

MANUAL

TREND+



Version: 1.0
(April 2026)

TAGARNO

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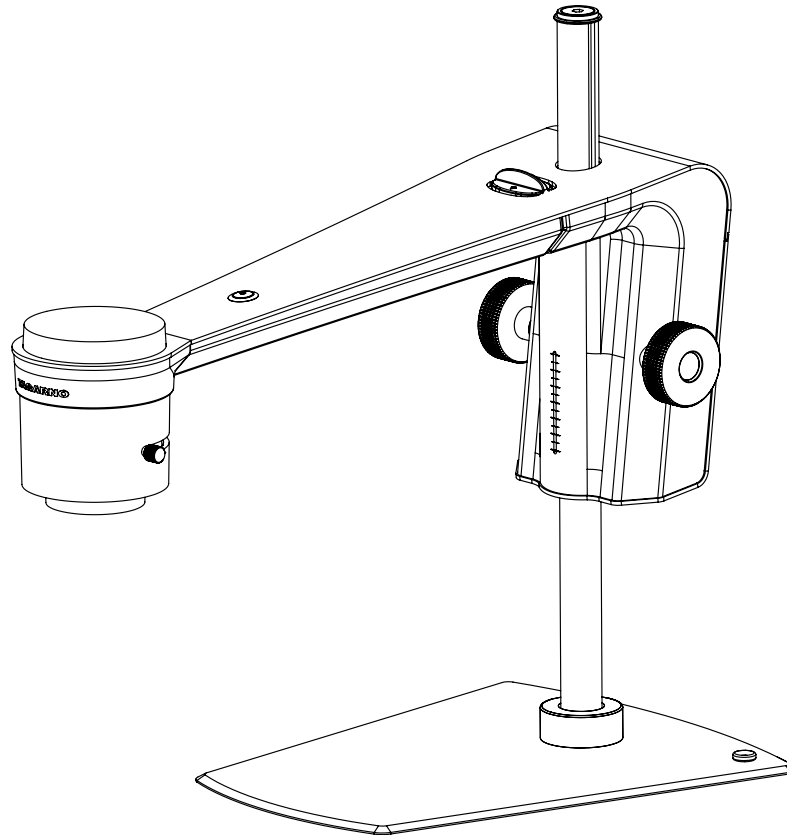
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1 Safety

To ensure proper and safe usage of the TREND+, please read the Intended use and Warnings section closely before starting the assembly and usage of the product.

1.1 Intended use

The product is a digital magnifying system designed for manual visual inspection. If you have any questions about how to use the product or experience any use cases that are not described in this product manual, we refer to Support section of this manual.



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1.2 Warnings



- Read all safety information before you use the product.
- Please pay attention when you see a warning label on the product.
- This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take appropriate measures.
- This product is for indoor use only.
- You must not discard this electrical/ electronic product in domestic household waste. Please dispose at your local recycling centre.



- Read the manual before you use the product.
- Use the product only as specified, or the protection supplied by the product can be compromised.
- Do not position the equipment so that it is difficult to operate the disconnecting device (appliance inlet of external power supply, equipment input connector).
- If fluids are spilled on the product, turn the system off immediately by pulling the power supply out of the electrical outlet.
- In case of fire close to the product, please turn off and disconnect the system.
- Avoid subjecting the objective to sharp or hard objects.
- Do not connect the product, if visible damages appear.

- Do not dismantle any parts of the product, except where noted in the manual.
- Never disassemble or clean internal optical surfaces.
- Use only the power supply provided by TAGARNO.
- Always turn off the system before unplugging, when possible.
- Do not touch the light source. It gets hot when using the product.
- Do not look directly into the light source.

1.2.1 Laser pointer warning

This product is equipped with a red laser pointer to enable easy alignment of the camera and areas of interest during the inspection process.

- Never look directly into the laser aperture.
- Do not point towards anyone deliberately.
- Leave the laser on only when necessary.
- Always turn off power during service and maintenance
- Service may only be performed by trained personnel appointed by TAGARNO

This product is a Class 2 laser product that complies with IEC60825-1 international standard for lasers.

These labels appear visible on the product:



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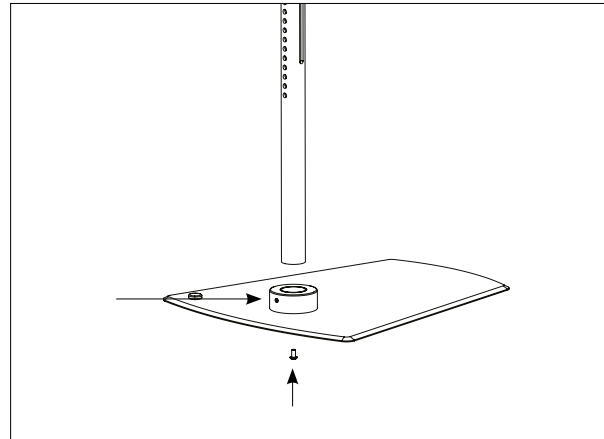
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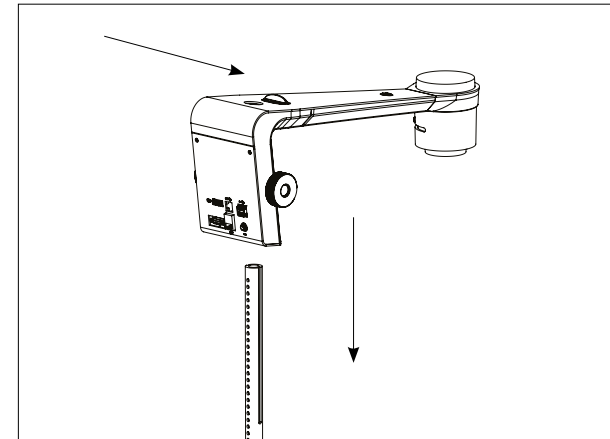
2 Assembly

TREND+ can be assembled as a stand-alone product or with an XY table.

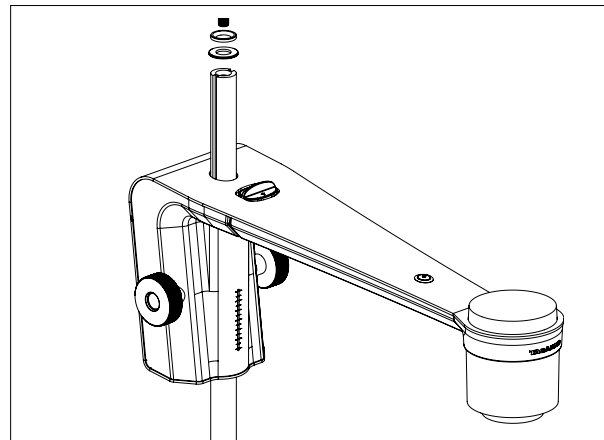
2.1 Assemble microscope



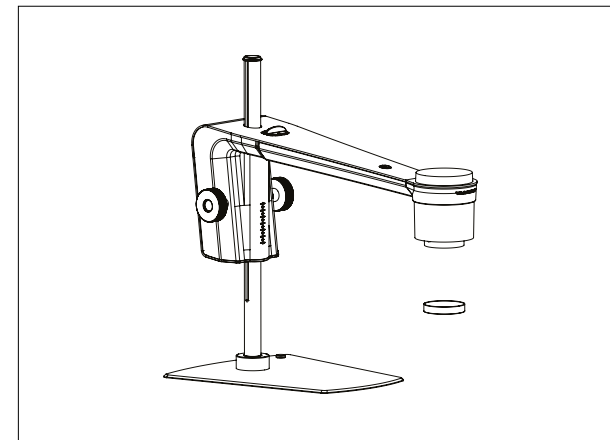
Assemble base and rod with the screw. Make sure the holes on the rod face the same direction as the screw hole.



Pull the button and place the camera arm on the rod, facing the opposite direction of the holes on the rod.



Fasten the two washers with the screw on top of the rod.



Unmount lens protection cap when using this microscope.

