contact your local sales representative.

USB-to-Ethernet adapter

The USB-Ethernet adapter allows you to connect an Ethernet cable to a USB-A port on the camera to set up a Ethernet network.



For information on additional accessories, such as objectives and adapters, illumination or the dust cover for the microscope, please contact your Leica Microsystems authorized dealer.

HD/4K monitor

HD/4K monitor enables you to live stream and acquire images in a higher resolution.

Handswitch/Footswitch

Various functionals can be assigned to the optional handswitch/footswitch (such as taking pictures, white balance, video recording).

Barcode scanner

Barcode scanner or Barcode reader enables you to assign tags for images and videos.

Installation

Installing the Camera on Ivesta 3 (C-mount)



Ivesta 3 (C-mount) is equipped with an integrated video/phototube, which allows the simple, fast mounting of digital cameras for photos and video. Please ask your Leica consultant about the options.

Installing the camera

1. Remove the protective dust cover from the video/projection lens (C-mount adapter) and the microscope camera.



2. Screw the camera into the video/projection lens (C-mount).



3. Insert the unit into the video/photo output of the stereo microscope and screw it in.



NOTICE

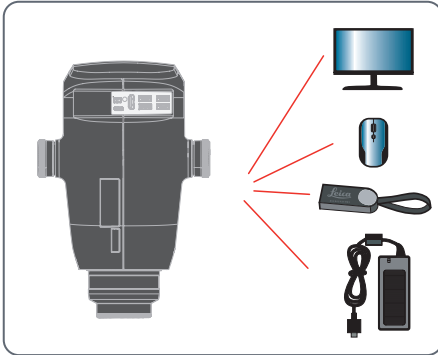
- ▶ Always close the video/photo output with the protective dust cover if no camera is installed.

Connectivity of Ivesta 3 (Integrated camera)

Introduction

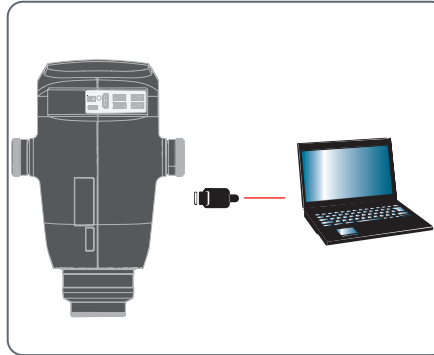
The Ivesta 3 (Integrated camera) features an integrated and network capable state-of-the-art brightfield microscope with 12 megapixel image resolution. There are various ways to connect the stereo microscope with your viewing devices:

Stand-alone mode



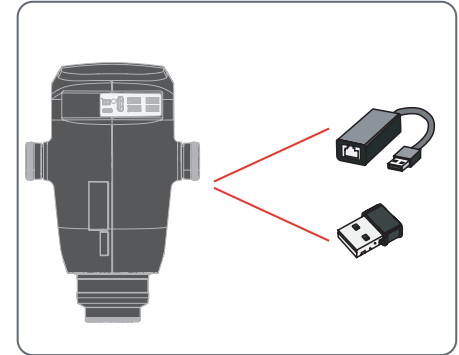
Connect the microscope to HD/4K monitor via HDMI. Connect the USB stick and mouse on the back panel. Next, connect the power supply unit on the back panel of Ivesta 3 (Integrated camera).

PC mode



Use USB-C/USB-A cable to connect Ivesta 3 (Integrated camera) to your computer.

Network mode



Use your microscope in network mode by connecting it to the Ethernet (via adapter) or by connecting a Wi-Fi dongle.

Stand-Alone Mode: General Notes

NOTICE

The Ivesta 3 (Integrated camera) is designed for the use of 4K and HD-capable (high definition) monitors. We recommend connecting the HD / 4K monitor using an HDMI connector and not using any adapters (e.g. DVI), as otherwise proper function can no longer be guaranteed!

NOTICE

Please use only the provided 5 V power supply unit.

Using another adapter with incorrect voltage can substantially damage the camera.

The Ivesta 3 (Integrated camera) can be powered by the computer via the USB-C / USB-A cable (PC mode).

Installing the USB thumb drive

NOTICE

Make sure to read the following instructions about formatting and handling the USB thumb drive provided in order to prevent malfunctions during image acquisition.

