ED.3000

Blue*Line* Series

euromex
microscopes holland

user manual

v.629441

Contents

Introduction

Thank you for purchasing the Euromex ED.3000

The ED.3000 type microscopes are developed for use at schools and laboratories. Specific attention to production methods resulted also in an excellent price/performance ratio

Please read this manual carefully before using this product to ensure correct and safe usage

- The content of this manual is subject to change without notice
- The appearance of the actual product can differ from the models described in this manual
- Not all equipment mentioned in this manual has to be part of the set you have purchased
- All optics are anti-fungus treated and anti-reflection coated for maximum light throughput

Notes on handling and safety

Handle with care

- This product is a high quality optical instrument. Delicate handling is required
- Avoid subjecting it to sudden shocks and impacts
- Impacts, even small ones, can affect the precision of the objective

Handling the LED

Note: Always disconnect the power cord from your microscope before handling the LED bulb and power unit and allow the system approximately 35 minutes to cool down to avoid burns

- Never touch the LED with your bare hands
- Dirt or fingerprints will reduce the life span and can result in uneven illumination lowering the optical performance
- Use only Euromex original replacement LEDs
- Use of other products may cause malfunctions and will void warranty
- During use of the microscope, the power unit will get hot, never touch it while in operation and allow the system approximately 35 minutes to cool down to avoid burns

Dirt on the lenses

- Dirt on or inside the optical components, such as eyepieces, lenses, etc., affect the image quality of your system negatively
- Always try to prevent your microscope from getting dirty by using the dust cover
- Prevent leaving fingerprints on the lenses and clean the outer surface of the lens regularly
- Cleaning optical components is a delicate matter. Please read the cleaning instructions in this manual carefully

Environment, storage and use

- This product is a precision instrument and it should be used in a proper environment for optimal use
- Install your product indoors on a stable, vibration free and level surface
- Do not place the product in direct sunlight
- The ambient temperature should be between -5 to +40°C and humidity is maximum 80% at 31 degrees decreasing linearly to 50% at 40 degrees. Although the system is anti-mold treated, installing this product in a hot, humid location may still result in the formation of mold or condensation on lenses, impairing performance or causing malfunctions
- Never turn the right and left focus knobs in opposite directions at the same time or turn the coarse focus knob past its farthest point, this will damage the microscope
- Never use undue force when turning the knobs
- Make sure that the microscope system can dissipate its heat
- Keep the microscope approximately 15 cm free from walls and obstructions
- Never turn the microscope on when the dust cover is in place or when items are placed on the microscope
- Keep flammable fluids, fabric etc. well out of the way

Disconnect power

- Always disconnect your microscope from power before doing any maintenance, cleaning, assembling or replacing LEDs to prevent electric shocks

Prevent contact with water and other fluids

- Never allow water or other fluids to come in contact your microscope, this can cause short circuiting your device, causing malfunction and damage on your system