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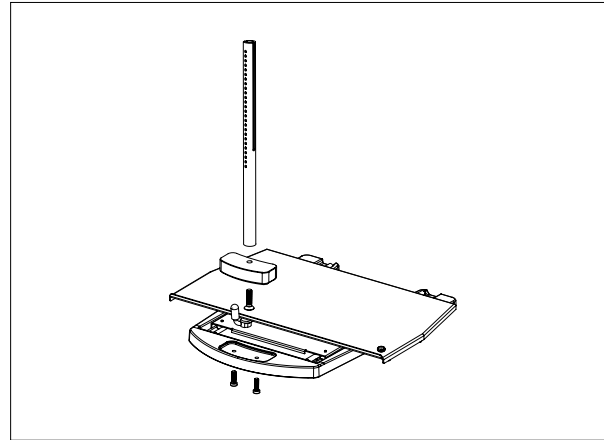
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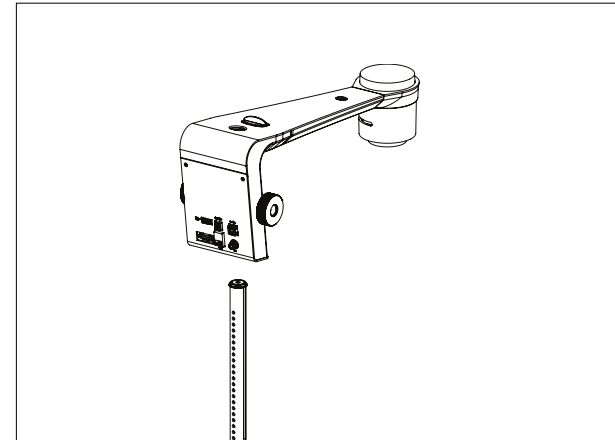
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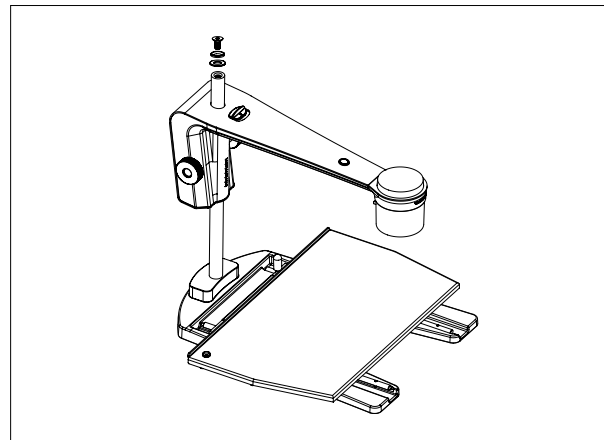
2.2 Assemble microscope with XY table



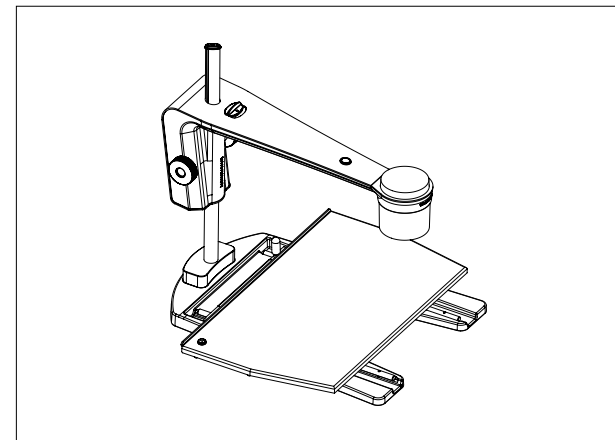
Assemble XY table, block and rod with three screws



Pull the button and place the camera arm on the rod



Fasten the two washers with the screw on top of the rod



The complete microscope with XY Table

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2.3 Connecting

Connect the cables as shown here.

- 4** Connect to monitor
Use HDMI Standard Type A cable.

- 3** Connect control box or foot switch
Use D-SUB 9-Pin Female cable.
If you are using the foot switch, connect the cable to the foot switch and then connect the footswitch and control box.

- 5** Connect to ethernet wall socket
Connect Ethernet cable (if needed).

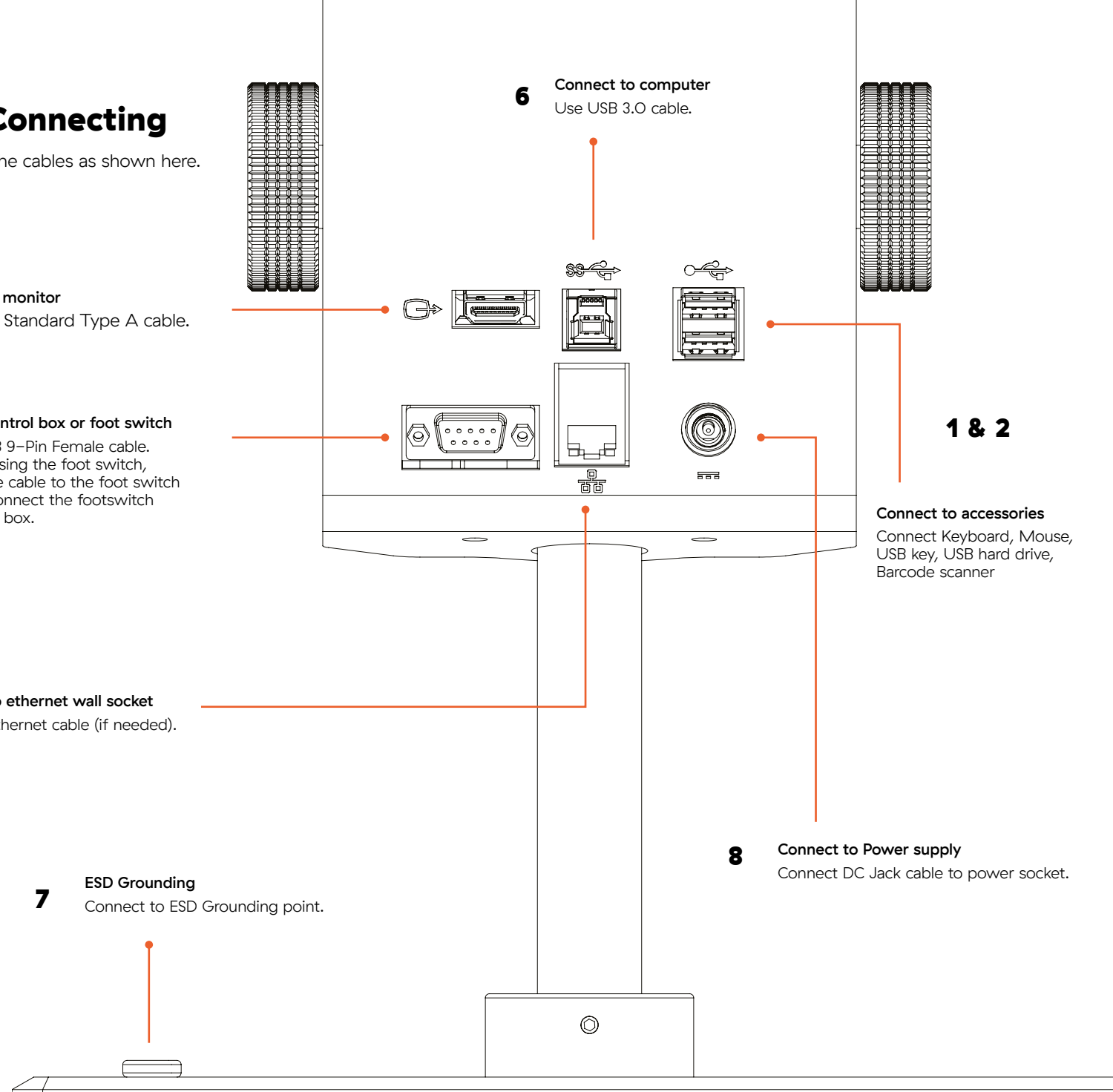
- 7** ESD Grounding
Connect to ESD Grounding point.

- 6** Connect to computer
Use USB 3.0 cable.

1 & 2

Connect to accessories
Connect Keyboard, Mouse, USB key, USB hard drive, Barcode scanner

- 8** Connect to Power supply
Connect DC Jack cable to power socket.



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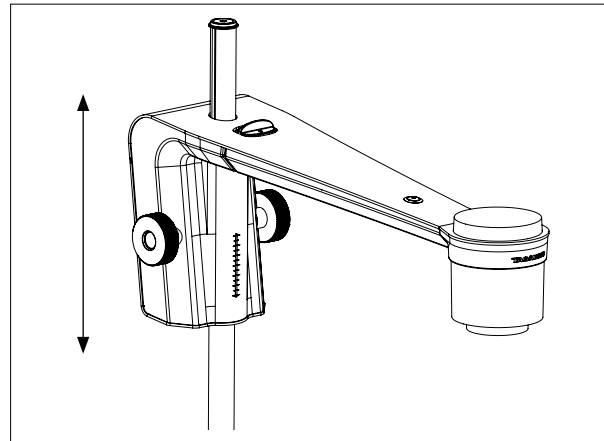
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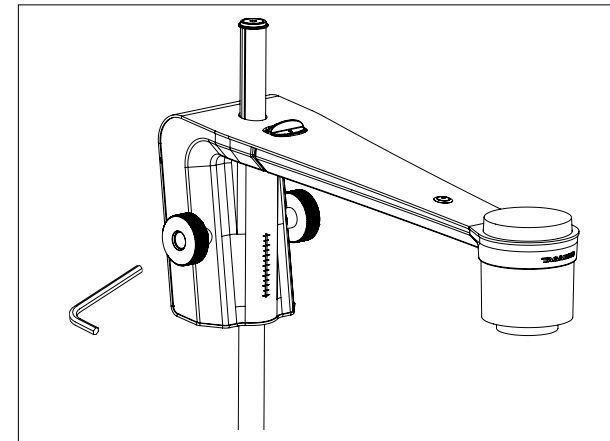
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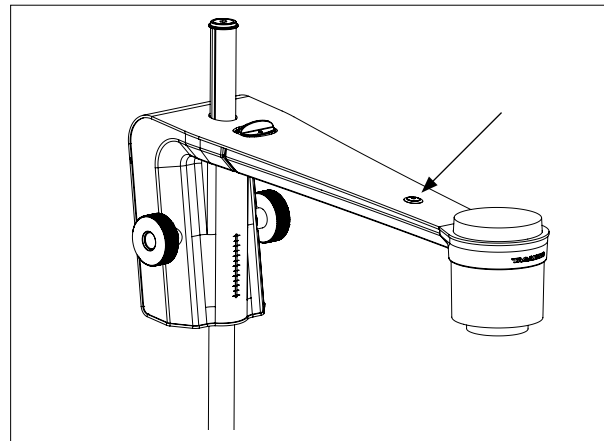
Here's how to get started with your TREND+.