File system and formatting:

exFAT or FAT32 file system is required for the thumb drive to work correctly, as it is detected by the Ivesta 3 (Integrated camera). Most USB thumb drives are factory-formatted with FAT32 so that they can be used immediately.

If the USB thumb drive is formatted differently, the Ivesta 3 (Integrated camera) provides the ability to reformat as exFAT.

1. Press "USB Eject" button but do not remove the stick.
2. Go to the settings page to format. During this process all data on the stick are erased.

NOTICE

Make sure that the USB thumb drive is oriented correctly before inserting it into the Ivesta 3 (Integrated camera). If you accidentally insert the USB thumb drive the wrong way around, this could damage the camera.

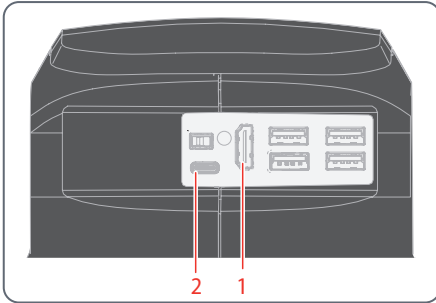


- Use a fast USB thumb drive to ensure a quick operation.
-

Stand-Alone Mode: Cables and Terminals

Power supply and HD/4K monitor

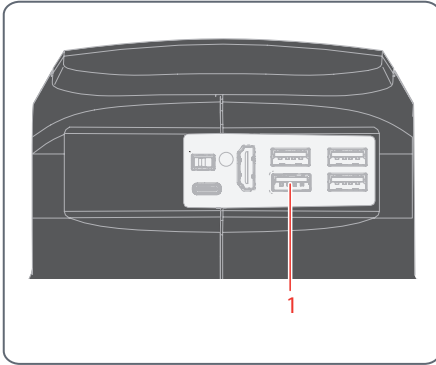
Connect Ivesta 3 (Integrated camera):



1. Use the 4K HDMI cable to connect the HDMI port (1) of Ivesta 3 (Integrated camera) and the HD/4K monitor.
2. Use the USB-C/USB-A cable to connect the port (2) of Ivesta 3 (Integrated camera) to a suitable power socket.

Stand-Alone Mode: Installing USB Thumb Drive

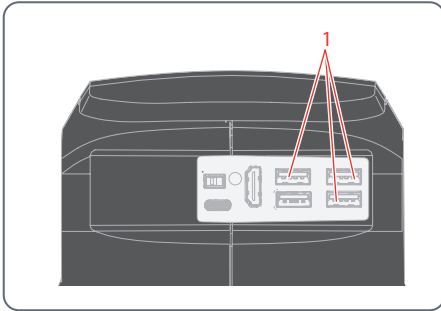
Saving data on the Ivesta 3 (Integrated camera)



- ▶ To ensure the quickest possible way to store data, insert the USB thumb drive with sufficient free memory in the USB SPEED ports (1).

Stand-Alone Mode: Installing Wireless USB Mouse

USB Type-A ports on the Ivesta 3 (Integrated camera):



1. Plug in the USB transmitter of the USB mouse in an unused USB Type-A port (1) on the Ivesta 3 (Integrated camera).



- ▶ Do not use the USB SPEED port as this is required for the USB thumb drive.
-

2. Switch on the wireless USB mouse.

The connection between the wireless transmitter and the camera will be arranged automatically. It is not necessary to "pair" the devices with each other.

PC Mode: Connecting a Computer, Installing Software

Downloading and Installing the software

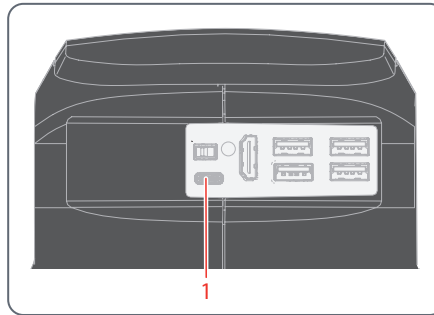
1. Go to [Microscope Software Platform Enersight](#) or scan the QR code to be directed to Enersight web-page:



2. After downloading the Enersight Desktop software, follow the instructions for installing the software.

Connecting the camera to a computer

USB-C port on Ivesta 3 (Integrated camera):



1. Connect Ivesta 3 (Integrated camera) to a USB-C port (1) of the computer using a USB-C/USB-A cable .

The camera is powered by the computer via the USB-C/USB-A cable.