Suffocation hazard

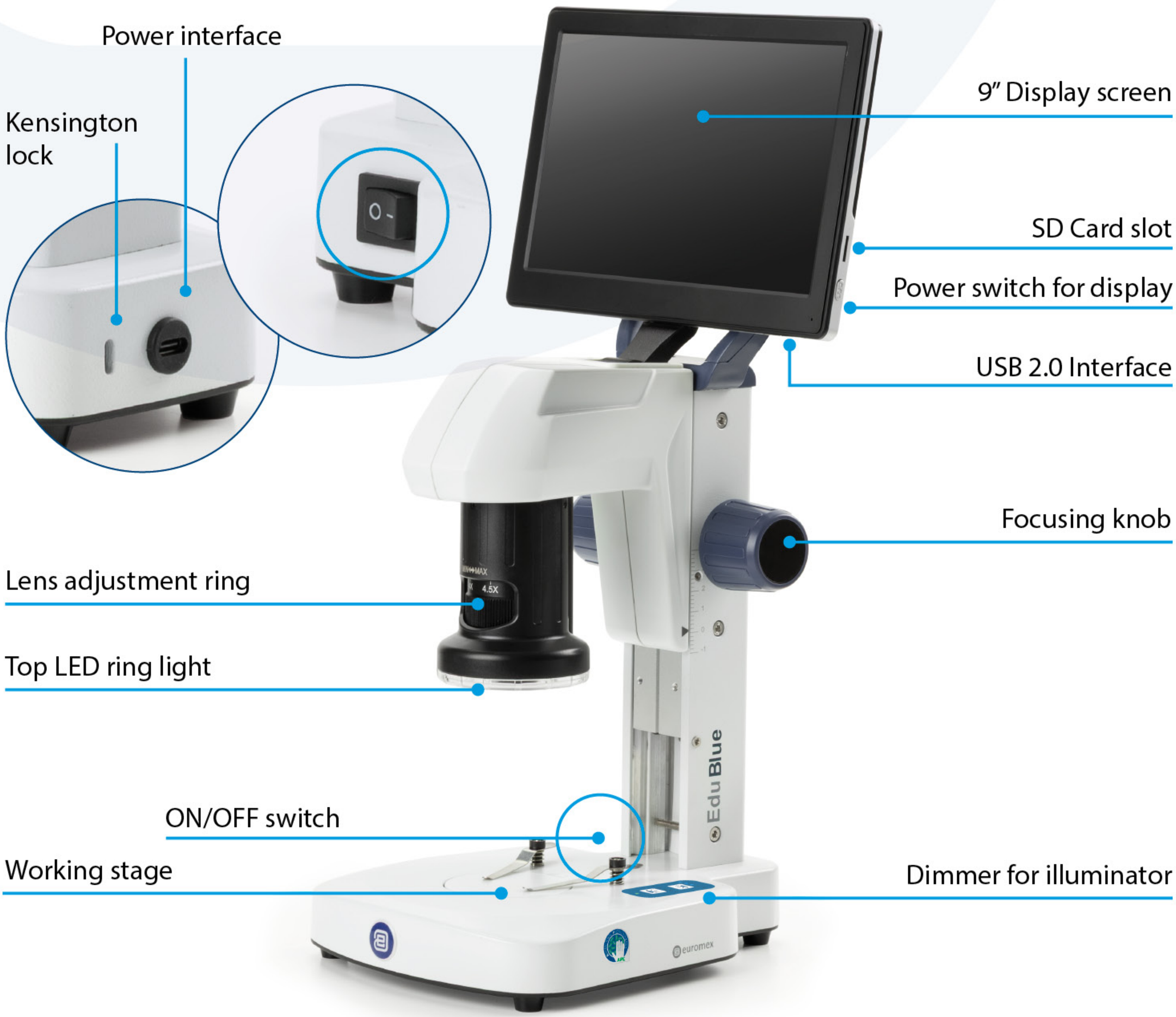
The packaging can contain protective plastic bags without perforations, as well as dust protection bags that could be pulled over the head of a child. To avoid danger of suffocation:

- Keep the bags away from babies and children
- Tie a knot in plastic bags before throwing them out
- Plastic bags should be stored out of reach of children
- The installation and use of this product must always be supervised by a qualified adult

Moving and assembling

- The ED.3000 microscope is a relatively heavy system. Consider this when moving and installing the system
- Always lift the microscope by holding the main body and base of the microscope
- Never lift or move the microscope by its focusing knobs, stage or head
- When needed, move the microscope with two persons instead of one

Components



Maintenance

- All lens surfaces should be kept clean. It can be lightly wiped off by cotton cloth to remove. And it can be gently wiped with a neutral detergent or Euromex cleaning agent if dirt or fingerprints are present
- Organic substances should not be used
- Optical parts should be cleaned with dedicated cleaning agents only. No parts of the microscope should be taken apart
- When the microscope is not in use, use a dust cover

Operation

Operating environment

Room temperature at -5°C to +40°C.

The maximum relative humidity is 80% at 31°C, decreasing linearly to 50% at 40°C

Choose the working stage

The ED.3000 comes with a black/white stage as an accessory. When you want to use it, loosen the fixing screw, remove the glass table, replace it by the black/white stage. Finally tighten the fixing screw. Usually the white side of the black/white stage is upward. If the sample is white or has another light color, the black side of the black/white stage is upward to increase the image contrast. Incident light is needed in this case

Operating steps

- After putting the microscope on a stable table, turn the 9" display screen from a horizontal to a vertical position. Tear off the protective film. Insert SD card if you need to take photos or take a video. Finally, connect the mouse used to operate the display to the USB 2.0 interface of the ED.3000
- Connect the power of 100V~240V / 12V 1A, turn on the ON/OFF switch for microscope and display screen to "ON". Then adjust the light intensity for incident and transmitted light if needed
- Put the sample in the center of working stage, rotate the lens adjustment ring to the minimum position of 0.7x, then turn the focusing knob slowly until you can see a clear image on the display screen; If the magnification needs to be changed, you can rotate the lens adjustment ring, it can be changed from 0.7x to 4.5x

Technical data

Objective Lens:	0.7x - 4.5x
Reduction lens:	0.3x
Fixed working distance:	100 mm
Image sensor:	1/3" CMOS, 5 MP
White balance:	auto or one push white balance
Resolution:	Monitor resolution: 1024 x 600 Full image size: 2592 x 1944
Optical zoom:	8x - 51.4x
Digital zoom:	1x - 10x
Function:	capture and take videos
Output:	USB2.0 interface
Power adapter:	100V - 240V / 12V 1A
Illumination:	- Incident illumination 21 x 20 mA LED ring light, - transmitted illumination 7x 20 mA LED both are adjustable via touchable switch
Calculation of total magnification:	Objective magnification x (25.4x size of monitor in inch ÷ diagonal line of CMOS) x magnification of reduced lens