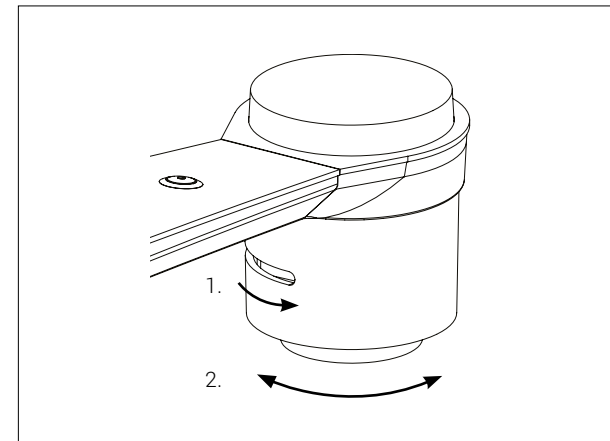
Place the camera arm in the appropriate height according to the lens you are using.



Adjust the friction tension to set your personal preference.



Power on/off.



1. Use the pin to rotate the camera inside the camera head.
2. Tilt the camera head vertically to each side.

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3 Control options

In this section, you'll learn the different control options for your microscope.



3.1 XPLUS control box



Zoom in (when in auto focus mode) or adjust focus height (when in manual focus mode).



Zoom out (when in auto focus mode) or adjust focus height (when in manual focus mode).



Push both plus and minus to change from auto focus to manual focus. You can now adjust the focus manually by using the plus/minus buttons.



To turn the auto focus on again, simply push both zoom buttons (plus and minus) at the same time



Access the Setup menu by pressing the round center button for 1 second. See separate section regarding the Setup menu.

Exit the setup menu by pressing the center button on the control box for 1 second.

When the Setup menu is deactivated, press the center button to switch between auto and manual exposure mode that allows you to control the iris, gain, and exposure time.



To take a picture, press the image capture button until you hear a beep. Long press on the same button will save an image with graphics.

This button also turns Auto Snapshot on/off when activated via the Setup menu.



Open the Preset Manager with a long press on the "P" button.

Save a preset with current microscope settings by clicking the right hand icon. To prevent users from accidentally overwriting a saved preset, lock presets in the microscope general settings.

To use a preset, select the saved preset in the Preset Manager with the center button.

The preset values will show via On Screen Display.

To rename a preset, choose the given preset in the Preset Manager and press F2. Complete the renaming by pressing "Enter". Please note that presets can be renamed regardless of whether the presets are locked or not.



Press this button to turn the laser pointer on/off. You will hear a warning when turning the laser pointer on.



Turn light on/off on systems with integrated light.



Program an individual application shortcut by long-pressing the button and choosing a listed application. You are now able to quickly access this application by short-pressing the button.

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3.2 Foot switch



Zoom in (when in magnification mode) or focus on something close (when in focus mode)



Zoom out (when in magnification mode) or focus on something further away (when in focus mode)



Push both plus and minus to change from auto focus to manual focus. You can now adjust the focus manually by using the plus/minus buttons



3.3 Key board

• Open menu and navigate menu (arrows)	Open and navigate the menu and choose between settings in the menu.
• Activate application or submenu (Enter)	Activate an application or submenu.
• Preset (Ctrl & P)	Open application shortcut defined in Preset Manager.
• Glare removal (Ctrl & G)	Enable the Glare removal setting in the Camera menu.
• Activate presets (number keys)	Activate Preset 1 to 10. Press number key 1 to activate Preset 1, key 2 to activate Preset 2 and so on. Press number key 0 to activate Preset 10.
• Zoom in or adjust focus (Ctrl & +)	Zoom in (when in auto focus mode) or adjust focus (when in manual focus mode)
• Zoom out or adjust focus (Ctrl & -)	Zoom out (when in auto focus mode) or adjust focus (when in manual focus mode)
• Capture image (Ctrl & S)	Save an image of the raw camera image only.
• Capture image with graphics (Ctrl & Shift & S)	Save a full screendump.

3.4 API

With an API license, you can integrate a digital microscope with other systems or applications to control the microscope or exchange data as part of performing or documenting your work.

You can see the full TAGARNO API documentation, including control options and full protocol, [here](#).

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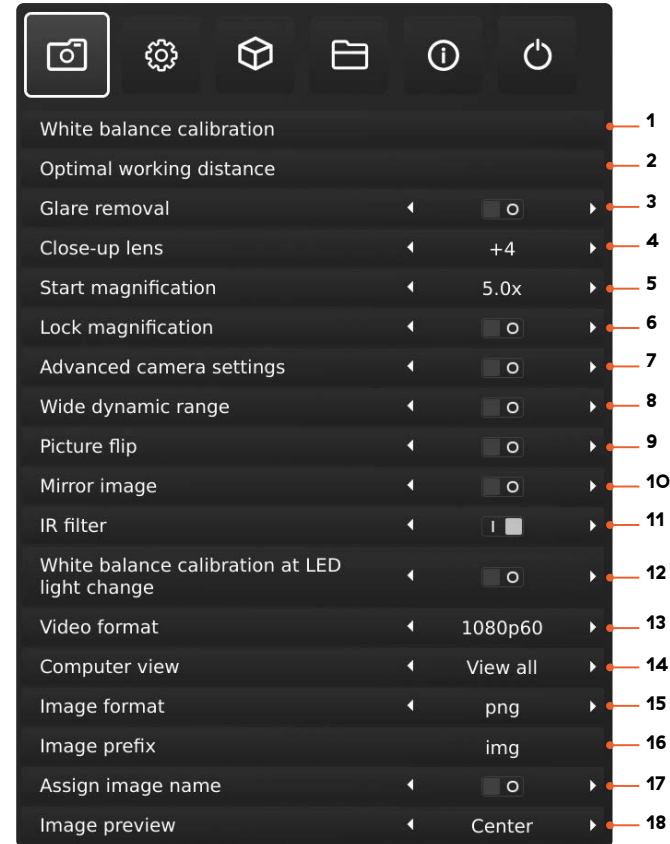
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1. White balance calibration

Perform an automatic white balance adjustment in order to get colors displayed correctly on screen. There must be a white object present in the camera's field of view when the white balance is being adjusted. A white balance calibration is made each time the camera is turned on to adjust to the given light conditions.

NB: If the camera's field of view does not contain a white object, when the unit is turned on, the white balance will be incorrect and it will be necessary to perform the white balance adjustment process as described previously.

2. Optimal working distance

This setup works in 2 steps and needs to be carried out on a flat surface. Follow the on-screen directions to find the optimal working distance. The magnification settings prior to performance will be restored.

3. Glare removal

Capture glare free images by enabling feature and connecting a TAGARNO Ring light to the microscope via USB. When capturing a photo, the microscope will automatically capture and combine a series of individually lit images to obtain one glare free image.

NB: For best results, perform a White balance calibration after enabling the Glare removal feature.

NB: If you change the setting of the Ring light or internal LED light, Glare removal will be disabled in the menu.

4. Close-up Lens

Indicate which lens is mounted on your TAGARNO microscope, to get the right magnification levels displayed in the On Screen Display when zooming in and out.

5. Start magnification

Choose the start magnification level you want your TAGARNO microscope to automatically set when turning your system on.

6. Lock magnification

Lock your magnification level, so your microscope is always working at your start magnification level and you are not able to manually zoom in/out.

7. Advanced camera settings

When activated, the advanced camera settings can be modified in detail for optimum visual inspection result. Deactivated by default.

8. Wide dynamic range

When this option is selected and auto exposure mode is active, the camera uses individual exposure settings for dark and light areas. This option can be useful to reduce glare when inspecting reflective objects.

NB: If the camera live image is grainy, increase Exposure compensation in Auto exposure mode.

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9 Picture flip

Select if you want to display your image on screen as placed below the camera or flip it 180 degrees.

10. Mirror image

Mirror the live image for an unmirrored inspection.

11. IR filter

Turn Infrared filter off when using Infrared ring light. To use regular ring lights turn the Infrared filter on.

12. White balance calibration at LED light change

Switch on if you want an automatic white balance calibration to be performed when LED light is changed. Deactivated by default.

Switch off if you do not want an automatic white balance calibration to be performed when LED light is changed.