2. Run Enersight Desktop on your PC.

Assembly

Assembling the Optics Carrier and Additional Objective

Optics carrier (76 mm standard)

- ▶ Insert the optics carrier carefully in the microscope carrier and fasten it in the desired position with the clamping screw.



Optical carrier: 76 mm (standard)

Additional objective (optional)

- ▶ Screw the desired objective counter clockwise into the optics carrier.



Protective objective glass (optional)

- ▶ Screw the objective protective glass directly onto the objective.



Available Optional Graticules



The optional graticules enable measurement and, in addition, provide valuable information when comparing and capturing still images of the specimens. Insert the graticule before you set the eyepiece in place.

Available graticules

The following graticules and objective micro-meters for calibrating may be ordered:

- Graticule 10 mm/0.1 mm
- Graticule 5 mm/0.1 mm
- Graticule 5 mm/0.05 mm
- Graticule 100 Div./0.002"
- Graticule 100 Div./0.001"
- Graticule 150 Div./0.0005"
- Crosshairs
- Stage micrometer 50 mm, 0.1/0.01/ mm graduation
- Stage micrometer 1", 0.001" graduation

Inserting the Graticules



Graticules can be inserted in the adjustable eyepieces and the in the eyepieces for eyeglass wearers.

Inserting the graticule(s)

1. Use the stereo microscope to determine the side on which the scale is inscribed. The scale must not appear reversed.
2. Remove the insert from the bottom of the eyepiece and place it on the bench with the knurled side down.



3. Hold the graticule by the edges to avoid leaving fingerprints, and push it into the holder from the side.



4. Replace the insert in the eyepiece and press it firmly into place.
5. Insert the eyepiece in the tube and turn the eyepiece in the tube to align the graticule correctly.



Inserting the Eyepieces



You can use your Ivesta 3 Series stereo microscope together with a fixed or adjustable eyepiece. For models in which a graticule is included in an eyepiece for measurement or photography, two eyepieces are necessary.

Inserting the eyepieces

1. Push eyepieces as far as they will go into the tubes.



2. Check that the eyepieces are seated firmly and precisely in place.

Risk of infection



Direct contact with eyepieces is a potential transmission method for bacterial and viral infection of the eye. The risk can be kept to a minimum by using personal eyepieces for each individual or detachable eyecups.

Operation

Using the Eyepieces



The eyepieces form the connection between the tube and the eye of the observer. Simply push them into the tube and they are ready to use.



What does "parfocal" mean?



"Parfocal" means that a specimen continues to remain exactly in focus, even if the magnification on the stereo microscope is modified. All stereo microscopes from Leica Microsystems are parfocally matched. However, the parfocality requires a personal dioptric correction for the user.

If you do not wear eyeglasses

Depending on the preferences of the observer, eyecups can be used.



WARNING

Serious injuries caused by eye infections.

To avoid eye infections, we recommend that every user uses his or her own pair of eyecups.

If you wear eyeglasses



Eyeglass wearers must remove or fold back the eyecups (Fig. below left), as otherwise they cannot see the entire field of view.



10x eyepieces have a fixed circular field of view of 18 mm or more diameter. The field of view of the Ivesta 3 (Integrated camera) is rectangular to ensure an even field on the digital image. As a result, the image field of the camera is smaller than the object field seen through the eyepieces.

Setting the Correct Interpupillary Distance



The interpupillary distance is correctly set if you see a single circular image field when looking at a specimen.

The interpupillary distance is correctly set if you see a single circular image field when looking at a specimen.

Reference value

The interpupillary distance can be set between 50 and 76 mm.



An "exit pupil distance" is the distance between eye and eyepiece. With the 10×/23B wide-field eyepiece for eyeglass wearers, it is approx. 22 mm. For those who do not use the eyepiece for eyeglass wearers, it is 12 mm.

Setting the eye distance

1. Bring the eyes slowly to the eyepieces.
2. Push the tubes together or apart with both hands until you see a single round, circular image field without shadows with both eyes.



Changing Magnification (Zooming)



All stereo microscopes of Ivesta 3 Series allow a continuous magnification change. The magnification changer can be operated with the left and the right hand. The image scale is shown on the right drive knob.



The basis for the calculation of the total magnification and the field of view can be found in chapter "Calculating the Total Magnification/Field of View Diameter", page 63.

Changing magnification

1. Look into the eyepieces.
2. Focus on the object.
3. Rotate the magnification changer until the desired magnification is configured.