Remark:
A: 25.4 x size of monitor (mm): 1 inch = 25.4 mm
B: Sensor diagonal: 1/3" CMOS: 6 mm, 1/2" CMOS: 8 mm, 2/3" CMOS: 11 mm

For example: *When the objective magnification is 0.7x, reduce lens magnification is 0.3x,*
CMOS sensor is 1/3 inch, LCD size is 9 inch, then: Total magnification is =0.7x (25.4x 9/6) x 0.3=8x

Function Menu

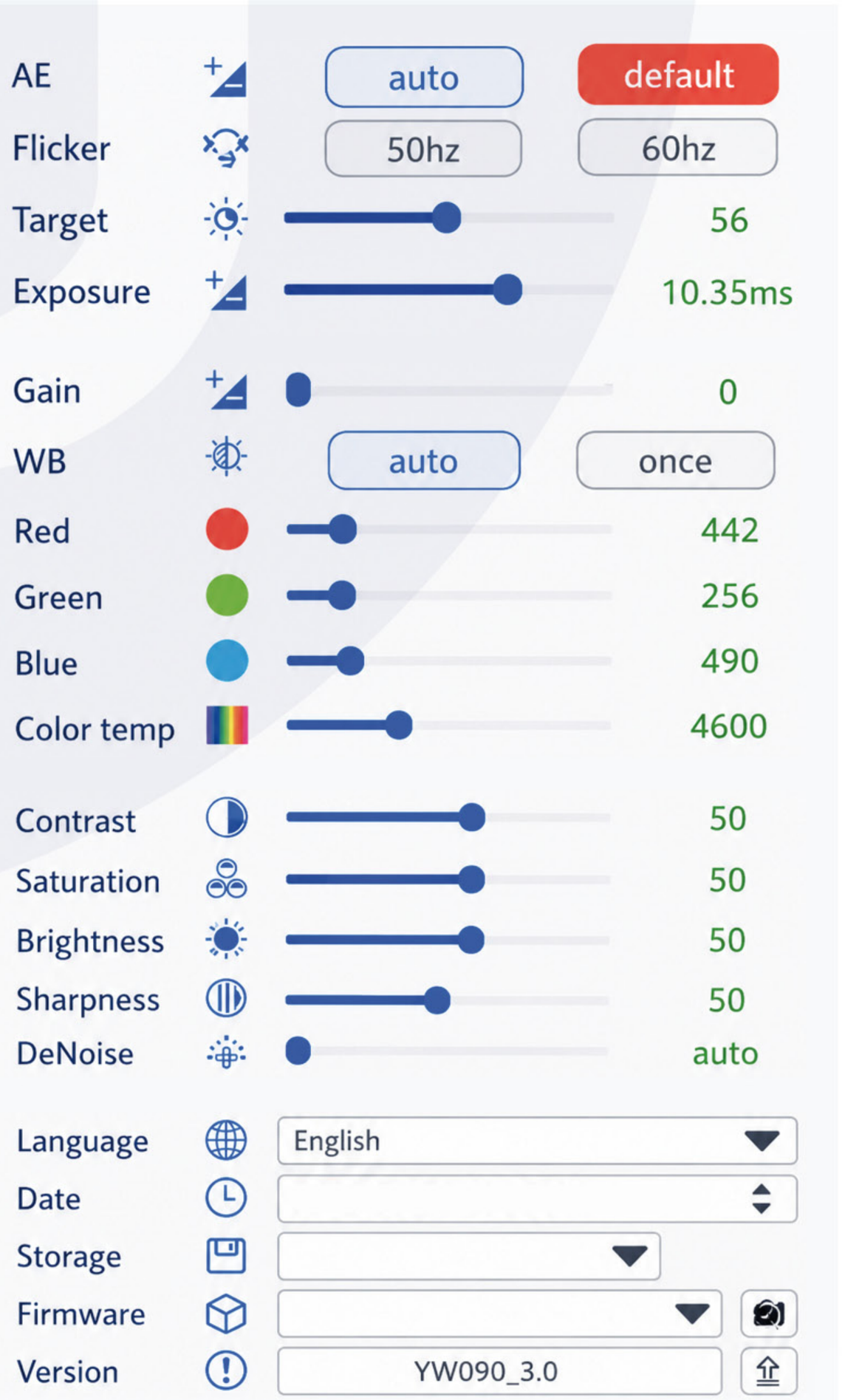
Move the mouse to the upper left corner of the display screen to open the function menu