13. Video format

Choose between various available video formats: 1080p60 / 1080p50 / 1080p30 / 1080p25.

14. Computer view

Choose between Camera only (default) and View all. If View all is selected, menus and applications will be overlayed on the live video of the USB 3.0 output. This feature allows you to use a computer to display the microscope live image and screen share the output during video conferences.

15. Image prefix

Choose between different image formats when saving an image. Available formats are TIFF, PNG, JPG or BMP.

NB: The following EXIF data are included when saving images in .jpg format: Brand and model of microscope, creation data, keyword data from apps, serial number and field of view. Any annotations added in the Measurement application are also included here.

16. Image prefix

Replace the default image prefix (img_) preceding the date and time stamp in filenames of captured images. This feature requires an attached keyboard.

17. Assign image name

When this setting is active, the microscope will prompt for an image name before storing a captured image.

NB! When using an attached scanner to name captured images on the TAGARNO FHD microscopes we advise that the scanner is connected directly to one of the two USB ports on the microscope.

It is not recommended to connect the scanner to an attached USB Hub unless it has been thoroughly tested. The communication through some hubs can unfortunately introduce data loss resulting in one or more random characters missing in the scanned image name.

18. Image preview

This feature allows users to quickly inspect and capture images of new samples. When an image is captured the default behavior is to preview the image at the center, left or right side of the display for 5 seconds. Image preview can now be disabled, which will display a more discrete text box for 3 seconds.

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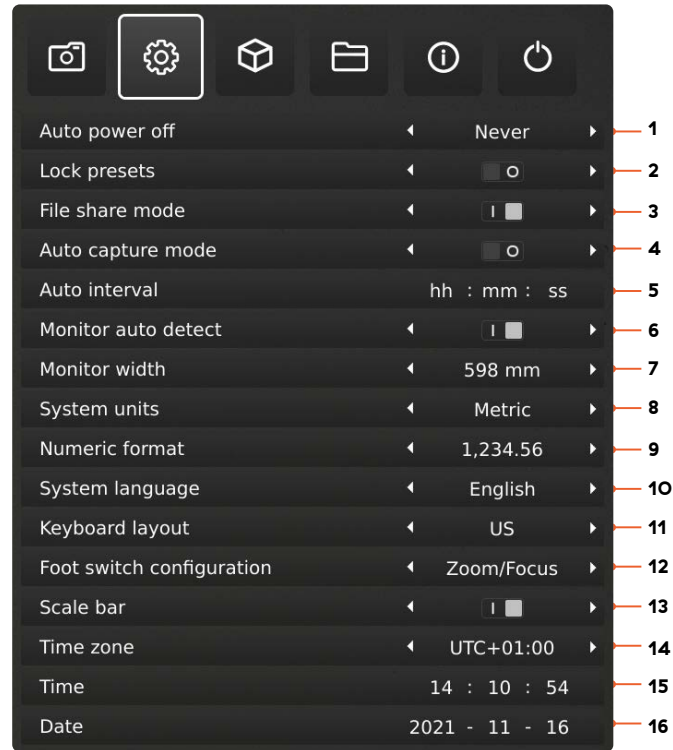
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1. Auto power off

Choose when the microscope should automatically shut down after a period of inactivity. Select between: Never, 1 hour and 3 hours.

2. Lock presets

When this feature is enabled, users are prevented from accidentally overwriting presets in the Preset manager.

The XPLUS control box can therefore simply be removed. The operator can instead use an attached numerical USB keyboard to operate the digital microscope.

3. File share mode

Activate File share mode to save images to the internal storage of the microscope. The images can then be accessed via computers on the same network as the microscope.

NB: To minimize security risk, it is highly recommended to disable SMB 1.0 support on any Windows based operating system on your corporate network. You do this by accessing Programmes and Features in your Control Panel.

4. Auto capture mode

To automatically capture images at a certain interval, activate the auto image capture mode.

5. Auto interval

Set the function to automatically capture images at a certain interval. Intervals start from 2 seconds and up. Start/stop the interval capturing by pressing the image button on the control box.

6. Monitor auto detect

Turn off to manually set monitor width.

7. Monitor width

Manually set your monitor width, if you do not wish to use the automatic monitor auto detect, which is enabled by default. This automatically changes the magnification level shown in the OSD. Please note that manually changing the Monitor width while Monitor auto detect is enabled, will disable the Monitor auto detect function.

8. System units

Choose to display metric or imperial units when using the microscope.

9. Numeric format

Here you can select the numeric format based on your preference. Choose between 1,234.56, 1.234,56 or 1 234,56.

10. System language

The following languages are available as system language:

Chinese, Danish, English, French, German, Hungarian, Italian, Japanese, Korean, Polish, Romanian, Russian, Slovene and Spanish.



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11. Keyboard layout

Select your horizontally language by pressing buttons left or right on the XPLUS control box. The available languages are listed alphabetically.

The microscope is by default set to GB. The available languages are:

AF, AL, AT, BE, BR, BV, CA, CD, CZ, DE, DK, EE, ES, FI, FR, GB, HR, HU, IS, IT, LT, LV, ME, MT, NL, NO, PH, PK, PL, PT, RO, RU, SE, SI, SK, SN, TZ, US, VN and ZA.

12. Foot switch configuration

With this function, you can choose between Zoom Only and Zoom/Focus on the foot switch.

Zoom/Focus is the default configuration. Setting the option to Zoom Only allows you to zoom in/out with the foot switch, even if the microscope is set in Manual focus mode by the control box.

13. Scale bar

Scale bar indicates the size of an inspected object. The scale bar will operate in standard magnification and in all activate applications, except for Verification lines and Measurement application. The scale bar will adjust to match current magnification level. Activated by default.

NB: The scale is approximate and does not take lens distortion into account.

14. UTC time zone

Set up this feature by identifying and setting the UTC time zone applicable to your geographical region. Complete this step before setting the time/date to match the local time in the next steps as described below.

15. Time

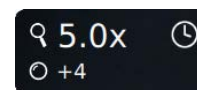
Set the current time, which will affect the time registered when saving images.

16. Date

Set the current date, which will affect the date registered when saving images.

To prevent losing the date/time, use only the standby button at the front of the Power box or the Power off menu, when switching the unit off.

When the clock is unset, a clock icon will be flashing in the status window of the screen:



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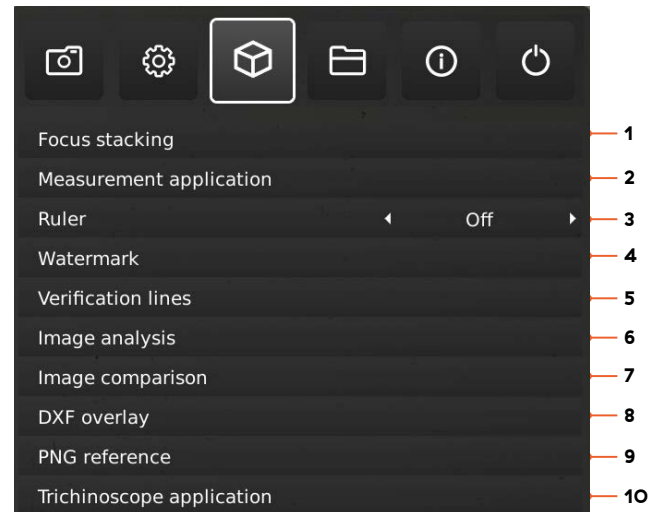
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30-day trial license

Select any of the unlicensed applications to start your 30-day trial license. This allows you to test the apps for free for a period of 30 days.

You can see the state of the Trial license in the System Information of the microscope.

Once the trial license has ended, only purchased licenses will remain available. You can of course purchase full access to all apps by contacting your distributor.

1. Focus stacking (standard app)

In the Applications menu point, you are able to turn on the Image Focus Stacking feature, enabling you to stack images with different focuses on top of each other, creating one ultra-sharp image.

2. Measurement application

This application enables you to perform precise measurements such as line, radius or angle measurements directly from the microscope.

3. Ruler (standard app)

Turn the Ruler application on horizontally (Top, Center or Bottom), vertically (Left, Center or Right) or both directions and get a ruler displayed on top of your live image on screen.

4. Watermark (standard app)

Create an info field on captured images with an image prefix, time stamp, horizontal field of view, microscope model plus serial number and/or import and add a custom defined watermark. The watermark will then appear on all captured images.

5. Verification lines

This application provides you with an opportunity to quality check objects based on accurate calibrated measures by placing vertical and/or horizontal lines as a layer on top of your object, directly from the microscope.

6. Image analysis

Choose one of the three Image Analysis apps in the drop down menu when entering this application: Color analyzer, Particle analyzer and Speck Counter.

7. Image comparison

The app enables you to compare a sample or live image to a reference image in various ways.

8. DXF overlay

Import a DXF file and add it as overlay on top of your live image. You can also search for component names in the DXF file with this app.

9. PNG reference

Import a PNG file and add it as overlay on top of your live image. The PNG file can be recalled via the Preset feature.

