OPTIKA®
ITALY

SFX/STEREO Series

INSTRUCTION MANUAL

Model
SFX-31
SFX-33
SFX-51
SFX-91
SFX-91D
SFX-91DW
ST-50Led

Ver. 2.7 2025

Table of Contents

1. Warning

This microscope is a scientific precision instrument designed to last for many years with a minimum of maintenance. It is built to high optical and mechanical standards and to withstand daily use. We remind you that this manual contains important information on safety and maintenance, and that it must therefore be made accessible to the instrument users. We decline any responsibility deriving from incorrect instrument use uses that does not comply with this manual.

2. Safety Information

Avoiding Electrical Shock

Before plugging in the power supply, make sure that the supplying voltage of your region matches with the operation voltage of the equipment and that the lamp switch is in off position. Users should observe all safety regulations of the region. The equipment has acquired the CE safety label. However, users have full responsibility to use this equipment safely. Please follow the guidelines below, and read this manual in its entirety to ensure safe operation of the unit.

3. Package content

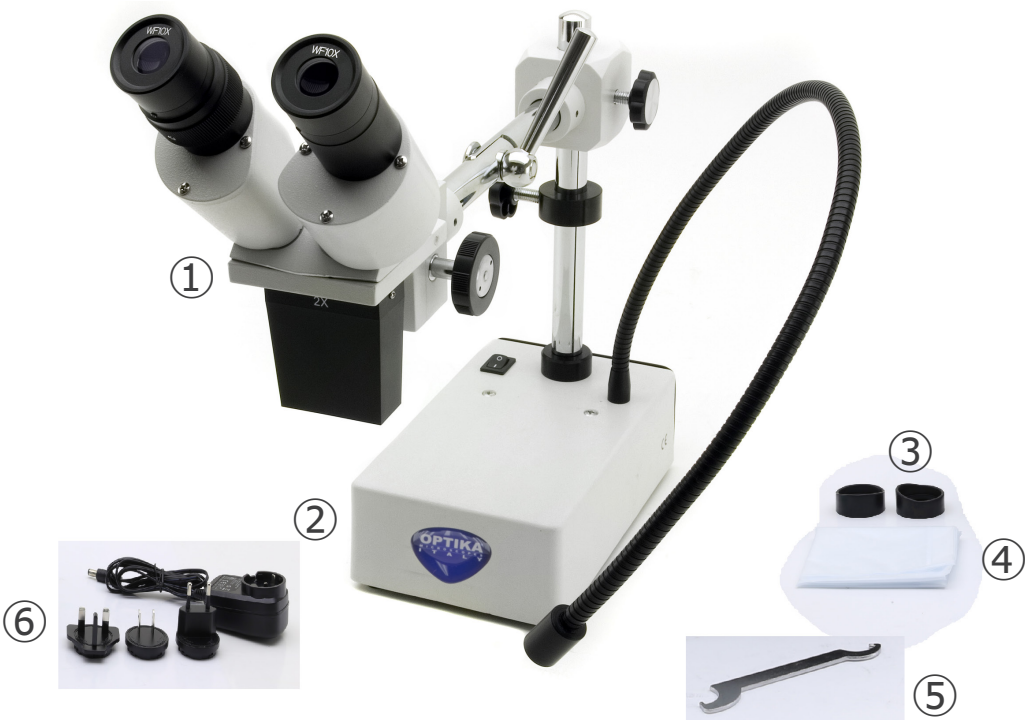
3.1 SFX-Series

① Microscope body
② Eyepieces shields
③ Dust cover
④ Plastic black/white plate
⑤ Frosted glass plate
⑥ Tension adjustment tool
⑦ Power supply
* Only for SFX-91D: USB cable

3.2 SFX-91DW

① Microscope body
② Eyepiece shields
③ Frosted glass plate
④ Plastic black/white plate
⑤ Micrometric slide
⑥ Dust cover
⑦ USB to Micro USB cable for digital head
⑧ Tension adjustment tool
⑨ Power supply for microscope

3.3 ST-50LED



① Microscope body
② Microscope base
③ Eyepiece shields
④ Dust cover
⑤ Tension adjustment tool
⑥ Power supply

4. Unpacking

The microscope is housed in a molded Styrofoam container. Remove the tape from the edge of the container and lift the top half of the container. Take some care to avoid that the optical items (objectives and eyepieces) fall out and get damaged. Using both hands (one around the arm and one around the base), lift the microscope from the container and put it on a stable desk.

Do not touch with bare hands optical surfaces such as lenses, filters or glasses. Traces of grease or other residuals may deteriorate the final image quality and corrode the optics surface in a short time.

5. Intended use

Standard models

For research and teaching use only. Not intended for any animal or human therapeutic or diagnostic use.

IVD Models

Also for diagnostic use, aimed at obtaining information on the physiological or pathological situation of the subject.

6. Symbols and conventions

The following chart is an illustrated glossary of the symbols that are used in this manual.