Regulating the Resistance of the Focusing Drive

Adjusting the resistance

Is the focusing drive too loose or too tight? Does the equipment tend to slide downwards? The resistance can be adjusted individually depending on the equipment weight and personal preferences as follows:

- ▶ Grip the outer drive knobs with both hands and turn them towards each other until the desired resistance is reached during focusing.



Changing the Position of the Optics Carrier



The optics carrier can be turned sideways in the microscope carrier if the user wants to work from the side.

Changing position

1. Unscrew the clamping screw.



2. Turn the optics carrier laterally to the desired position.

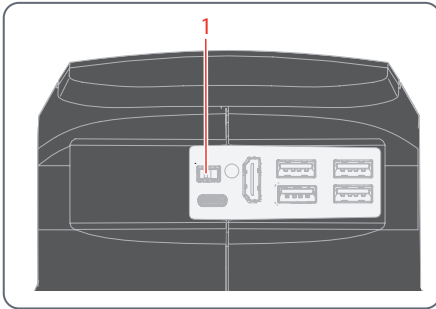


3. Carefully tighten the clamping screw.

Switching on Ivesta 3 (Integrated camera)

Stand-alone mode

ON / OFF button on Ivesta 3 (Integrated camera):



Ensure the following points:

- The microscope is connected to a HD/4K monitor and the power supply.

- ▶ Set the ON / OFF button (1) to "ON" to switch on Ivesta 3 (Integrated camera).

The camera automatically detects the HD/4K monitor and run Enersight On-Screen-Display.

PC mode

1. Set the ON / OFF button (1) to "ON" to switch on Ivesta 3 (Integrated camera).

The camera is ready to use.

2. Start the Enersight Desktop software.



For additional information on Enersight Desktop, refer to the website [Microscope Software Platform Enersight](#).

Network mode

1. Set the ON / OFF button (1) to "ON" to switch on Ivesta 3 (Integrated camera).
2. Refer to page 44 to page 46 for more guidance.

Operation in Stand-Alone Mode



For information on setting up and switching on the Ivesta 3 (Integrated camera) in stand-alone mode, refer to chapter "Switching on Ivesta 3 (Integrated camera)" subchapter "Stand-alone mode", page 41.



For information on working with the OSD menu, refer to Tutorials or the OSD User Manual.

Operation in PC Mode



For information on setting up and switching on Ivesta 3 (Integrated camera) in PC mode, refer to chapters:

- "PC Mode: Connecting a Computer, Installing Software", page 29
- "Switching on Ivesta 3 (Integrated camera)", page 41, subchapter "PC mode"

Additional parallel use of a HD/4K monitor

General notes



When connected to a computer, the microscope image is always shown in the preview window of Ener-sight Desktop. To display a 4K live image at up to 60 fps in PC mode, please connect an optional 4K and HD-capable monitor to the HDMI port of the microscope.



The resolution on the connected HD/4K monitor is always a 16:9 format and independent of the computer resolution.

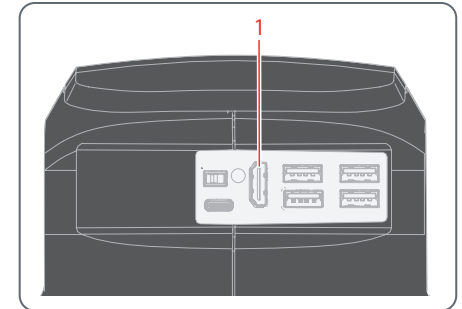


Additionally the on-screen display (OSD) functionality is turned off on the HDMI monitor.

Connecting the HD/4K monitor

- ▶ Use the HDMI cable to connect the HDMI port (1) of Ivesta 3 (Integrated camera) and the HD/4K monitor.

HDMI port on Ivesta 3 (Integrated camera):



Operation in Network Mode



For information on setting up and switching on Ivesta 3 (Integrated camera) in network mode, refer to chapter:

- "Switching on Ivesta 3 (Integrated camera)", page 41, subchapter "Network mode"



For information on working with Ivesta 3 (Integrated camera) in the network mode on the OSD menu, refer to Tutorials or the OSD User Manual.

For using the Enersight Mobile App with your Ivesta 3 (Integrated camera), please download it via Google Play or App Store.