Note: *the key switch on the right border of the display screen is used to turn the display on or off, not the microscope on or off. In addition, before using the next screen or feature, you must first close the previous screen or feature*

Main features (1)

Image capture	Click and capture image
Video recording	Click and record video
Preview	Click to view captured images and videos
Measurement	Click to open the measurement function
Interface settings	Click to open the interface settings

Interface settings



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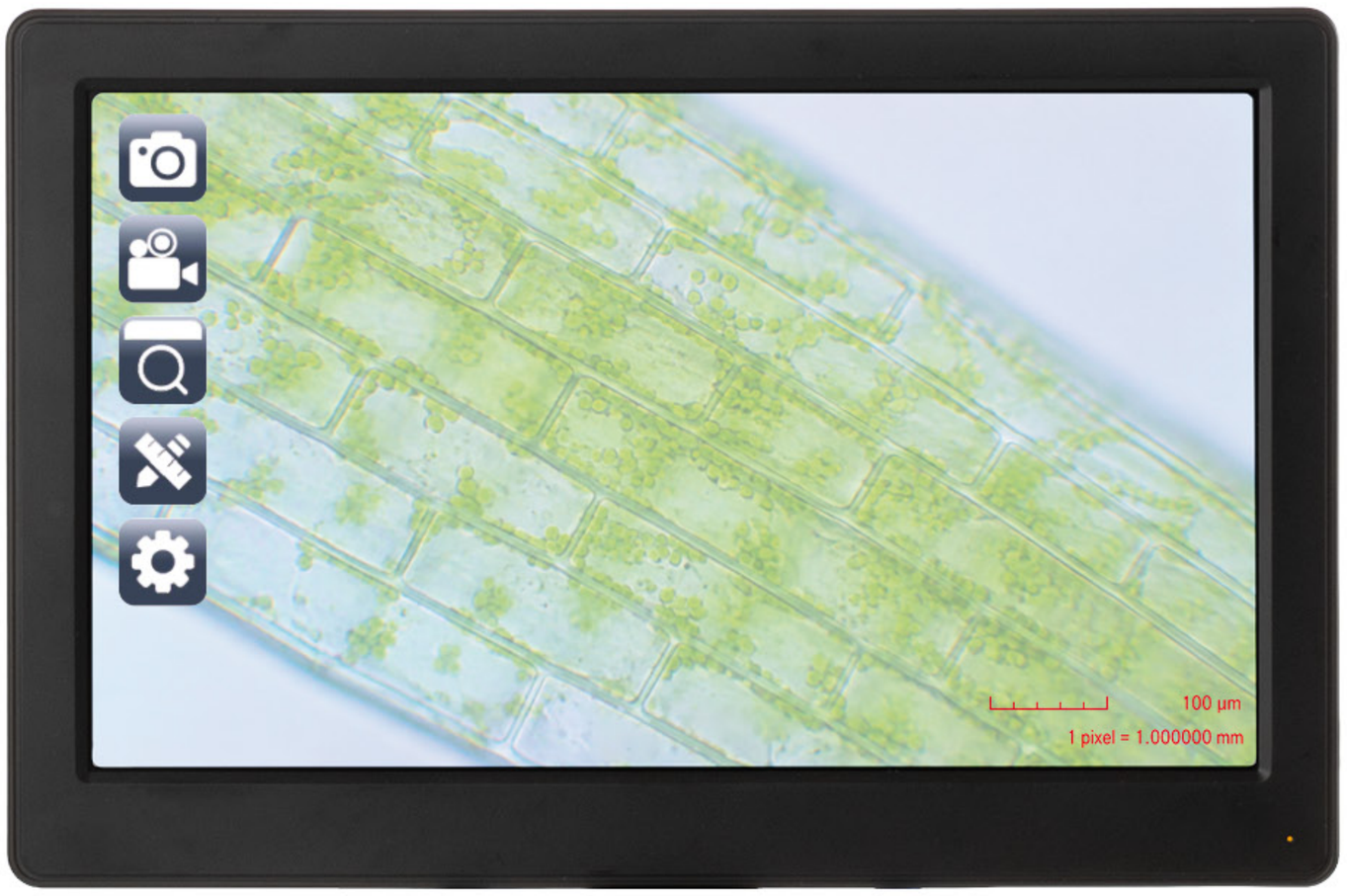


Main features

2

Quick menu function

Quick menu functions (2)

Move the mouse to the bottum of the display screen to open the quick function menu

1. Image functions include digital zoom in and out
   (you can use the mouse wheel to digitally zoom in or out in preview mode)
2. Left and right mirroring
3. Top and bottom mirroring
4. Black and white image
5. Wide dynamic range
6. Freeze
7. Grid lines
8. Font color and size settings
9. Static and dynamic two-screen comparison
10. 4-split screen comparison (when comparing 4 screens, you can freeze or open the corresponding window image with a double-click of the mouse)

1. 2. 3. 4. 5. 6. 7. 8. 9. 10.