CAUTION

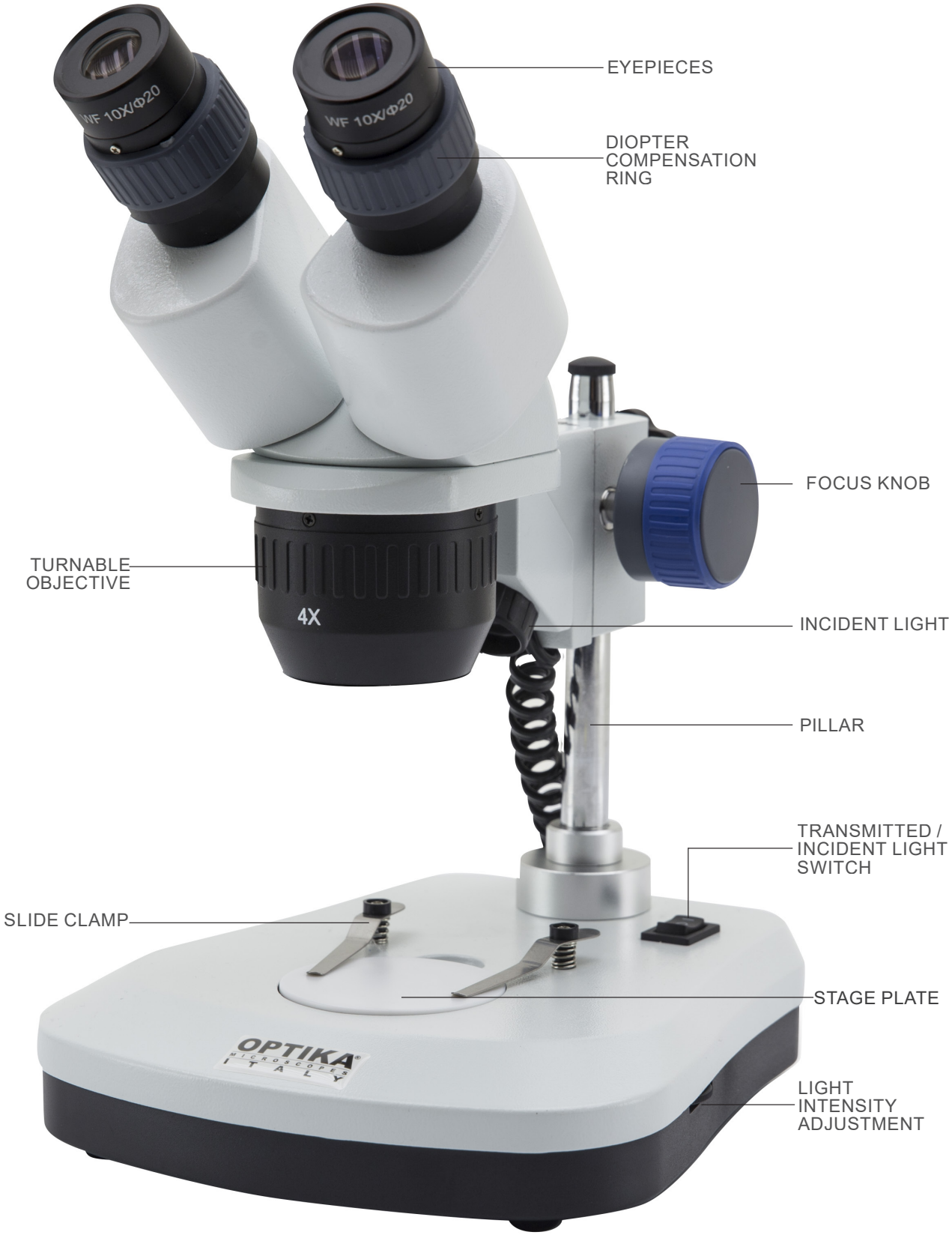
This symbol indicates a potential risk and alerts you to proceed with caution.

ELECTRICAL SHOCK

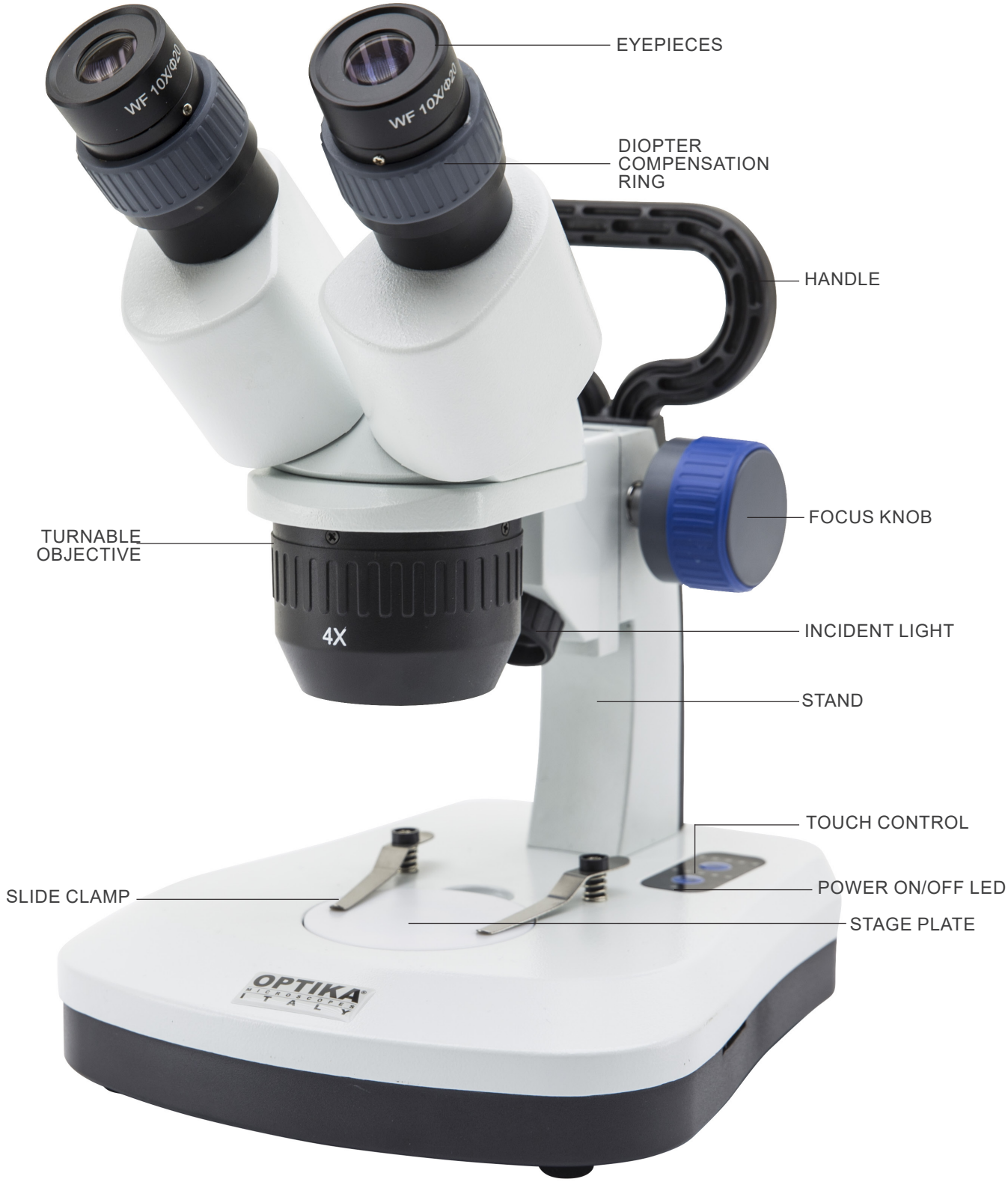
This symbol indicates a risk of electrical shock.