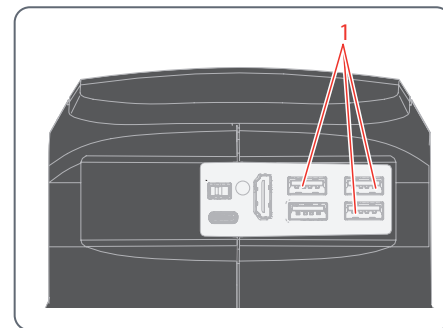


Google Play



App Store

USB ports on Ivesta 3 (Integrated camera):



Connecting to the network

You can connect to the network with the Wi-Fi dongle or with the USB-to-Ethernet adapter.

- ▶ Plug in the Wi-Fi dongle or the USB-to-Ethernet adapter to the USB port (1) on the back panel.

Operation in Network Mode (Continued)

Network configuration

To set up network configuration refer to Tutorials or the OSD User Manual.

Connection to the mobile device

First connection:

1. Run Ivesta 3 (Integrated camera) in a stand-alone mode (page 41).
2. Go to the network settings in the Enersight On-Screen-Display software as follows:
Enersight OSD → Settings → Network
3. Activate WebSocket and create the certificate.
4. Restart Ivesta 3 (Integrated camera).



Perform this step only once during the initial setup.

5. Download Enersight Mobile on your smartphone or tablet from Google Play or App Store (see page 44).

To connect your mobile device (smartphone or tablet), you can choose between 2 different modes:

Your Ivesta 3 (Integrated camera) serves as an Access Point (AP)

1. Activate this mode on Enersight OSD as follows:

Settings → Network → AP-Mode

You will see the credentials of this AP (SSID, password, etc.) and IP address of the device.

2. Connect your mobile device to this AP (via Settings on your smartphone/tablet).

Your Ivesta 3 (Integrated camera) is connected to a network – Client-Mode

1. Activate this mode on Enersight OSD as follows:

Settings → Network → Client-Mode

2. Select a network you would like to connect.
3. Enter the password.
4. Connect your mobile device to the same network.

In "Settings" on Enersight OSD you will see an IP address of your camera.

Operation in Network Mode (Continued)

Accessing the device from your Mobile App

1. Open your Enersight Mobile App.
2. Click on “Setting” icon in the tab “Device”.
3. Enter the IP address of the camera and click “Connect”.

Ivesta 3 (Integrated camera) is connected to your mobile device.



To switch from one mode to another, the Wi-Fi button on the Enersight OSD must be disabled.

Subsequent connections

1. Turn on Ivesta 3 (Integrated camera).
1. Either connect your smartphone or tablet to the Access Point (see page 45) of Ivesta 3 (Integrated camera) or to the network Ivesta 3 (Integrated camera) is already connected to (depending on the mode you used before).
2. Open the Enersight Mobile App on your mobile device and go to Settings.
3. Click on the latest IP address in the history list.

Ivesta 3 (Integrated camera) is connected.

Troubleshooting

Troubleshooting

Stand-alone operation

If the Ivesta 3 (Integrated camera) is configured for 4K resolution and attached to a Full-HD monitor with only 1,080 p resolution, the microscope should detect this and switch automatically to the necessary resolution.

However, if no image appears and the screen reports an error message like "out of range" or something similar, you can reset the microscope resolution to 1,080 p.

How to reset the Ivesta 3 (Integrated camera)?

1. Power the microscope off.
2. Unplug the USB mouse.
3. Restart the microscope.
The Ivesta 3 (Integrated camera) will restart in Full-HD 1,080 p mode and a live image will appear.
4. Plug in the USB mouse again and configure the correct live image resolution.

Recovery Mode

At every startup the microscope checks whether the application image is valid. In case the image is corrupted, e.g. by an interrupted firmware update, the Ivesta 3 (Integrated camera) switches into a recovery mode.



RECOVERY MODE

Starting up the fallback system.....

After 12 seconds the system asks for the firmware file which should be stored on the USB flash drive.



RECOVERY MODE

Please insert an USB flash drive with the latest firmware. Download the latest firmware from www.leica-microsystems.com.

- ▶ Please make sure the USB stick is inserted in the speed port so the system will automatically install the provided firmware.

Care and Maintenance

Care, Maintenance, Contact Persons

General

We hope you enjoy using your high-performance microscope. Leica microscopes are renowned for their robustness and long service life. Observing the following care and cleaning tips will ensure that even after years and decades, your Leica microscope will continue to work as well as it did on the very first day.