Interface functions (3)

AE / Automatic exposure:
Click to automatically set the shutter speed and aperture value

Flicker:
Based on the local frequency, choosing 50Hz or 60Hz

Target:
Doelwaarde voor automatische belichting

Exposure:
To adjust the shutter speed

Gain
To make the image brighter

default **Default:**
To restore the settings to default

WB / White balance:
Auto or one push white balance

Red:
To adjust the value of the primary color red in the image

Green:
To adjust the value of the green color in the image

Blue:
To adjust the value of the blue color in the image

Color temp: To adjust the temperature of the emitted light color

Contrast:
To adjust the brightness of the white screen to increase contrast

Saturation:
To adjust the richness of the colors

Brightness:
To adjust the clarity of the image

Sharpness:
To adjust the contrast of the image edge, the leftmost is automatic

DeNoise
To adjust the image noise, the leftmost is automatic

Language:
To select the menu language

Date
To set the date and time

Storage
To select the storage location

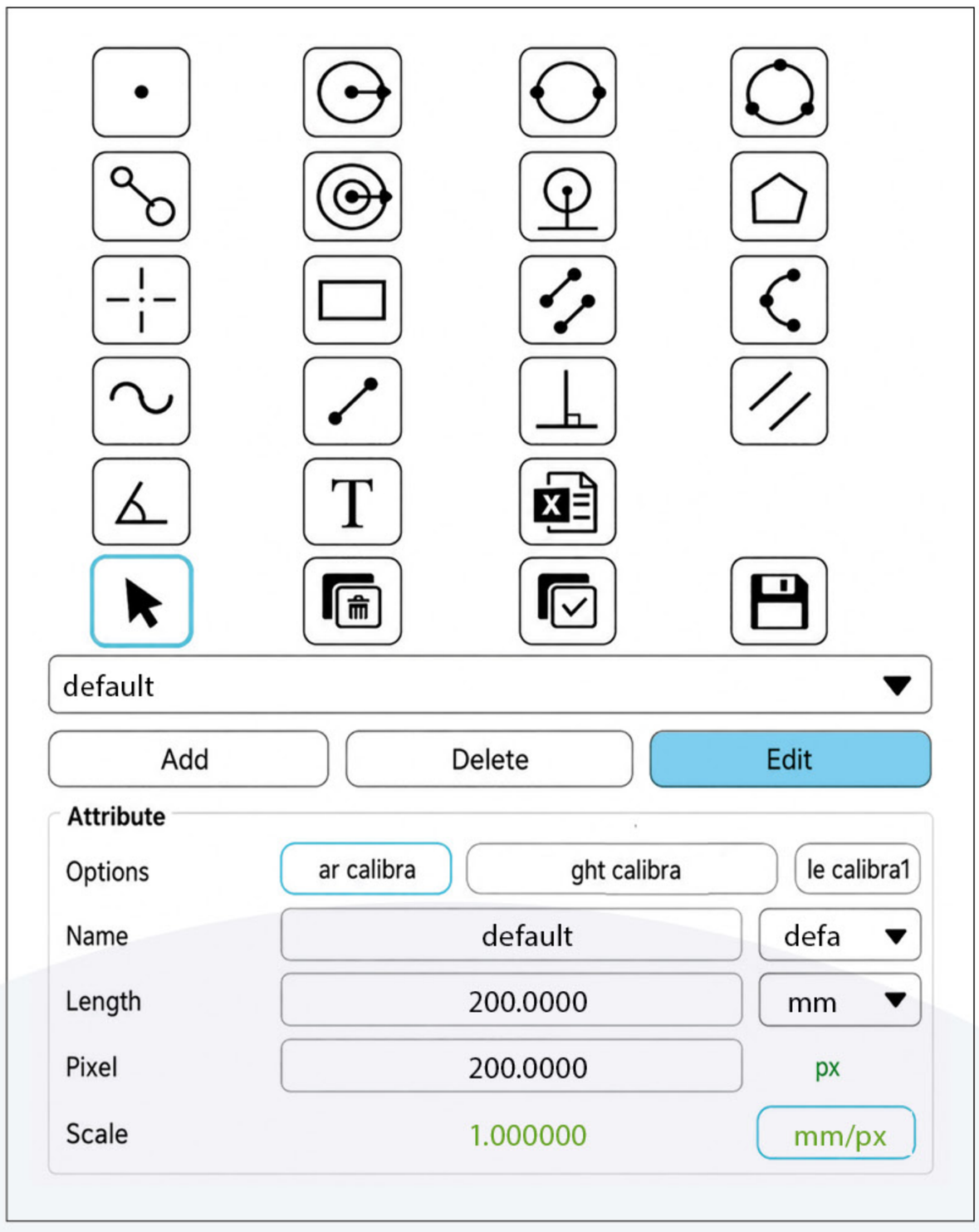
Firmware
To update the camera firmware

Version
To display the current firmware version

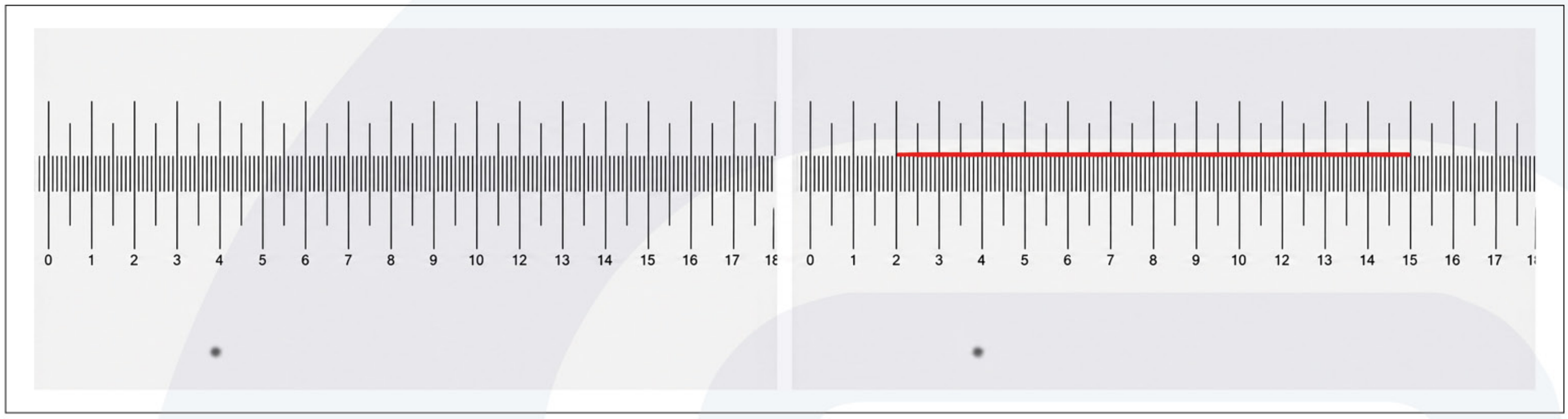
3

Click the gear icon (Interface Settings) to open the menu

Measurement



1. Place a ruler or another item with known measurements, such as a calibration slide, underneath the microscope and bring it into focus
2. Click the Measurement icon to open the calibration interface shown above
3. Click Edit and enter a name for the calibration in the Name field, for example newCalibration3 or 40x
4. Move your mouse to the image display window and draw a line across the ruler or scale
5. Enter the corresponding length in the Length field
6. Click Save to complete the calibration
7. To calibrate multiple magnifications, repeat the steps above for each magnification



Calibration example: draw a line over a known distance on the reference scale

Measurment functions

Point drawing: click the button with the mouse, click confirm in the interface, you can draw points and display the coordinates of points