7. Instrument description

7.1 SFX-31



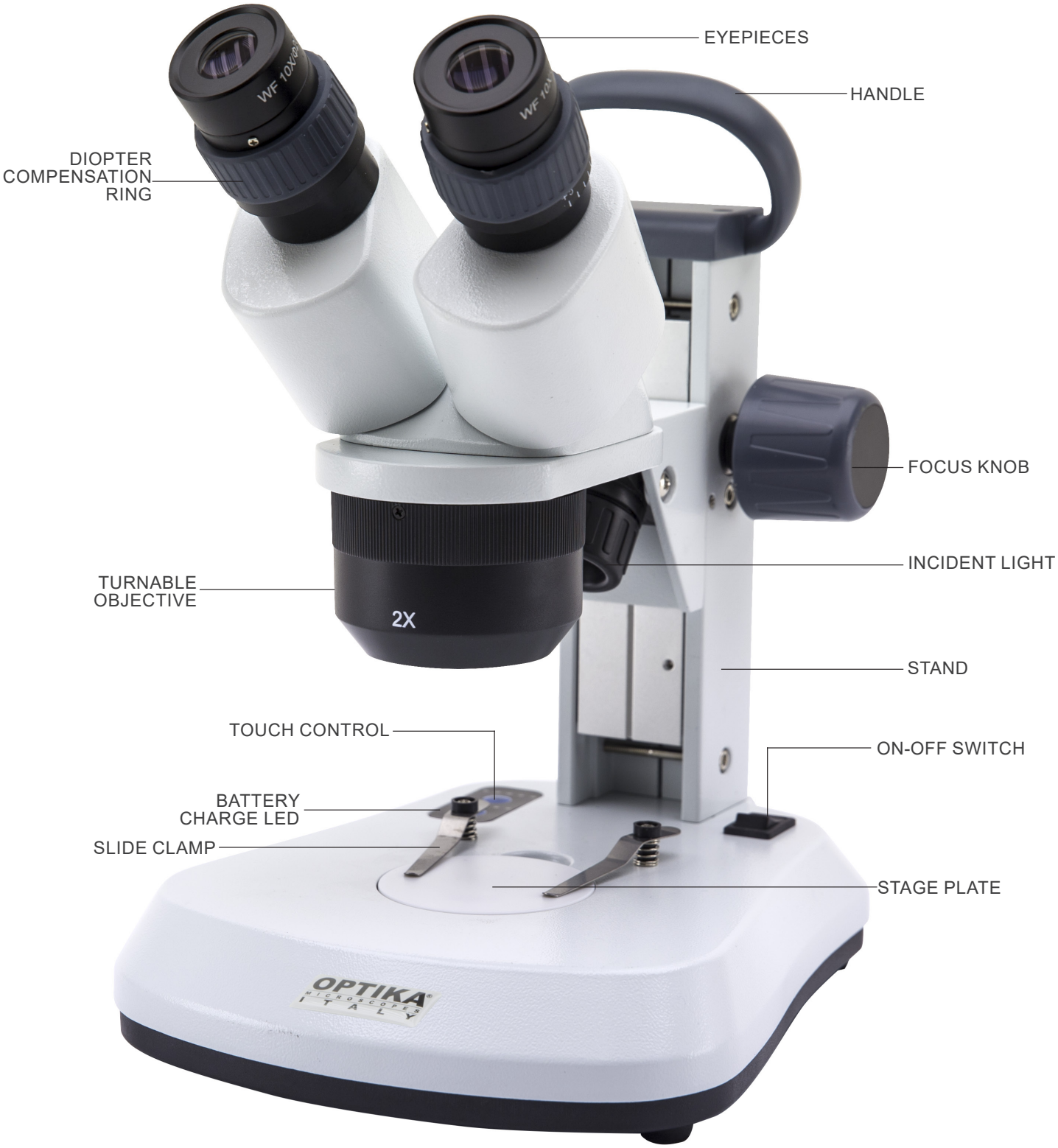
7.2 SFX-33


EYEPIECES
DIOPTER COMPENSATION RING
HANDLE
FOCUS KNOB
TURNABLE OBJECTIVE
INCIDENT LIGHT
STAND
TOUCH CONTROL
SLIDE CLAMP
POWER ON/OFF LED
STAGE PLATE
WF 10X/Ø20
WF 10X/Ø20
4X
OPTIKA
MICROSCOPES
ITALY