Warranty benefits

The guarantee covers all faults in materials and manufacture. It does not, however, cover damage resulting from careless or improper handling.

Contact address

If your microscope no longer works perfectly, contact your Leica representative.

Care

- ▶ Keep all optical components clean for maintaining good optical performance.
- ▶ If any optical surface becomes badly coated with dust or dirt brush it off with a camel hair brush before attempting to wipe it clean.
- ▶ Clean optical surfaces by using a lint-free cloth, lens cloth or cotton swab soaked in 70% ethanol or a commercially available glass cleaner. Do not use pure alcohol.
- ▶ Avoid excessive use of solvents. The lint-free cloth, lens cloth or cotton swab should only be lightly moistened with solvent.
- ▶ Protect your microscope from moisture, fumes and acids and from alkaline, caustic and corrosive materials and keep chemicals away from the microscope and its accessories.

- ▶ Do not disassemble or replace plugs, optical systems and mechanical parts, unless doing so is specifically permitted and described in this user manual.
- ▶ Protect your microscope from oil and grease.
- ▶ Do not grease guide surfaces or mechanical parts.

Protection from dirt

Dust and dirt will affect the quality of your results.

- ▶ Put an optionally available dust cover over the microscope when it will not be used for a long time.
- ▶ Keep accessories in a dust-free place when not in use.

Care, Maintenance, Contact Persons (Continued)

Cleaning polymer components

Some components are made of polymer or are polymer-coated. The use of unsuitable cleaning agents and techniques can damage polymers.

Permitted measures

- ▶ Remove dust on the filter glass with a bellows and a soft paintbrush.
- ▶ Clean the objectives with special optics cleaning cloths and pure alcohol.

Servicing

- ▶ Ensure that repairs are only be carried out by Leica Microsystems-trained service technicians. Only original Leica Microsystems spare parts may be used.



WARNING

Danger of electric shock.

Risk of electric shock. Removing the cover of Ivesta 3 (Integrated camera) exposes electrically live parts, which, if touched, can cause potentially fatal injuries. Have technical service carried out by a Leica Microsystems authorized dealer.

Specifications

Spare Parts

Item	Leica article number	Designation	Ivesta 3 (Integrated camera)	Ivesta 3 (C-mount)	Ivesta 3
1	10726960	USB-C/A cable	×		
2	10726961	USB Thumbdrive 64 GB	×		
3	10726529	HDMI cable 2 m	×		
4	10726962	USB power supply	×		
5	10726783	USB dummy plug in	×		
6	10726785	HDMI dummy plug in	×		
7	10640643	Cap for C-mount		×	
8	10725987	Lens shield	×	×	×

Optional Sales Items

Item	Leica article number	Designation
1	12730524	Wi-Fi Adapter 5 GHz (US)
2	12730557	Wi-Fi Adapter 5 GHz (EU)
3	12730559	Wi-Fi Adapter 2.4 GHz (EU)
4	12730601	USB-to-Ethernet Adapter
5	10450961	USB Barcode Reader
6	12730359	USB Footswitch
7	10450859	4K HDMI Monitor

Technical Data

Characteristics	Ivesta 3	Ivesta 3 (C-mount)	Ivesta 3 (Integrated camera)
Optical system, lead-free	10° Greenough using best-corrected central part of the objective		
Zoom	9 : 1		
Viewing angle	35°		
Magnification range*	6.1× - 55×		
Maximum resolution	500 lp/mm		
Maximum numerical aperture	0.167		
Working distance*	122 mm		
Object field diameter*	37.6 mm		
Adjustable zoom limits*	Click-stops: 10×, 20×, 30×, 40×, 50×		Fully coded zoom
Video / photo outlet	–	50 % Video, 50 % visual, permanent	50 % Video, 50 % visual, permanent
Weight (camera only)	1.6 kg	1.8 kg	2.2 kg
Standard objectives, lead-free	Achromats: 0.5×, 0.63×, 0.75×, .1.6×, 2.0×		
Ergonomic eyepieces, fixed and adjustable, with cups	10× / 23, 16× / 16, 20× / 12		
Ergonomic eyepieces for eyeglass wearers, adjustable, with eyecups	10× / 23, 16× / 15, 25× / 9.5, 40× / 6		
Interpupillary distance*	50–76 mm		

* Values with basic outfit (no supplementary lens, 10×/23 eyepieces)