Radius drawing circle: click the button with the mouse, click any little bit in the interface to determine the center of the circle, click the second time to determine the distance to the center of the circle, and measure the area and circumference of the circle displayed

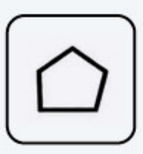
Two-point drawing circle: click the mouse button, click any point on the interface to determine the circle, click confirm circle again, measure the circumference and area of the circle displayed

Three-point drawing circle: after clicking the mouse button, click any three points on the interface to determine the circumference and area of the circle

Measuring the distance between two circles: after clicking the mouse button, click any little bit in the interface to determine the center of the circle, click the second time to determine the first circle, click the third time to confirm the center of the second circle, click the fourth time to confirm the second circle, and measure the distance between the centers of two circles

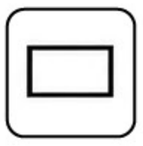
Concentric circles: click the mouse button, in the interface any little click to determine the center of the circle, the second click to determine the first circle, the third click to determine the second circle, measured as the distance between the two circles

Distance between line and circle: click the button with the mouse, click any little bit in the interface to determine the center of the circle, click the second time to determine the circle, click the third time to determine the distance between the line and the center of the circle, and measure the distance between the point and the center of the circle



Polygon: After clicking the button with the mouse, click randomly in the interface to determine a corner, each click will add a corner, the last click should coincide with the point of the first click, measure the perimeter and area of the polygon (after confirming OK, drag the perimeter and area displayed by the cursor to the appropriate position)

Crosshairs: Click the button with the mouse, double-click the mouse to perform cross calibration