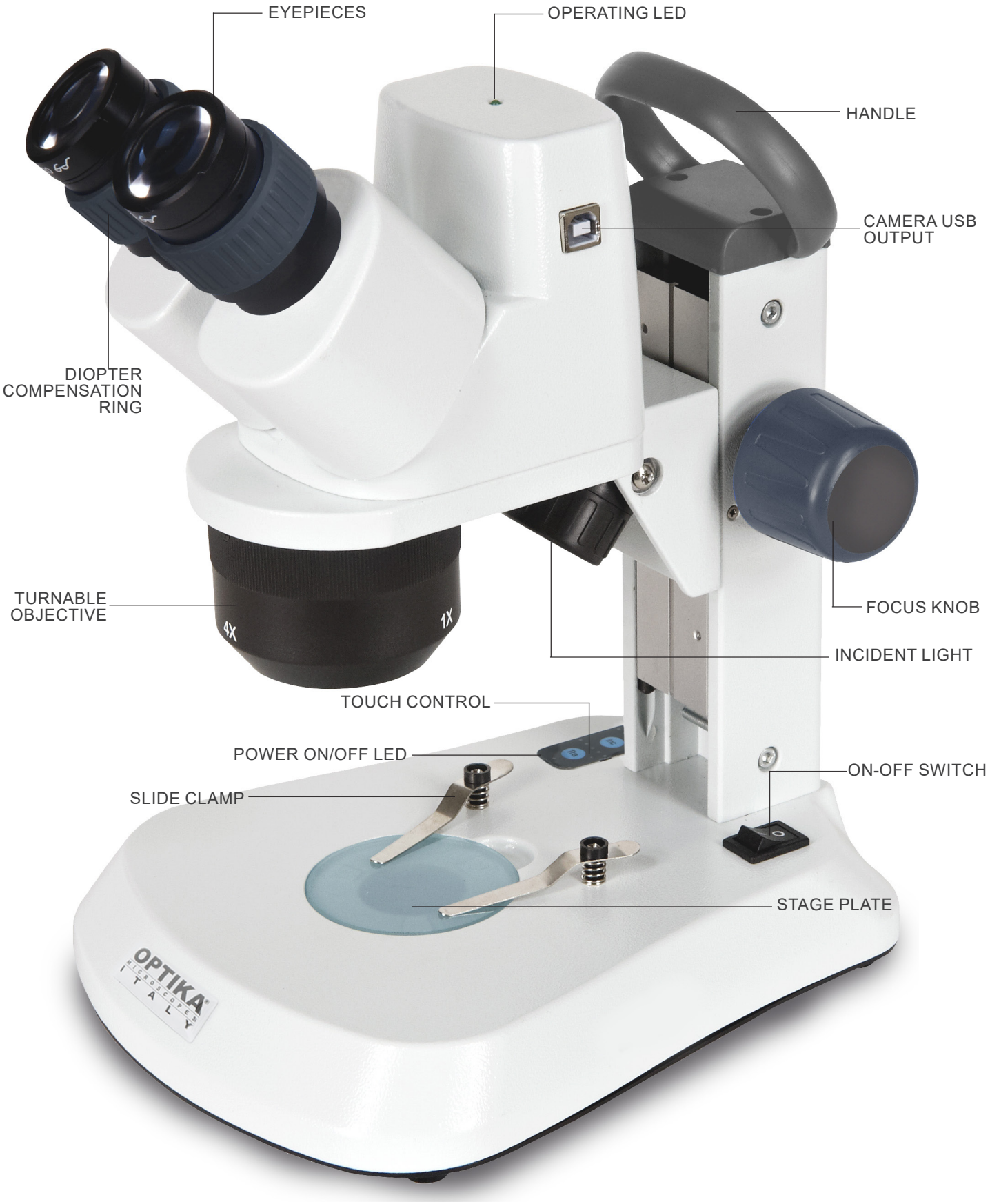
7.3 SFX-51


EYEPIECES
DIOPTER COMPENSATION RING
HANDLE
FOCUS KNOB
TURNABLE OBJECTIVE
INCIDENT LIGHT
STAND
TOUCH CONTROL
SLIDE CLAMP
POWER ON/OFF LED
STAGE PLATE
WF 10X/Ø20
WF 10X/Ø20
2X
OPTIKA
MICROSCOPES
ITALY

7.4 SFX-91

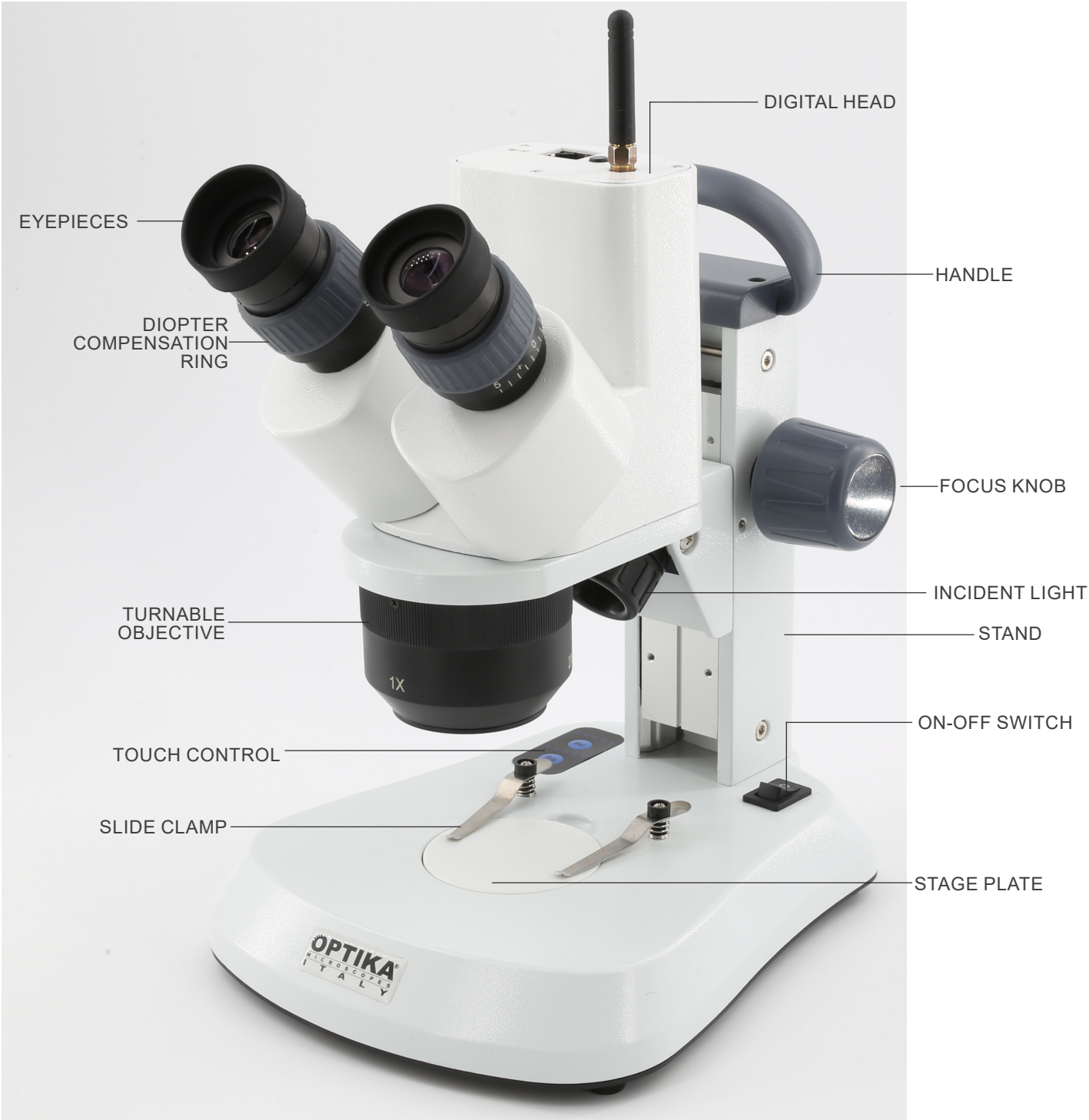

EYEPIECES
HANDLE
DIOPTER COMPENSATION RING
FOCUS KNOB
INCIDENT LIGHT
TURNABLE OBJECTIVE
2X
STAND
TOUCH CONTROL
ON-OFF SWITCH
BATTERY CHARGE LED
SLIDE CLAMP
STAGE PLATE
OPTIKA
MICROSCOPES
ITALY