Technical Data (Continued)

Characteristics	Ivesta 3	Ivesta 3 (C-mount)	Ivesta 3 (Integrated camera)
Operating temperature	10° C to 40° C (50° F to 104° F)		
Storage / Transport temperature	-10° C to 50° C (14° F to 122° F)		
Relative humidity for storage / operation	10 % to 90 % (non-condensing)		
Use	For indoor use only		
Pollution degree	2		
Altitude operation	0 m to 2,000 m (0 ft to 6,561 ft)		
Live image on an HDMI monitor	N/A	N/A	at up to 60 fps (3,840 × 2,160 pixels)
Full-screen image capture			at 12 MP
Sensor diagonal			7.81 mm (type 1/2.3" CMOS)
Pixel size			1.55 μm × 1.55 μm
Input			5 V DC / 3 A
Power consumption			15 W
Supported software			Enersight
Color filter			IR-cut coating 650 nm, not replaceable
File formats			JPG, TIF, BMP, MJPG; for overlays also PNG
Compatibility			USB 3.0, standard USB type C

Technical Data (Continued)

Characteristics	Ivesta 3	Ivesta 3 (C-mount)	Ivesta 3 (Integrated camera)
HD connector	N/A	N/A	HDMI 2.0a, HDMI plug type A
USB Connectors	N/A	N/A	4× USB 2 connectors, type A
ON / OFF Button	N/A	N/A	1× (on rear side of the microscope)
Multicolor status LED	N/A	N/A	1× (on rear side of the microscope)

Housing

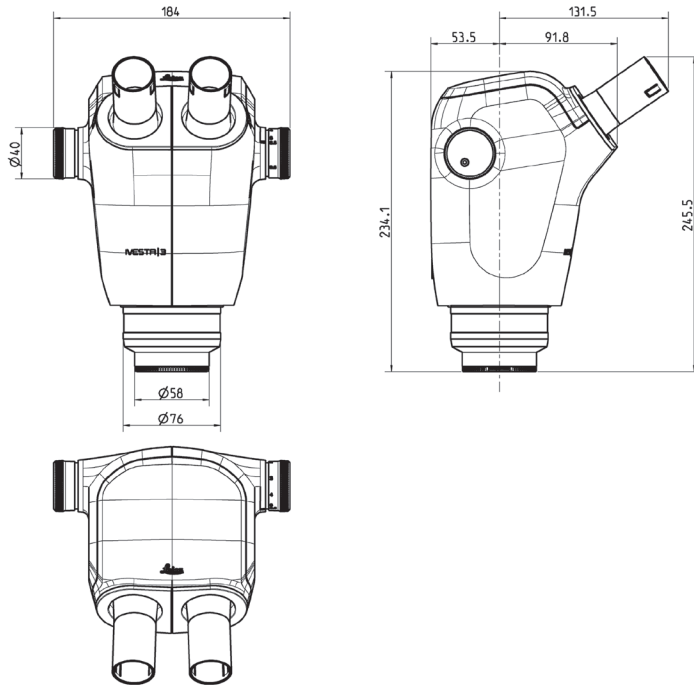
Characteristics	Value
Material	PC/ABS
Antimicrobial surface	AgTreat™ according to ISO 22196
Protection rating	IP 41

Power supply unit (only applicable to Ivesta 3 (Integrated Camera))

Characteristics	Value
Manufacturer	Sinpro Electronics Co., Ltd., 18F, NO.80, Minzu 1st Rd., Sanmin District, Kaohsiung City 807, Taiwan
Model identification	SPU25A-102
Input voltage	90–264 V AC
Input frequency	47–63 Hz
Output voltage	5 V DC
Output current	max. 3.3 A
Output power	max. 16.5 W
Average active efficiency	82.5 %
Efficiency at high load (10 %)	79.5 %
No-load power consumption	0.014 W