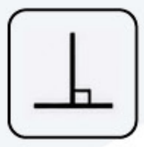
Rectangle: Click the button with the mouse, click any little bit on the interface to determine the right Angle position, click the second time to determine the circumference of the rectangle, measure the circumference and area of the rectangle (after confirming the circumference, drag the circumference and area displayed by the cursor to the appropriate position)

Broken line: Click the button with the mouse, click any point on the interface to finish the calibration

Arc: click the mouse button, in the interface of any little click to determine the starting point, the second click to determine the line, the third point and the second point line, after three radians, measure the length and radian of the arc

Curve: Click the button with the mouse, click any little bit on the interface to determine the starting point, the length of the mouse path, click the second time to determine the end point, and measure the line length.

Straight line: Click the mouse button, click any little bit in the interface to determine the starting point, click the second time to determine the distance between the starting point and the end point, and measure the length of the straight line (after drawing the line, click the mouse in the appropriate position, the length of the line will be displayed)



Vertical line: After clicking the mouse button, click any point on the interface to determine the starting point, click the second time to determine the straight line, click the third time to determine the vertical distance with the straight line, and measure the length of the vertical line (after confirming the vertical line segment, drag the length displayed by the cursor to the appropriate position)

Parallel line: after clicking the mouse button, click any little bit in the interface to determine the starting point, click the second time to determine the line, click the third time to determine the position of the parallel line, measure the distance between the two parallel lines (after drawing the line, drag the length displayed by the cursor to the appropriate position)

Angle measurement: Click the button with the mouse, click any point on the interface to determine the starting point, click the second time to determine the line, click the third time to determine the line between the second point, and measure the Angle between the two lines (after confirming the Angle, drag the Angle displayed by the cursor to the appropriate position)

Text annotation: After clicking the button, bring up the selection box for character annotation

File output: Click this button to save the file to storage space

Arrow: Click the button with the mouse, and then click any point on the interface to determine the starting point. Click the second time to confirm the direction and position of the arrow

Select delete: click this button to delete the selected items on the screen

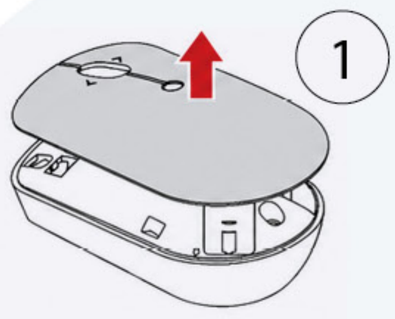
Delete all: click this button to delete all items on the screen

Screen capture: Click the button to save the screen capture to the storage space

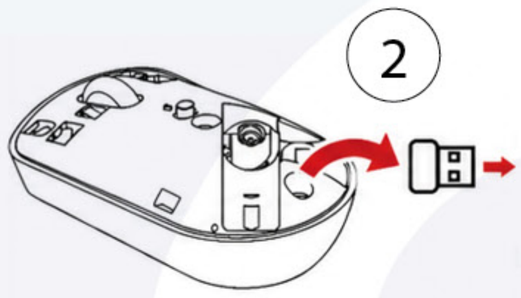
Mouse and dongle

Follow the steps below to power the mouse and connect the dongle to your microscope screen

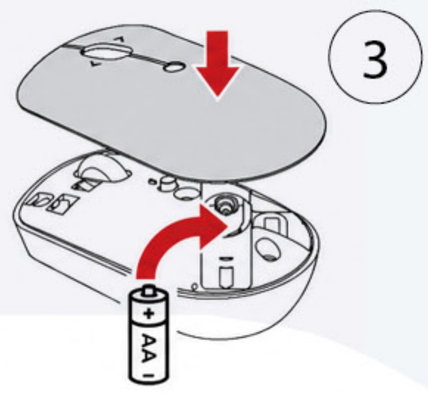
1. **Open the mouse**
   Remove the top cover of the mouse by carefully lifting it upwards



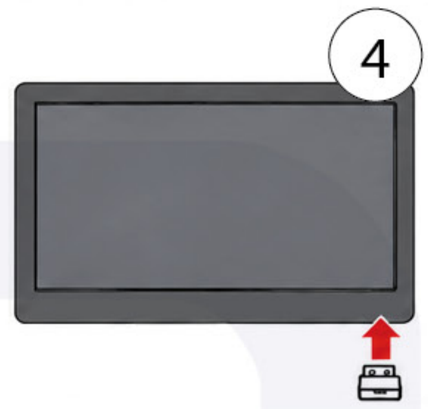
2. **Connect the dongle**
   Remove the USB dongle from its storage compartment inside the mouse and insert it into an available USB port on your LCD



3. **Insert the battery**
   Insert one AA battery into the battery compartment. Make sure the polarity (+ and –) is correct