7.5 SFX-91D

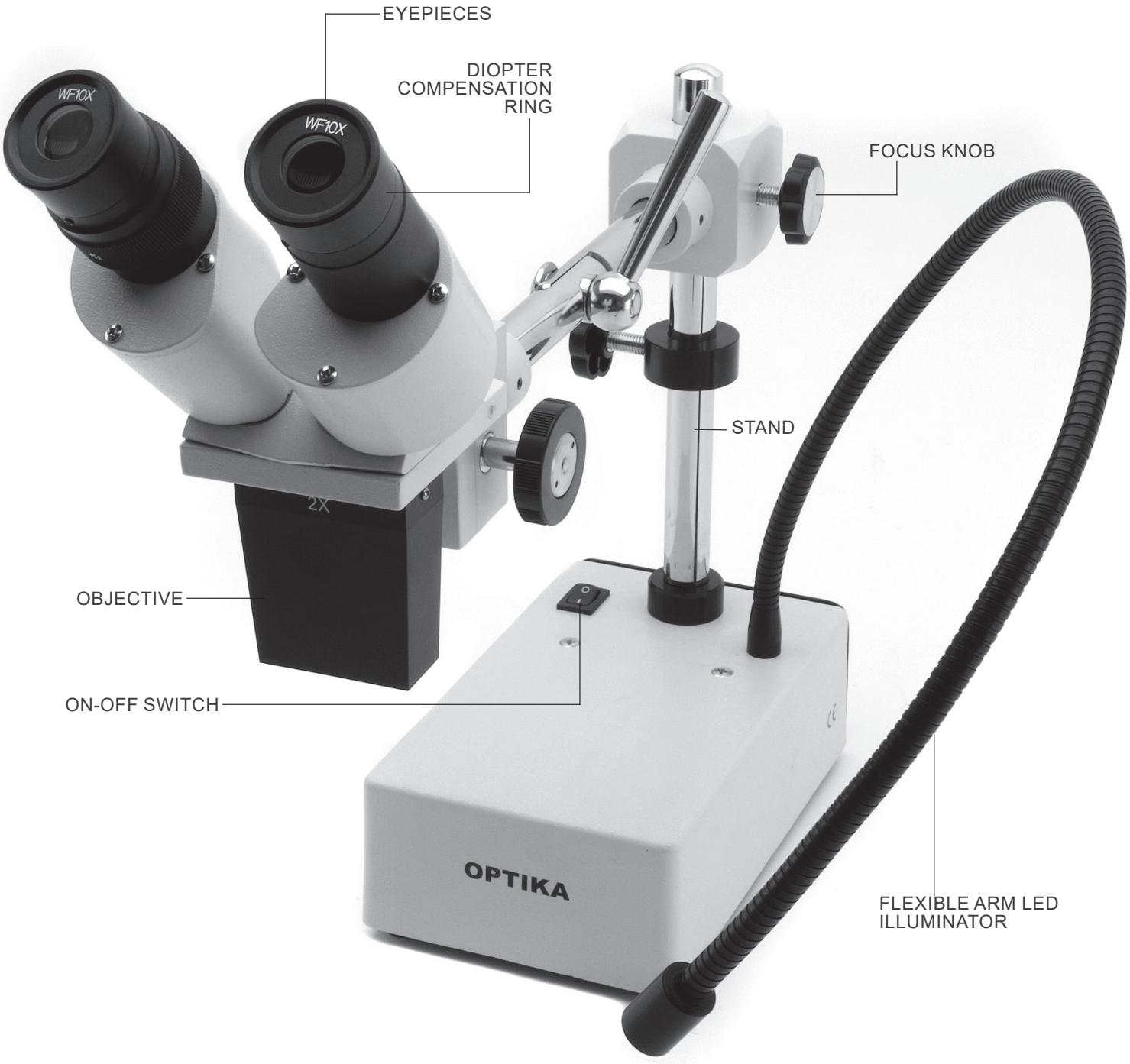

EYEPIECES
OPERATING LED
HANDLE
CAMERA USB OUTPUT
DIOPTER COMPENSATION RING
TURNABLE OBJECTIVE
4X
1X
FOCUS KNOB
INCIDENT LIGHT
TOUCH CONTROL
POWER ON/OFF LED
ON-OFF SWITCH
SLIDE CLAMP
STAGE PLATE
OPTIKA
MICROSCOPES
ITALY

7.6 SFX-91DW


LAN SOCKET
MICRO USB SOCKET
POWER LED
AP/STA MODE LED
WIFI ANTENNA
AP/STA MODE BUTTON


DIGITAL HEAD
EYEPIECES
HANDLE
DIOPTER COMPENSATION RING
FOCUS KNOB
INCIDENT LIGHT
TURNABLE OBJECTIVE
STAND
ON-OFF SWITCH
TOUCH CONTROL
SLIDE CLAMP
STAGE PLATE
1X
OPTIKA
MICROSCOPES
ITALY

7.7 ST-50LED


EYEPIECES
DIOPTER
COMPENSATION
RING
FOCUS KNOB
STAND
OBJECTIVE
ON-OFF SWITCH
FLEXIBLE ARM LED
ILLUMINATOR
WF10X
WF10X
2X
OPTIKA

8. Assembling

No installation procedure is required for these models.

The only thing you need to do is to connect the power supply (or power cable) to the microscope and the wall socket.

9. Use of the microscope

9.1 Placing the specimen

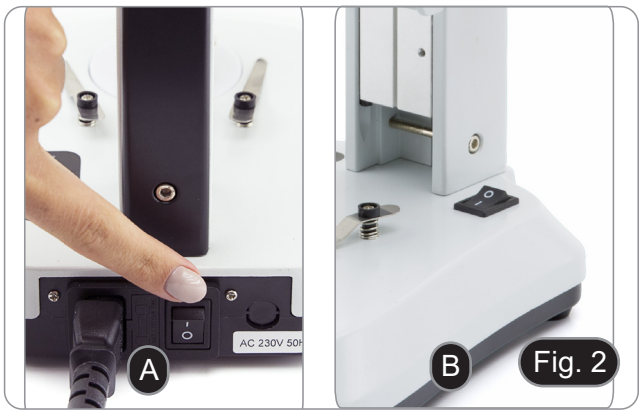
Place the specimen on the microscope stage and lock the specimen using the slide-clamp if it is necessary.

- Ensure that the specimen is centered over the stage opening. (Fig.1)

9.2 Turning on the light

- The microscope comes with an electrical illuminator.

1. Insert the plug of the cable into the power socket (or the power supply jack in the socket).
2. Turn on the switch on the main body and select your light source. (Fig. 2A-2B)



For SFX models, repeatedly press the touch button in order to change the light intensity.

- Depending on the model, the light intensity can be adjusted with a knob on the right side of the stand. (Fig. 3)

9.3 Adjust interpupillary distance

Hold the right and left parts of the observation head by both hands and adjust the interpupillary distance by turning the two parts until one circle of light can be seen.

- If two circles appear, the interpupillary distance is too big.
- If two overlapped circles appear, the interpupillary distance is too small. (Fig. 1)

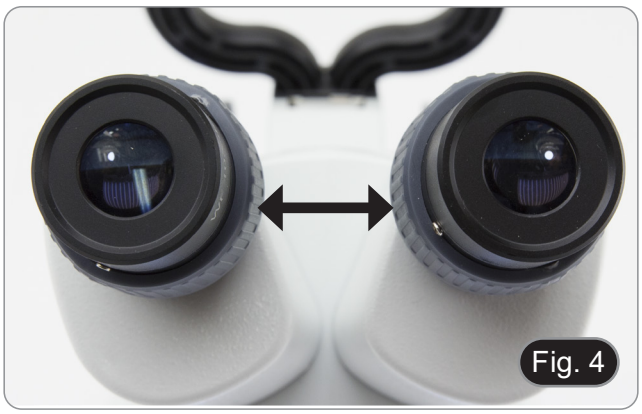


Fig. 4

9.4 Focus

Rotate the focusing knob to bring the sample in focus. (Fig. 5)


Fig. 5

9.5 Diopter compensation

This compensation makes it possible for people with glasses to adjust the microscope to their eyes and use the microscope without glasses.