10. Trichinoscope application

Use this application with a TAGARNO Trichinoscope to inspect pork meat for trichinella parasites.



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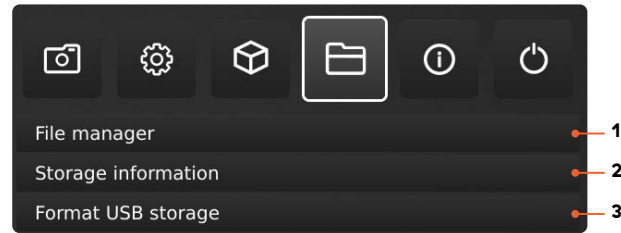
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1. File manager

Access files stored on the microscope or a connected USB memory stick directly on the microscope. Rename, search, copy, move (from folder to folder or from USB memory stick to internal storage and vice versa) and delete files, all without using a computer.

Images (captured on or transferred to the microscope) can be viewed in full screen or preview mode. The latter allows the images to be used as reference for future inspections.

NB: If the DXF overlay app is available, selecting a DXF file will open the DXF overlay app with the selected DXF file.

Changes to preview mode

In preview mode, the entire photo will visible in a small window. The display scale is visible in the top left corner of the preview window. Resize the window with the mouse if needed.

Change the display scale of the photo with the scroll wheel on the mouse or right click on the area of the photo you want to see in scale 1:1. Use scroll bars or drag the photo with the mouse to adjust what is visible. It is also possible to zoom in further by using the scroll wheel again.

Right click during scale 1:1 display to return to default preview display mode or right click at scales higher than 1:1 to return to scale 1:1 display.

Navigation

Navigate the File manager menu with the XPLUS control box or with a mouse or keyboard (if connected). For navigation help, press the “P” button on the XPLUS control box or press F1 on the keyboard to open the help window in the bottom left corner of the monitor. Similarly, hover over the menu icons with the mouse to show tool tips.

NB: When File manager is open, it is not possible to change magnification level or short pressing the Image capture button on the XPLUS control box to save photos without graphics. Long pressing this button to save with graphics is however still supported.

2. Storage information

When choosing this function, an information window will show the internal storage capacity on the microscope and, if connected, the USB memory stick.

3. Format USB storage

This TAGARNO device is designed to only support USB storages with a FAT32 formatted file system. If your USB storage does not currently have this file system, use this function to format the USB storage. A second pop-up will ask you to confirm your selection. Please notice that all files on the USB memory stick will be deleted once formatting begins. Formatting time will vary.



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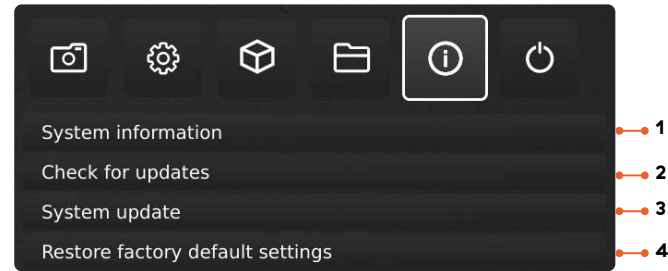
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NB: An orange dot next to the Info menu icon indicates that a new firmware is available and a system update should be performed.

1. System information

This enables you to see model number, serial number, firmware versions, URL path to download the latest firmware and product manuals, state of the Trial license, all available licenses and other information about the product.

2. Check for updates/Install updates

Check for available firmware updates if the microscope is connected to a network. If a new firmware version is available for installation, see separate section about System update for more information.

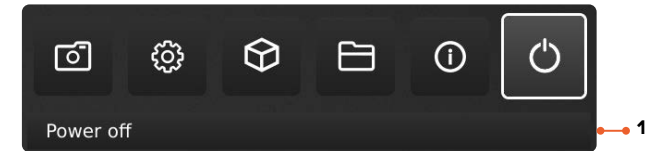
If the microscope has already detected that a new firmware update is available, the text will change from Check for updates to Install updates and an orange dot will appear next to it.

3. System update

See separate section about System update.

4. Restore factory default settings

Restore the system to the factory default settings, all your personal settings will be erased, including calibrations and images.



1. Power off

Turn the TAGARNO microscope off.



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4.2 Standard apps

TREND+ comes with 3 standard apps.

4.2.1 Focus stacking app

With Focus stacking, you can stack images with different focuses on top of each other to create one ultra-sharp image.



1. Magnification level

Set the magnification level of choice by using arrows up or down.

The actual magnification level is displayed inside the zoom option and can also be typed if a keyboard is connected.

Plus/minus buttons on the control box are active as an alternative to using the onscreen zoom menu point.

2. Focus 1: Focus setting far

Manually set focus to the part of the object farthest away.

3. Focus 2: Focus setting near

Manually set focus to the nearest part of the object.

4. Steps

Choose number of images to stack between 5 and 50.

Available intervals: 5, 10, 15, 20, 30, 40, 50

5. Quality

Normal: This is the default fast mode with a typical processing speed of 8 seconds for 15 images.

High: In this mode the processing speed is reduced and 15 images can take up to 13 seconds.

By extending the image processing time, visual artifacts are decreased and the image quality heightened.

6. Start

Press Start to start the process. Wait until the menu displays Done.

7. Save image

Choose this option to save the image. The image save settings will adapt from setup chosen from the general camera settings.

8. Close

Close app.

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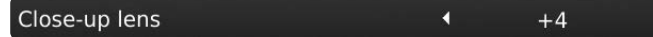
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4.2.2 Ruler app

With Ruler, you can add vertical and/or horizontal rulers in a variety of colors on top of your live image.

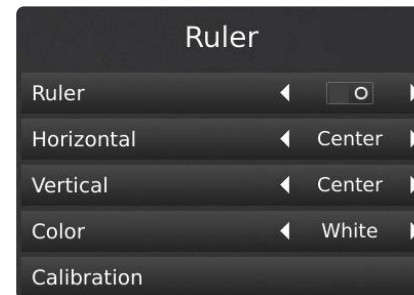
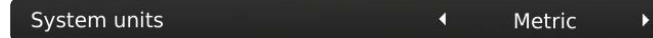
Get started with the app

Before using the application, make sure to specify which lens is currently mounted on the microscope in the microscope camera settings. If the mounted lens is not available in the microscope camera settings, please perform a ruler calibration.



System units

Choose your preferred system units (metrics or imperial) under the General settings menu point in the setup menu.



1. Ruler calibration

Perform a linear calibration of the Ruler app using printable TAGARNO calibration rulers if the mounted lens is not available in the microscope camera settings. If a calibration is not performed, the Ruler app will be inaccurate.

Supported lenses are +3, +4, +5 or +10.

NB: Make sure to use the calibration ruler matching the mounted lens as different lenses require different rulers. NB: The system can only support one +10 lens at a time.

2. Activate the Ruler

Activate the Ruler by moving the slider to the right. Deactivate the Ruler by moving the slider the left.

3. Ruler direction

Turn the Ruler application on in the Applications menu with the left and right arrow buttons on the XPLUS control box. Choose between Horizontal (Top, Center, Bottom, Off) and Vertical (Left, Center, Right, Off).

When moving the Ruler to a left, right, top or bottom position, the precision can be affected. The lower the magnification, the lower the precision. At minimum magnification with a +4 lens, the precision can reach 5%.

4. Ruler color

Set the ruler color to your preferred color to separate it from your displayed object. Choose between 6 different colors: Yellow, blue, red, black, white and green.

Manual focus setting

When the Ruler is chosen, the system will automatically start in manual focus setting to focus on the part of the object furthest away.

If needed, manually adjust the focus by adjusting the height of the microscope to get the desired object in focus. Then, use the zoom in and zoom out buttons to fine adjust the magnification.



If encountering problems finding focus, please use "Optimal Working Distance" in the microscope camera settings menu, before using the Ruler app.

Application shortcut

When used as an application shortcut via the XPLUS control box, the Ruler is switched on and off, based on its last setting.

Note: If both rulers are set to off when the application shortcut are activated, the ruler will be set to the default position.

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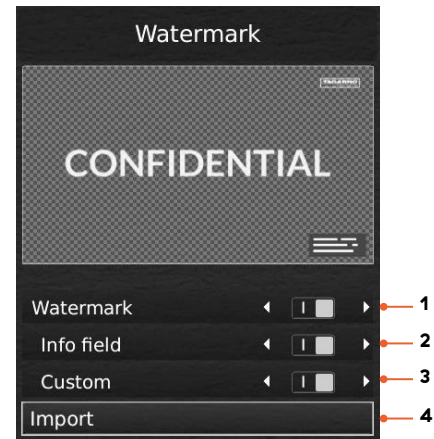
4.2.3 Watermark app

With Watermark, your saved images will have an info field containing specifications from the time of use (time stamp, horizontal field of view, microscope model and serial number) and/or a custom defined watermark (e.g.: logo or CONFIDENTIAL).

When activated, the watermark will appear on all captured images.