4. **Connect the dongle**
   Insert the USB dongle into the USB port at the bottom right of the screen. Place the top cover back onto the mouse and gently press it down until it clicks into place



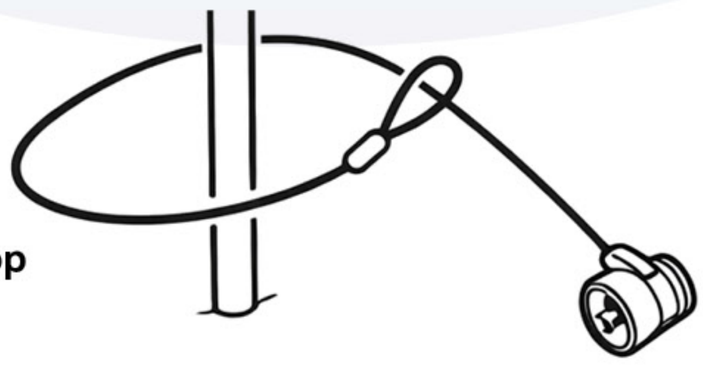
Tip: *The mouse is now ready for use. If the cursor does not move, check that the battery is inserted correctly and that the dongle is properly connected. For the best connection, connect the dongle directly to a USB port on the microscope screen*

Troubleshooting

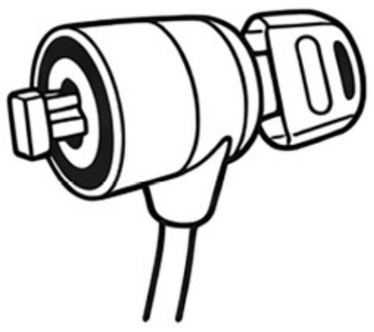
You can follow these solutions if there were some failures

Problem	Possible cause	Solution
Dirt is visible in the field of view	The sample is dirty	Clean the sample
Dirt is visible in the field of view	The objective lens is dirty	Clean the objective lens
Image is not clear	The objective lens is dirty	Clean the objective lens
Image cannot be focused properly	Incorrect focusing	Adjust the focus
Focusing knob does not operate properly	The focusing mechanism is too tight or too loose	Adjust the focusing tension
Light does not work when the power is connected	No power	Check the power connection
Light does not work when the power is connected	LED is defective	Replace the LED
Image on the display is too dark	Brightness is too low	Adjust the brightness
White balance is incorrect	White balance is not properly adjusted	Adjust the white balance manually
Image on the display is affected by the screen angle	The angle between the display screen and the microscope head is too large	Adjust the angle of the display screen
No image on the display screen	No power	Check the power supply
No image on the display screen	Switch for CMOS is not turned on	Turn on the switch

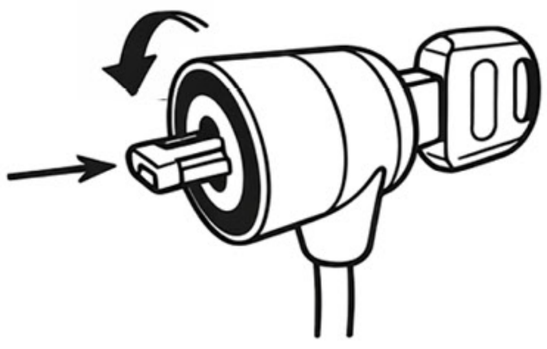
Kensington lock



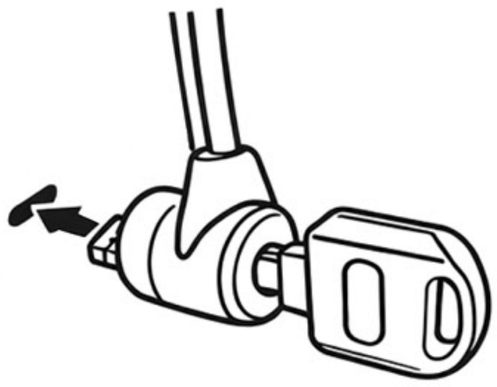
1. Fix the cable loop



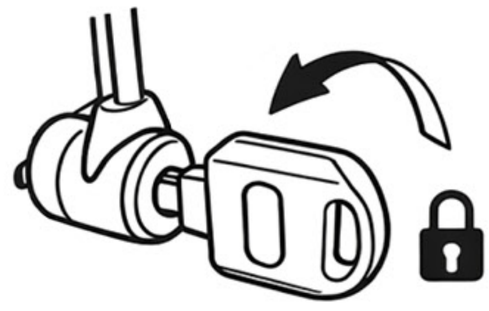
2. Insert the key



3. Turn the key to align the T bar



4. Insert in security slot on your device



5. Turn the key 180°

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