1. Adjust the diopter compensation ring of the right eyepiece tube until the image of the right eyepiece is clear and sharp. Repeat the procedure for the left eyepiece. (Fig. 6)

Fig. 6

9.6 Magnification

Select the desired magnification by rotating the objective. (Fig. 7)

- Total magnification used can be calculated as:

Eyepiece magnification x Objective lens magnification.

Fig. 7

9.7 Contrast disc

- Two discs are supplied: a frosted glass disc and a white/ black plastic disc.
- For transmitted light applications the glass disc is used, while for incident light applications the black/white disc is used.

1. If observing dark objects place the disk with the white side facing up.
2. If observing bright objects place the disk with the black side facing up. (Fig. 8)

9.8 Inserting the batteries

(Models with rechargeable batteries)

- Before you start using the instrument, you must insert the rechargeable batteries.

1. Open the battery cover (located on the bottom of the instrument) and insert the provided batteries, taking care to respect the polarities. (Fig. 9-10)
2. When finished, close the battery cover again.

- **Rechargeable batteries are not included; it is necessary to use 3x AA rechargeable NiMh 1.2V.**

9.9 Power ON-OFF LED

(Except SFX-31)

LED ① indicates the power status of the microscope. (Fig. 11)
LED ON (green): power supply connected or charged batteries inserted.
LED OFF (no color): Power supply not connected or batteries discharged or not inserted.

9.10 Centering 1X objective (ST-50LED)

- **This procedure may be required if you want to use the 1X objective on the ST-50LED stereomicroscope.**

It may happen that once the 1x objective is mounted on the microscope, the images that are observed in the two eyepieces are not perfectly aligned and one of the two images is shifted. (Fig. 12)

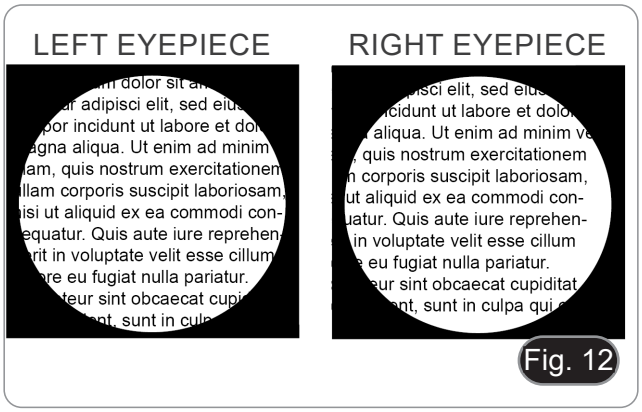


Fig. 12

1. Remove the two silver screws from the 1x objective lens body. (Fig. 13)
2. Remove the plastic cover of the objective lens.


Fig. 13

3. Place a sheet of paper under the microscope and focus on a recognizable detail within the paper, looking through the right eyepiece.
4. Now observe in the left eyepiece and, using three Allen wrenches, tighten or unscrew the three screws that hold the left lens in place.

- This operation ensures that the image observed in the left eyepiece is consistent with the image observed in the right eyepiece (i.e., that there is no obvious mismatch between the images observed at the two eyepieces).

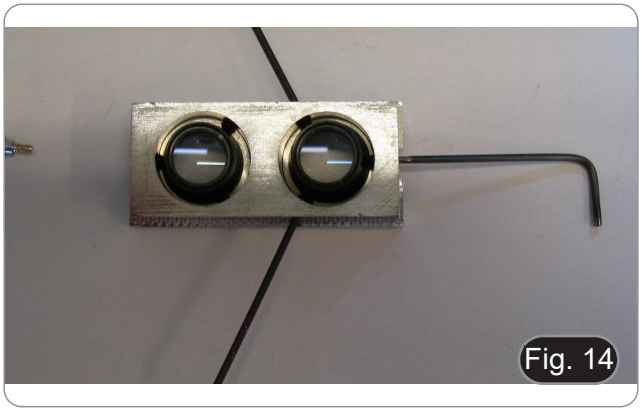


Fig. 14

5. The final result of the centering operation should be something similar to what is shown in Fig. 15.
6. Once the centering operation is complete, replace the plastic lens cover and reinstall the silver screws. (Fig. 13)

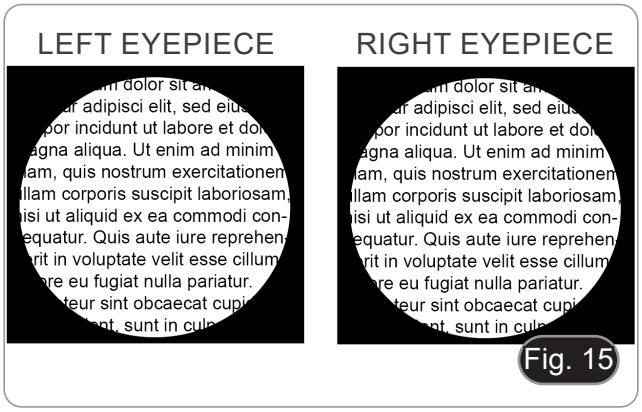


Fig. 15

10. Use of built-in camera

10.1 SFX-91D

The software can be downloaded using the QR code printed on the booklet provided with the manual or using the following link: *https://www.optikamicroscopes.com/optikamicroscopes/product/sfx-91d/*

1. Open the folder **Capture - SFX-91D** and run the .exe file**.**
2. You will be prompted to install some add-ons: allow installation of all.
3. At the end of the installation the Capture 3.0 icon appears on your desktop.
4. System is ready.

10.2 SFX-91DW

The camera is driven by a software.
It can be used with Windows, IOS and Android operating systems.

1. When used with Windows operating system, two levels of software are available: PROVIEW and LITEVIEW.

Inside the package is enclosed a Function Table showing the several software functions.
It will be the user's responsibility to decide which level of software best meets his needs.

The software can be downloaded from the site:
http://www.optikamicroscopes.com/optikamicroscopes/optika-support/download-drivers-softwares/

Once the file has been downloaded, you will have to run the setup.exe file.
At the end of the installation it is possible to start the software.