Creating a Watermark

To use Watermark, create a PNG file that measures 1920x1080px and give it a file name ending with “.png”. We recommend using GIMP, which is a free graphics editor or Adobe Photoshop.



1. Enable or disable all settings

Choose to enable or disable all watermark settings at the same time.

2. Enable or disable info field

Enable or disable an info field, automatically stating an image prefix (default or as stated under Camera settings), time stamp, horizontal field of view plus microscope model and serial number.

3. Enable or disable a custom watermark

Choose to enable or disable the latest imported custom watermark.

4. Import a custom watermark

At this stage, you are able to import a custom watermark by inserting a USB memory stick into the microscope containing a watermark file.

It is possible to import only one custom watermark at a time. This means that if you wish to change the current watermark, you need to follow the steps above to import a new watermark.

NB: It is only possible to import watermarks from USB storages with a FAT32 formatted file system. If your USB storage does not currently have this file system, a dialogue box allows you to format the USB storage. A second pop-up will ask you to confirm your selection. Please notice that all files on the USB memory stick will be deleted once formatting begins. Formatting time will vary.

After importing, you can see a preview of the watermark before closing the dialogue box.

To access saved files, see manual section Access saved photos.

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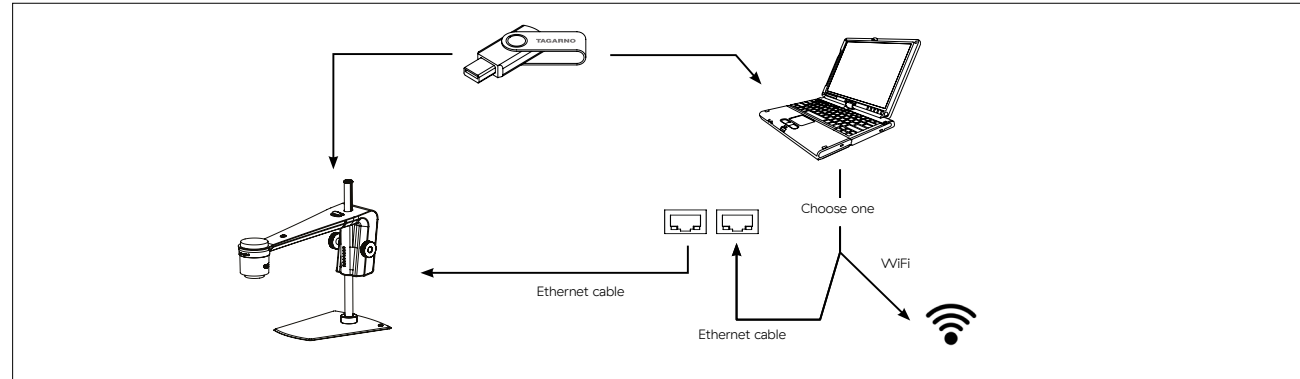
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4.3 Access saved images



Access files on internal storage

To access files saved on the internal storage of the microscope via a computer, the microscope itself must be connected to a network. Use one of the two methods below:

Method 1

Connect the cable from the wall socket to the microscope. Then, connect a computer to the same network either by cable or WiFi.

Method 2

Connect a computer and the microscope to a stand-alone router without internet access to create a closed network. This solution is useful if you cannot connect the microscope to your network

Verify that an IP address of the microscope is displayed in the microscope System information. If no IP address is stated, check that all cables are connected correctly or consult a network administrator.

Afterwards, follow the description below matching your operating system to access the files. Note that xxxxx denotes the microscope serial number.

Windows operation system:

Open the File Explorer and type: \\tagarno-snxxxxx

Mac operation system:

Open the Connect to server window and type: smb://tagarno-snxxxxx/. Press connect.

In both cases, a window will appear and you can type:

- User name: \public (Windows) or public (mac)
- Password: pub1234

Access EXIF data

The EXIF data on .jpg images can be accessed when transferred to a computer. EXIF data are not available when images are accessed directly on the microscope.

Text annotations in the Measurement app and Image comparison app are saved in IPTC/XMP format:

In Windows 10/11 these appear as tags. Tags are searchable in File Explorer by entering "tags:keyword" in the search field.

On MacOS these will appear in the Keywords Inspector. Open the image with Preview, press ⌘ & I and click on the magnifying glass icon.

Access files directly on microscope

Use File manager to access files saved on the internal storage of the microscope or a plugged in USB memory stick without using a computer.

Access files on USB memory stick

Unplug the USB memory stick from the microscope and insert it in a computer to access photos saved on the USB memory stick.

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5 System update

This is a step by step guide to perform a system update on your TAGARNO.

A system update can either be performed online or with a USB memory stick. See Online system update section or Manual system update section for more information on the two processes.

Online system update

To perform an online system update, the microscope must be connected to a network. For more information, see Connection section.

When a new firmware version is available, an orange dot next to the Info menu icon will appear. The menu option Check for updates will also change to Install updates and an orange dot will also appear here.

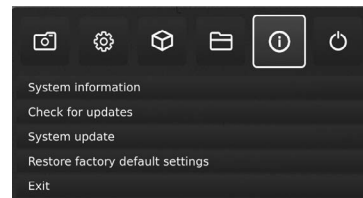
To perform the system update, follow this step by step guide:

Step 1: Start installation

Access the Setup menu by holding the round center button on the XPLUS FHD control box until the Setup menu appears. Note that there's an orange dot next to the Info menu icon. This indicates that a new firmware is available and a system update should be performed.

To navigate in the Setup menu, use the multi function buttons on the XPLUS FHD control box.

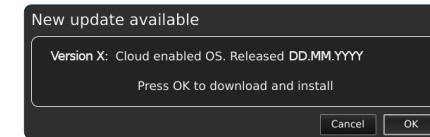
Go to Info menu icon in the top menu, navigate to Install update and choose it by pressing the round center button.



Step 2: Perform installation

Screen dialogues will now guide you through the update process.

A New update available window appears. Press OK to start the download and installation process.



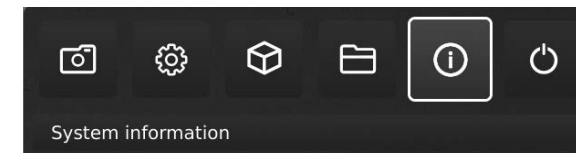
Note: At this point, the update process can be cancelled safely by pressing Cancel.

Do not switch off or disconnect the microscope during a system update. This will damage your device and render it useless.

When the system update is complete, the microscope will automatically restart.

Step 3: Verify installation

Verify the system update by checking that the Application version (displayed in the Setup menu – Info – System information) matches the recently installed system update.



Step 4: Access new application

If a new application is available (either through the 30 day trial license or after application installation), a new menu point will appear in the Setup menu under pt. 3 Applications, showing the new application.

Note: To activate an application after installation, you need a unique license key generated from the microscope serial number.

See the license activation section for further explanation on how to activate your license.

After activating your license, you are now able to access and use the new application or feature.

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Manual system update

To perform a system update manually, a system update file needs to be installed directly on the microscope.

Note: In some cases, it is necessary to complete more than one system update processes, if an update contains substantial improvements and considerable file sizes. The microscope will notify you if this is needed.

Follow the few steps below to perform a system update to your TAGARNO microscope.

Step 1: Download installation file

Locate and access the installation file(s) via this link:

www.tagarno.com/firmware-download

Download the installation file(s) to a USB memory stick (FAT32 formatted).

If the file(s) is in a ZIP folder, unzip the files and make sure that only the correct installation file(s) or previous system update files appear on the memory stick.

Note: File names always have the following format:

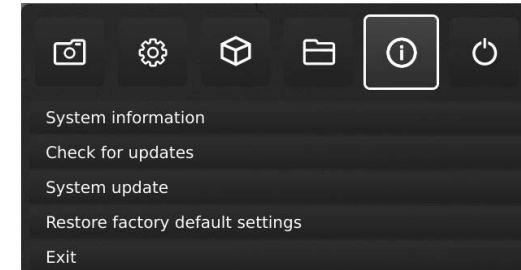
- tagarno_fhd_system_vx_xx.image
- tagarno_fhd_system_vx_xx.system
- tagarno_fhd_system_vx_xx.update
- (x_xx denoting the system version)

Step 2: Plug in the USB memory stick

Plug the USB memory stick into one of the USB inputs at the back of the microscope or the Power box, depending on the microscope model.

Step 3: Start installation

The system update process is initiated in the Setup menu – Info – System Update



Access the Setup menu by holding the round center button on the XPLUS FHD control box until the Setup menu appears. Note that there's an orange dot next to the Info menu icon. This indicates that a new firmware is available and a system update should be performed.

To navigate in the Setup menu, use the multi function buttons on the XPLUS FHD control box

Go to Info menu icon in the top menu, navigate to Install update and choose it by pressing the round center button.

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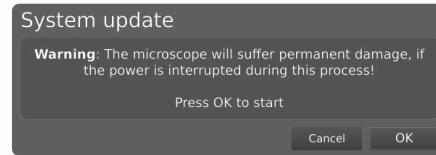
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Step 4: Perform installation

Screen dialogues will now guide you through the update process

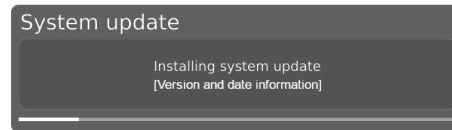
A System Update Warning appears – Read the warning and press OK to start the system update.



