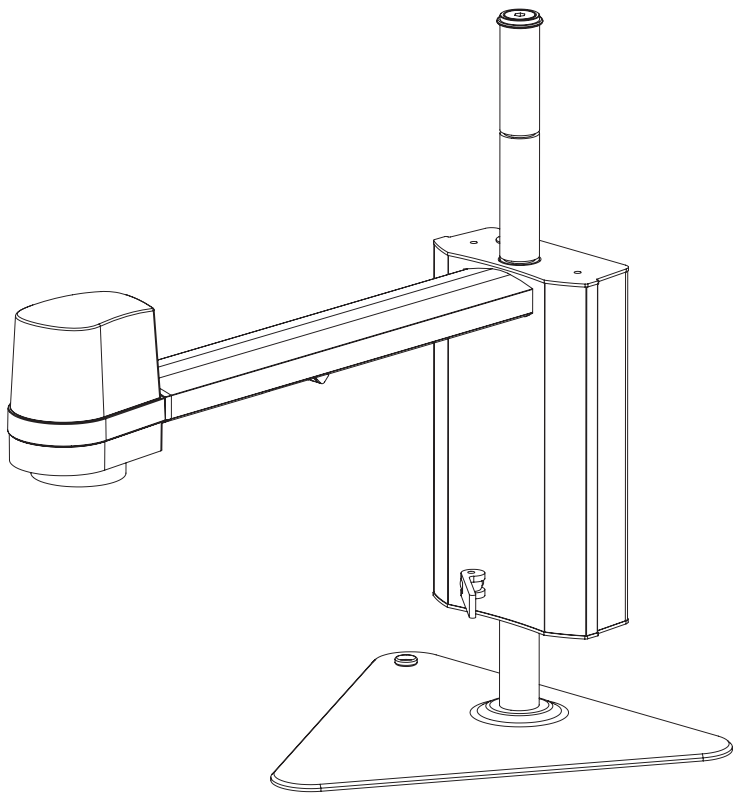


MANUAL | TAGARNO FHD UNO

VERSION: 1.1.5 | 2017-08-23



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1. INTENDED USE

The product is a digital magnifying system consisting of a camera unit, PCBs, mechanical parts and a power supply. The product is intended for marketing worldwide and is designed for manual visual inspection

2. WARNINGS



Read all safety information before you use the product
Please pay attention when you see the warning label on the product

1. Read the manual before you use the product
2. Use the product only as specified, or the protection supplied by the product can be compromised
3. If fluids are spilled on the product, turn the system off immediately by pulling the power supply out of the electrical outlet
4. In case of fire close to the microscope, please turn off and disconnect the system
5. Do not touch the light source. It gets hot when using the product
6. Do not look directly into the light source
7. You must not discard this electrical/electronic product in domestic household waste
Please dispose at your local recycling centre
8. Avoid subjecting the lens to sharp or hard objects
9. Please do not connect the microscope, if visible damages appear
10. When applicable connect the power plug to a grounded power outlet
11. Do not dismantle any parts of the microscope, except where noted in the manual
12. Never disassemble or clean internal optical surfaces
13. Use only the power supply provided from TAGARNO
14. Always turn off the system before unplugging, when possible

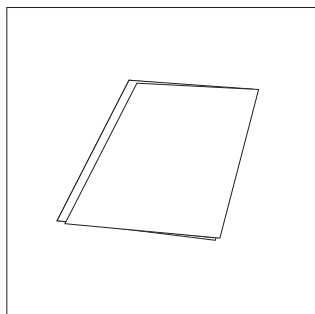


Warning: This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take appropriate measures.

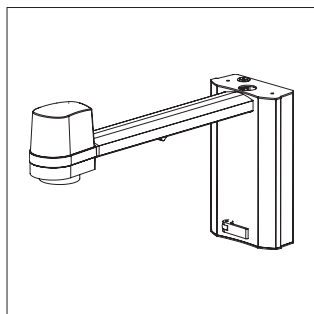
3. TIPS

1. When applicable, use both hands to move the XY Table
2. When applicable use both hands to adjust the height of the product
3. Avoid touching the lens glass
4. Place the microscope near a wall outlet where the plug can be easily unplugged