- **NOTE: no driver installation is required for the cameras. The software setup procedure automatically installs all the needed drivers for the correct operation of the camera**.

The software's User Manual is available in PDF format within the application itself and can be opened using the "F1" function key.
You must have Acrobat Reader installed to view the manual.

The manual contains all the operating instructions for using the camera and for the various functions of the software.

2. When used with IOS or Android operating system, one App is available: Optika Mobile View.

The App can be downloaded from the App Store or Google Play Store.

① WiFi antenna
② AP/STA button
③ AP/STA LED
④ LAN port
⑤ Micro USB port
⑥ Power LED

10.2.1 PC camera connection

The camera is powered via micro USB cable.

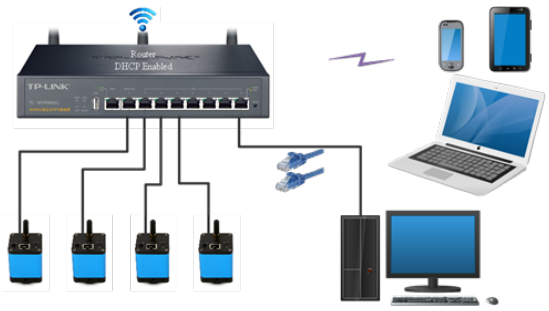
1. Connect the micro USB side of the provided cable to the micro USB camera port ⑤.
2. Connect the USB side of the provided cable to one of the USB port in your PC.
3. Launch the Proview or Liteview software.
4. Manage the camera using the software to control all function.

10.2.2 LAN camera connection

The camera is powered via mini USB cable.
In LAN mode, the camera connects to a router by Ethernet cable.

You can connect one or more cameras to the router by Ethernet cable for network applications.

1. Install the Proview or Liteview software on your PC. Or, install the free Optika Mobile View App on the mobile device.
2. Connect the micro USB side of the provided cable to the micro USB camera port ⑤.
3. Plug the USB side of the cable to a USB power adapter (not supplied).
4. Plug the power adapter to a wall outlet.
5. Connect the camera and the router by plugging the Ethernet cable into the LAN port ④: if the connection is successful, the network indication LED will be off and the LAN indicator will be light up.
6. Make sure that your PC or your mobile device is connected to the router (by LAN or WiFi).
7. Start the Proview or Liteview software or Optika Mobile View App and check the configuration.
8. Normally, active cameras are automatically recognized. The connected cameras will be listed in the *Camera List* group of the Camera Control Bar of Proview or Liteview on PC.
9. On mobile device, connected cameras will be listed in the Camera Thumbnail page of Optika Mobile View App.
10. Click the corresponding camera to start live image.



10.2.3 WiFi camera connection (AP mode)

The camera is powered via micro USB cable.

- **A camera can be connected to a maximum of three devices at the same time.**
- **The WiFi signal generated by the camera may conflict with the signal generated by a second camera in the same room. In order to avoid interference between the signals (slowing down of the live image or black screen), it is recommended not to install more than 6 cameras in a room of approximately 60 sq. mt. Furthermore, the mobile device connected to the camera should be close enough to the camera itself.**
- **If more than 6 cameras are to be installed in the same room, it is necessary to proceed in STA mode.**

10.2.3.1 Windows operating system

- The PC must be equipped with a WiFi receiver to handle the WiFi signal generated by the camera.

1. Connect the micro USB side of the provided cable to the micro USB camera port ⑤.
2. Plug the USB side of the cable to a USB power adapter (not supplied).
3. Plug the power adapter to a wall outlet.
4. Press the AP/STA button ②. The operating LED ③ will light up in green when AP mode is selected.
5. In the “Network Settings and Internet” of your PC select the WiFi device **WEUCAM4MPA-xxxxx**.

- The password for connecting the camera is “12345678”.

6. Launch the Proview or Liteview software.
7. Manage the camera using the software to control all function.

10.2.3.2 IOS / Android operating system

1. Connect the micro USB side of the provided cable to the micro USB camera port ⑤.
2. Plug the USB side of the cable to a USB power adapter (not supplied).
3. Plug the power adapter to a wall outlet.
4. Press the AP/STA button ②. The operating LED ③ will light up in green when AP mode is selected.
5. In the “Settings” of your device select the WiFi device **WEUCAM4MPA-xxxxx**.

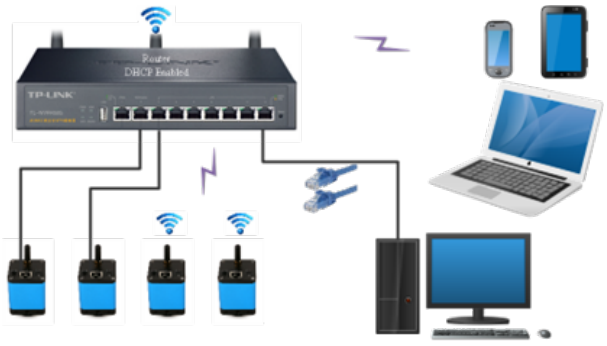
- The password for connecting the camera is “12345678”.

6. Launch the Optika Mobile View App.
7. Manage the camera using the App to control all function.

10.2.4 WiFi camera connection (STA mode)

The camera is powered via micro USB cable.

- **In STA mode, the camera is supposed to connect to a router.**
- **A WiFi router can usually provide 9 signals, which means 9 cameras can be connected to the router.**
- **Assuming 4 WiFi routers are installed in a room, we ensure that 36 cameras can coexist in a room without interference from WiFi signals.**



1. Connect the micro USB side of the provided cable to the micro USB camera port ⑤.
2. Plug the USB side of the cable to a USB power adapter (not supplied).
3. Plug the power adapter to a wall outlet.
4. Press the AP/STA button ②. The operating LED ③ will light up in blue when STA mode is selected.

- This means the camera is in STA mode and has connected to the router (See Chapter 11 on how to set the router’s name and password in the camera).

5. Make sure that your PC or your mobile device is connected to the router (by LAN or WiFi).
6. Start the Proview or Liteview software or Optika Mobile View App and check the configuration.
7. Normally, active cameras are automatically recognized. The connected cameras will be listed in the *Camera List* group of the Camera Control Bar of Proview or Liteview on PC.
8. On mobile device, connected cameras will be listed in the Camera Thumbnail page of Optika Mobile View App.
9. Click the corresponding camera to start the stream.

- **Note on data security**

The data transfer of the camera when working in LAN or WiFi is not encrypted. Anyone who is connected to the network and has installed the Optika software or Optika App, can see the live image of all active cameras.