Note: At this point, the update process can be cancelled safely by pressing Cancel.

NB: Do not switch off or disconnect the microscope during a system update. This will damage your device and render it useless.

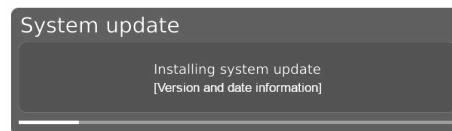
When the system update file has been read and validated, information about the new version is shown. Wait for the system to update.



When the system update is complete, the microscope will automatically restart.

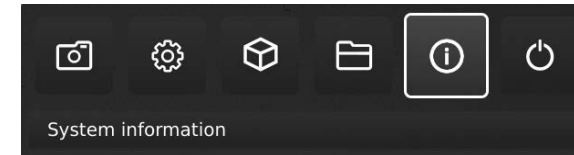
Note: The microscope might switch off after restart. In that case, turn it back on manually.

After restarting the microscope, the system might need to be updated again by following the same procedure as described above entering system update



Step 5: Verify installation

Verify the system update by checking that the Application version (displayed in the Setup menu – Info – System information) matches the version of the system update file.



Step 6: Access the application

If a new application is available (either through the 30 day trial license or after application installation), a new menu point will appear in the Setup menu under pt. 3 Applications, showing the new application.

Note: To activate an application after installation, you need a unique license key generated from the microscope serial number.

See the license activation section for further explanation on how to activate your license.

After activating your license, you are now able to access and use the new application or feature.

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6 License activation

After purchasing a TAGARNO application, you need to activate it with a unique license key file.

To activate a license key on your TAGARNO microscope, follow the steps below:

Note: The license can only be paired with the microscope which has the serial number stated in your license. The license can not be removed and transferred to another microscope.

Step 1: Download the license key file

You will receive an e-mail with a unique license key file after placing an order, receiving an activation code and requesting the license via www.tagarno.com/request-license

Note: If you are missing your license key file, please contact license@tagarno.com to retrieve the file.

Download the license key file to a USB memory stick (FAT32 formatted).

If the file is in a ZIP folder, unzip the folder and make sure that only the correct license file and no ZIP folders appear on the memory stick. Make sure to also place the license file in the root of the USB.

Step 2: Plug in the USB memory stick

Plug the USB memory stick into one of the USB inputs at the back of the microscope or the Power box, depending on the microscope model.

Step 3: Start activation

The activation process is initiated in the Setup menu – Info – System Update.

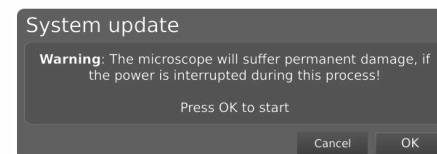
Access the Setup menu by pressing the round center button on the XPLUS FHD control box until the Setup menu appears.

To navigate in the Setup menu, use the multi function buttons on the XPLUS FHD control box. Go to the fourth menu point (Info) in the top menu.

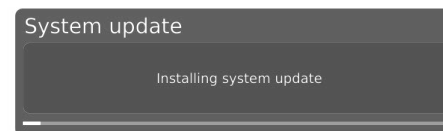
Navigate to System Update and choose it by pressing the round center button.

Step 4: Perform activation

A System Update Warning appears – Read the warning and press OK to start the system update.



Press OK and the update will be processed. Please do not press the control box unless the installation menu tells you to.



Step 5: Access the application

After activating your license you are now able to access and use the new application.

Please see the user manual for further information regarding the use of TAGARNO applications and features.

If you have trouble activating the application, please contact the TAGARNO distributor from which you have purchased the product.

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In this section, you'll learn how to handle and do maintenance on your TREND+ to extend its lifespan. You'll also learn TAGARNO's warranty terms and how to create a support ticket either through your local distributor or directly with TAGARNO.

7 Maintenance & support



7.1 Taking care of your microscope

- Store and use the product in a dry, clean and ventilated room.
- Do not place the product in direct sunlight, next to a radiator/heater or some place where the system may be subjected to liquids.
- All plugs are designed to be used in one way only. Therefore, you should never use force when you connect the system.
- Remember to disconnect all elements if you intend to move the product.
- If you move the product from a cold to a hot room, you must wait at least an hour before you turn it on to avoid short circuits due to condensation.
- Remove the cables by pulling the plug itself – never by pulling the cable.
- If the product needs repairing, never do it yourself, contact your distributor.
- When cleaning the product, please turn off the system and wait until the system has cooled off.
- Clean the product with a damp cloth. Never use strong cleaning agents or chemicals – these may damage the microscope.
- Clean the lens regularly with isopropyl alcohol and a microfiber cloth or with the TAGARNO cleaning kit.
- Be careful when carrying the product from one place to another.
- Do not lift the microscope by grabbing the camera arm.

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7.2 Warranty

Warranty terms for the product shall be as follows:

TAGARNO warrants that the product will correspond with the specification at the time of delivery and will be free from defects in material and workmanship for a period of 24 months (2 years) from date of invoice from Supplier.

This warranty covers:

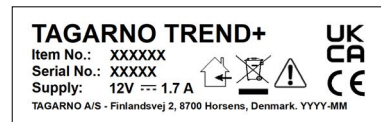
- a. The replacement of defective parts.
- b. All labour costs to exchange defective parts in product.
- c. Complete functions test of product before return to end user's site.
- d. Return transport costs of product from TAGARNO to end user's site.

The warranty only applies if the product is packed, shipped, stored, handled and maintained correctly.

Failures due to improper packing and transport are not covered. Failures due to drops and sudden blows are not covered.

Failures due to storage and handling in extreme high or low temperatures are not covered. Failures due to storage or handling in extreme high humidity are not covered.

Values marked with X varies from product to product and are replaced by specific numbers and letters.



Manufactured by: TAGARNO A/S
Finlandsvej 2
DK-8700 Horsens
Denmark
Made in Denmark
Manufactured: Month-Year

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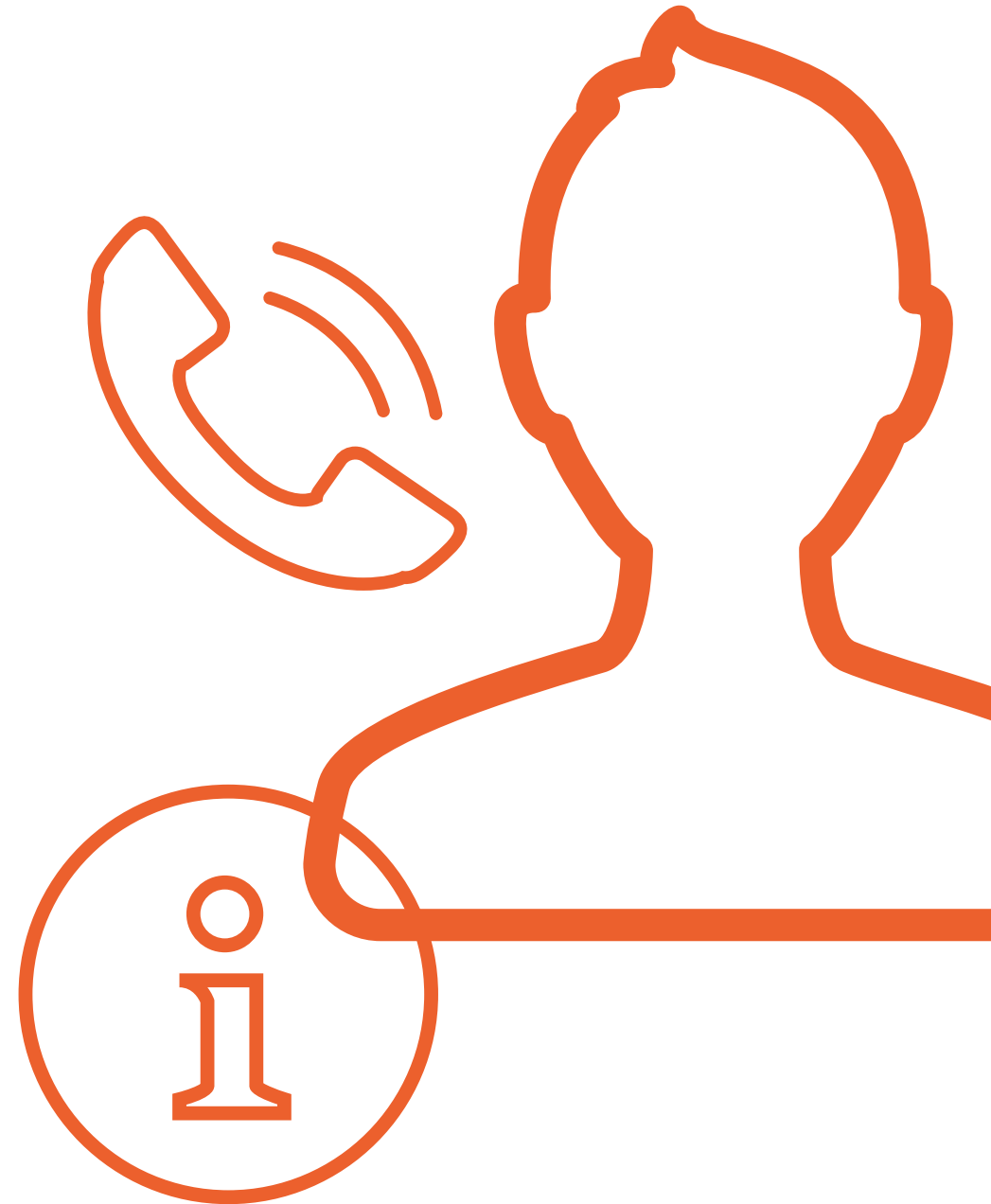
7.3 Support

If you experience issues with your microscope, please check the troubleshooting section of this manual.