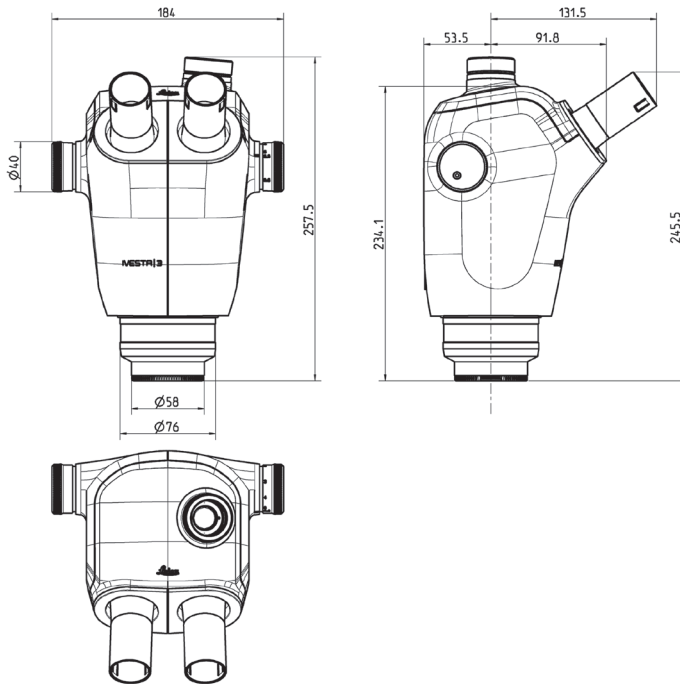
Dimensional Drawings Ivesta 3

Dimensions in mm



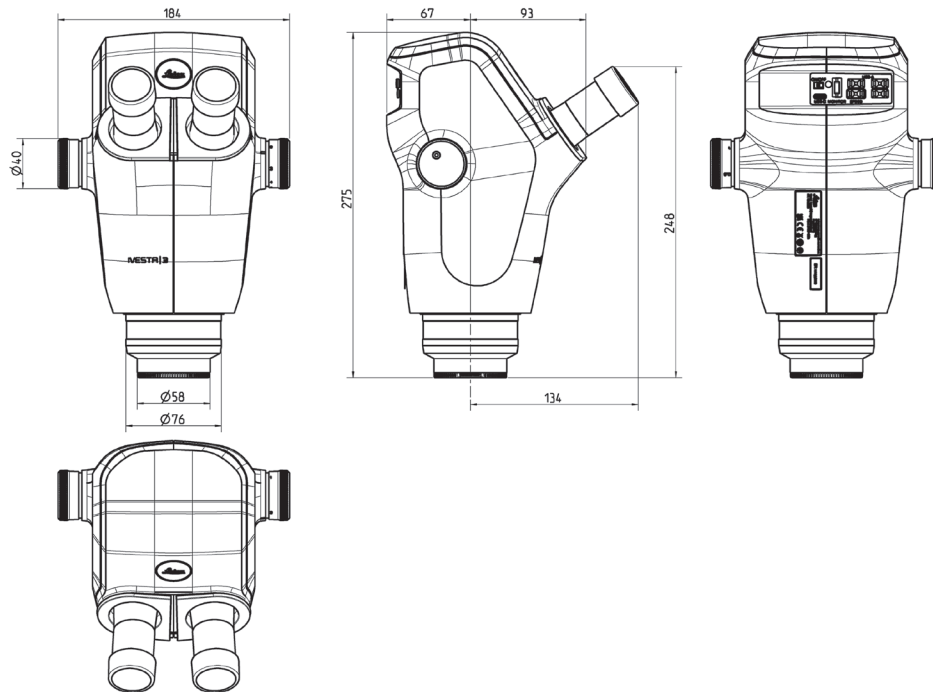
Dimensional Drawings Ivesta 3 (C-mount)

Dimensions in mm



Dimensional Drawings Ivesta 3 (Integrated camera)

Dimensions in mm



Appendix

Calculating the Total Magnification/Field of View Diameter

Parameter

M_o	Magnification of the additional objective
M_e	Magnification of eyepiece
z	Magnification changer position
N_{FOV}	Field number of the eyepiece. Field numbers are printed on the eyepieces: 10×/ 23 , 16×/ 16 , 20×/ 12 , 10×/ 23B , 16× 14B , 25×/ 9.5B , 40× 6B .

Example

M_o	Additional objective 1.6×
M_e	20×/12 eyepiece
z	Zoom position 4.0

Magnification in the binocular tube

$$M_{TOT\ VIS} = M_o \times M_{E \times Z}$$

or

$$1.6 \times 20 \times 4 = 128$$

Calculation example: Field of view diameter in the specimen

$$\varnothing \text{ OF: } \frac{N_{FOV}}{M_o \times z} = \frac{12}{1.6 \times 4} = 1.9 \text{ mm}$$

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