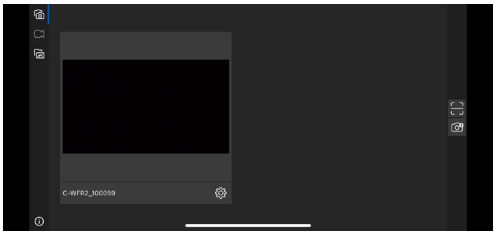
- **About the routers/switches**

It is suggested that routers/switches supporting 802.11ac 5G segment should be selected to achieve better wireless connection experience.

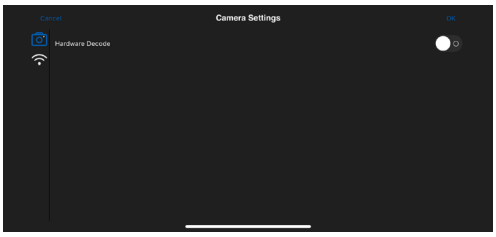
11. Configure the Camera's WiFi STA Mode's SSID and Password

Referring to Section 10.2.4, the detailed steps are as follows:

1. Connect the WEUCAM4MPA camera working in WiFi AP mode using IOS or Android devices.
2. Launch the Optika Mobile View App.



3. Press the configuration button in the camera thumbnail above to pop up the interface for selecting WiFi SSID.
4. A new dialog box will appear:



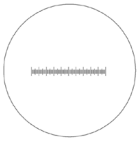
5. Tap on the WiFi icon on the left side of the screen.
6. A dialog box containing all the available WiFi router (SSID) will appear.

7. Select the SSID to be connected (for example OPTIKA_1) and input the Password (12345678).
8. Press OK to finish the SSID and Password setup process.

9. If the pop-up dialog box does not have the desired SSID, tap the Add WLAN item on the bottom and input SSID name and Password manually (the current SSID is OPTIKA_1 and the password is 12345678).
10. After completion, press the button to switch to STA mode. The camera WiFi will be connected to the designated router in STA mode for operation, and the camera network LED indicator will turn blue.

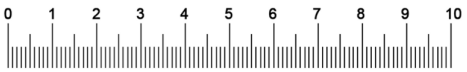
12. Micrometric Slide M-005

Micrometric slide, 26x76mm, with 2 scales
(1mm/100div. for biological microscopes / 10mm/100div. for stereo microscopes)



1 DIV=0.01mm

For biological microscopes calibration



1 DIV=0.1mm

For stereo microscopes calibration

13. Maintenance

Microscopy environment

This microscope is recommended to be used in a clean, dry and shock free environment with a temperature of 5°-40°C and a maximum relative humidity of 75 % (non condensing). Use a dehumidifier if needed.

To think about when and after using the microscope

- The microscope should always be kept vertically when moving it and be careful so that no moving parts, such as the eyepieces, fall out.
- Never mishandle or impose unnecessary force on the microscope.
- Never attempt to service the microscope yourself.
- After use, turn off the light immediately, cover the microscope with the included dust cover, and keep it in a dry and clean place.

Electrical safety precautions

- Before plugging in the power supply, make sure that the supplying voltage of your region matches with the operation voltage of the equipment and that the lamp switch is in OFF position.
- Users should observe all safety regulations of the region. The equipment has acquired the CE safety label. However, users do have full responsibility to use this equipment safely.

Cleaning the optics

- If the optical parts need to be cleaned try first to: use compressed air.
- If that is not sufficient: use a soft lint-free piece of cloth with water and a mild detergent.
- And as a final option: use the piece of cloth moistened with a 3:7 mixture of ethanol and ether.
- **Note: ethanol and ether are highly flammable liquids. Do not use them near a heat source, near sparks or near electric equipment. Use these chemicals in a well ventilated room.**
- Remember to never wipe the surface of any optical items with your hands. Fingerprints can damage the optics.
- Do not disassemble objectives or eyepieces in attempt to clean them.

For the best results, use the OPTIKA cleaning kit (see catalogue).

If you need to send the microscope to Optika for maintenance, please use the original packaging.

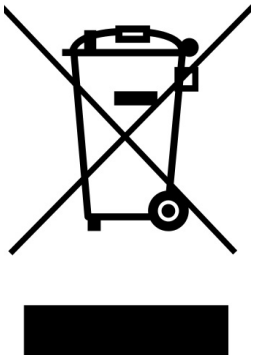
14. Troubleshooting

Review the information in the table below to solve operating problems.

PROBLEM	CAUSE	SOLUTION
I. Optical Section:		
The illumination is ON, but the field of view is dark	The plug is not connected to the illumination	Connect the cable
	The brightness is too low	Adjust to a proper setting
The edge of the field of view is vignetted or the brightness is asymmetric	The incident illuminator is not correctly oriented	Change the angle of the incident illuminator
Dust and stains can be seen in the field of view	There are stains and dust on the specimen	Clean the specimen
	There are stains and dust on the eyepiece	Clean the eyepiece
Poor image quality: • The image is not sharp • The contrast is not high • The details are not clear • Image glares	The lenses (additional lens, objective, eyepieces) are dirt	Thoroughly clean all the optical system
One side of the image is out of focus	The specimen is out of place (tilted)	Place the specimen flat on the stage
II. Mechanical Section:		
The focus knob is hard to turn	The tension adjustment collar is too tight	Loosen the tension adjustment collar
The focus is unstable	The tension adjustment collar is too loose	Tighten the tension adjustment collar
III. Electric Section:		
The LED doesn't turn on	No power supply	Check the power cord connection
The brightness is not enough	The brightness adjustment is low	Adjust the brightness
The light blinks	The power cord is poorly connected	Check the power cord
IV. Viewing tube assembly:		
The field of view of the two eyes is different	The interpupillary distance is not correct	Adjust the interpupillary distance
	The diopter correction is not right	Adjust the diopter correction
	The viewing technique is not correct, and the operator is straining the eyesight	When look into the eyepieces, do not stare at the specimen but look at the whole field of view. Periodically, move the eyes away to look at a distant object, then back into the eyepieces

Equipment disposal

Art.13 Dlsg 25 July 2005 N°151. “According to directives 2002/95/EC, 2002/96/EC and 2003/108/EC relating to the reduction in the use of hazardous substances in electrical and electronic equipment and waste disposal.”



The basket symbol on equipment or on its box indicates that the product at the end of its useful life should be collected separately from other waste. The separate collection of this equipment at the end of its lifetime is organized and managed by the producer. The user will have to contact the manufacturer and follow the rules that he adopted for end-of-life equipment collection. The collection of the equipment for recycling, treatment and environmentally compatible disposal, helps to prevent possible adverse effects on the environment and health and promotes reuse and/or recycling of materials of the equipment. Improper disposal of the product involves the application of administrative penalties as provided by the laws in force.

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