If you're still unable to solve the issue at hand, please contact the local partner that you bought the microscope from. You should only contact TAGARNO directly if you did not buy the product from a local distributor. In this case, you can create a ticket using the support form on TAGARNO's website:

<https://tagarno.com/help-center/>

When requesting support, either through a local partner or TAGARNO, you should always state the model number and serial number of your microscope. You can find these information on the product label on the microscope.



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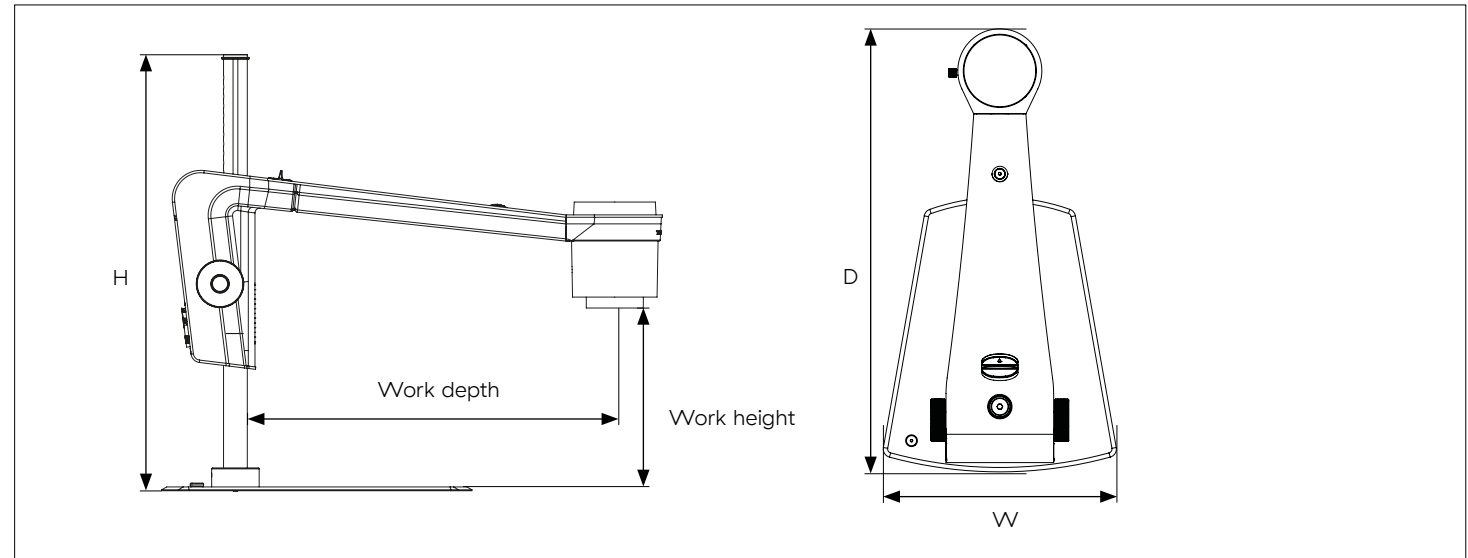
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7.4 Technical specifications

Get to know the TAGARNO TREND+ in more detail by exploring the technical specifications listed below.



Dimensions and weight

• Height:	460mm/18.1"
• Width:	160mm / 6.2"
• Depth:	325mm/12.8"
• Weight:	7.2 kg/15.9 lbs
• Working depth:	385mm/15.16"
• Working height:	34mm - 326mm /1.34" - 12.82"

Camera specs

• FHD camera resolution	1080p, 1920x1080p at 59.94/50/29.97/25Hz
• Camera zoom	30x optical
• Autofocus	Yes
• Auto Monitor Detect	No

Lens	Free working distance	Magnification range	Field of view
• +3	333 mm/13.22"	1.3x - 40.1x	13.4mm - 409.0mm (0.53" - 16.10")
• +4	250 mm/9.84"	1.7x - 53x	11mm - 290mm (0.41" - 11.42")
• +5	200 mm/7.87"	2.2x - 66x	8.0mm - 245mm (0.32" - 9.65")
• +10	78 mm/3.07"	4.3x - 133x	4mm - 87mm (0.16" - 3.42")
• +25	34 mm/1.34"	10.7x - 330x	1.60 mm - 49.80 mm (0.06" - 1.96")

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7.5 PC requirements

If you to connect the microscope to a computer, please find a model that meets the requirements listed below.

7.5.1 Full HD 1080p @ 59.94/50Hz

	Desktop	Laptop
• OS:	Windows 7, 8 or 10 (with DirectX 11)	
• Memory:	8GB	
• CPU:	Intel® Core™ i5 or i7 @2.4GHz, (4th generation named 4xxx or newer)	Intel® Core™ i5 or i7 @2.4GHz (4th generation named 4xxx or newer)
• Hard Disc Space:	1GB required (SSD type recommended)	
• Connections:	USB 3.0 xHCI host controller (Intel chipset recommended)	
• Integrated Graphics:	Intel® HD Graphics 4000	Intel® HD Graphics 4400
• Dedicated graphics card:	AMD Radeon™, HD 7xxx Series with 2GB RAM	nVidia GeForce GT 740M with 2GB RAM
• Monitor resolution:	1920x1080 (recommended)	

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7.5.2 Full HD 1080p @ 29.97/25Hz & 720 @ 59.94/50/30/25Hz

	Desktop	Laptop
• OS:	Windows 7, 8 or 10 (with DirectX 11)	
• Memory:	4GB	
• CPU:	Intel® Core™ Dual@3.0GHz or i3@2.4GHz, (4th generation named 4xxx or newer)	Intel® Core™ i3 @ 3.2GHz, (4th generation named 4xxx or newer)
• Hard Disc Space:	1GB required (SSD type recommended)	
• Connections:	USB 3.0 xHCI host controller (Intel chipset recommended)	
• Integrated Graphics:	Intel® HD Graphics	
• Dedicated graphics card:	AMD Radeon™, 1GB ram	nVidia GeForce GT 1GB RAM
• Monitor resolution:	1920x1080 (recommended)	

Software recommended

- | | |
|---------------|-----------------------|
| • Windows 7: | Youcam 7 |
| • Windows 8: | Windows 8 Camera App |
| • Windows 10: | Windows 10 Camera App |

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TAGARNO®

Declaration of Conformity

TAGARNO A/S
Finlandsvej 2
8700 Horsens
Denmark

PRODUCT

NAME	MODEL	DESCRIPTION
TAGARNO FHD ZIP	600600	Inspection Camera Unit

DIRECTIVES/STANDARDS
TAGARNO A/S hereby declares that the product listed above, complies with the following directives:


DIRECTIVE	
2014/35/EU	Low Voltage Directive
2014/30/EU	Electromagnetic Compatibility (EMC)
2006/25/EU	Artificial Optical Radiation
2011/65/EU	Restriction of Hazardous Substances (RoHS)
2012/19/EU	Waste Electrical & Electronic Equipment (WEEE)

By conforming to the following harmonized standards and regulations:

STANDARD/REGULATION	
IEC 61326-1:2013	Class A / Industrial Electromagnetic Environment
IEC 62471:2008	Risk Group Exempt / Blue Light Radiance
IEC 61010-1:2010	IECEE CB Scheme Ref. Cert.No. NO103722
EC 1907/2006	Registration, Evaluation, Authorisation & Restr. of Chemicals (REACH)
FCC / IC	Part 15 Class A / CAN ICES-3 (A)/NMB-3(A)

ISSUED BY

MANUFACTURER	DATE (DD/MM-YYYY)
TAGARNO A/S	01/02-2024

SIGNATURE

Anders Ravnskjær Pedersen, Head of R&D

CE
UK
CA
FC

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Questions?

If you have any questions about your microscope, don't hesitate contacting your local distributor or one of our offices in Denmark and United States.

CONTACT US

www.tagarno.com

info@tagarno.com

DENMARK

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Finlandsvej 2
8700 Horsens

UNITED STATES OF AMERICA

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TAGARNO