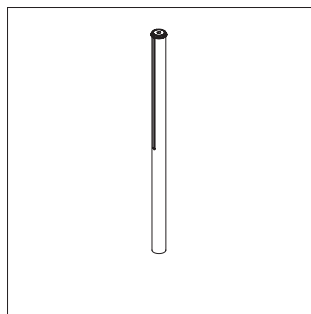
4. YOU HAVE RECEIVED



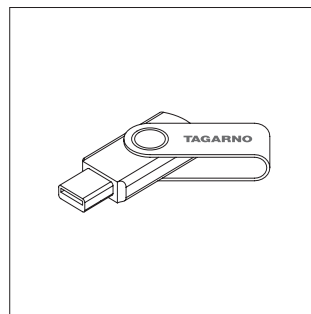
Manual



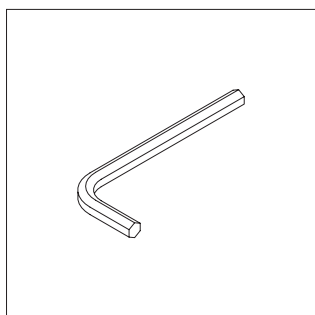
Camera arm



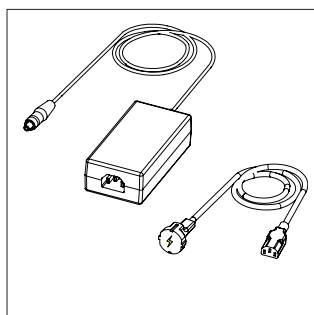
Rod, Washers, Screws



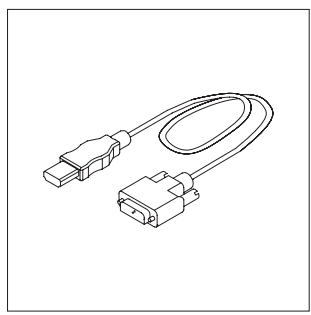
USB Memory Stick



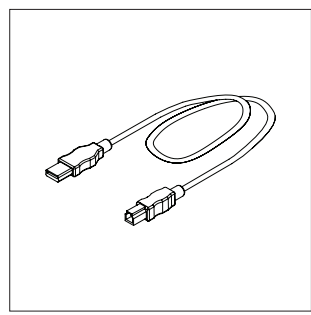
Hexagon tool



Power supply

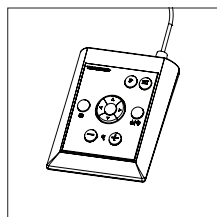


HDMI - DVI cable

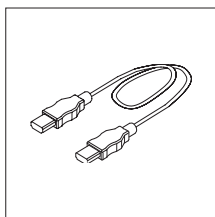


USB 3.0 A-B Cable

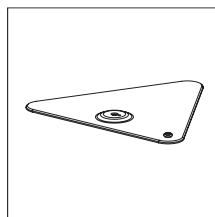
OPTIONS



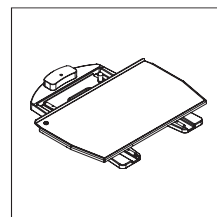
XPLUS FHD Control box and cable



XKEY Control box



Base

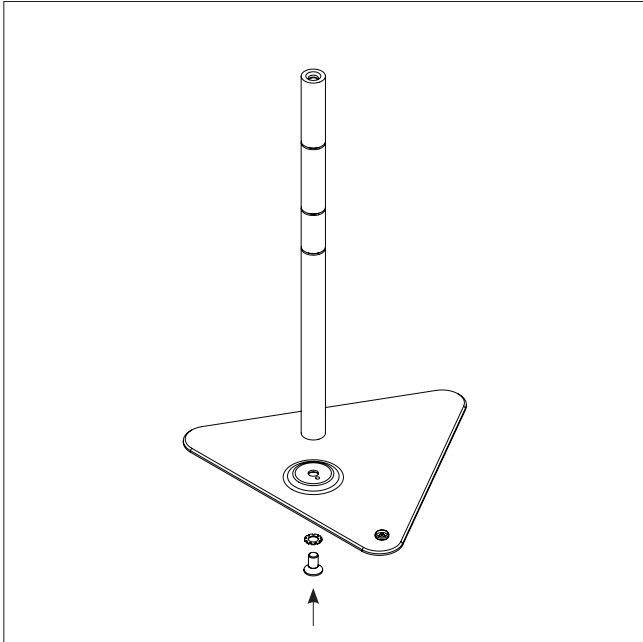


XY table

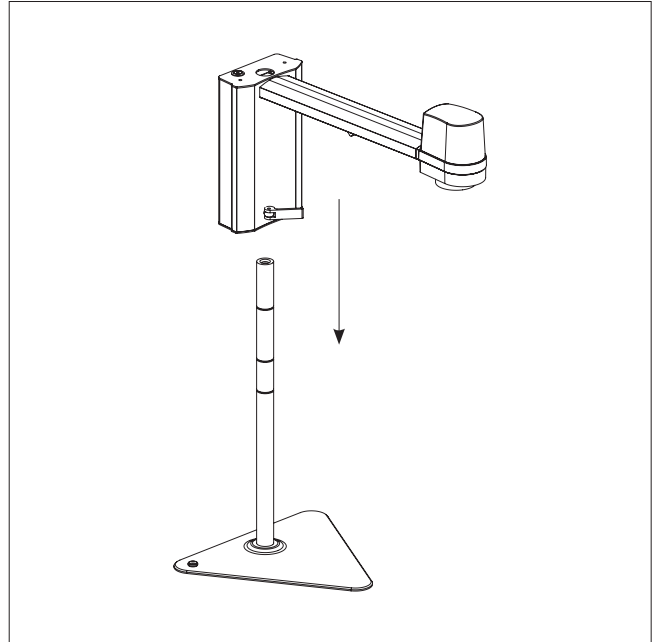
5. ASSEMBLING

ASSEMBLING | BASE (1/2)

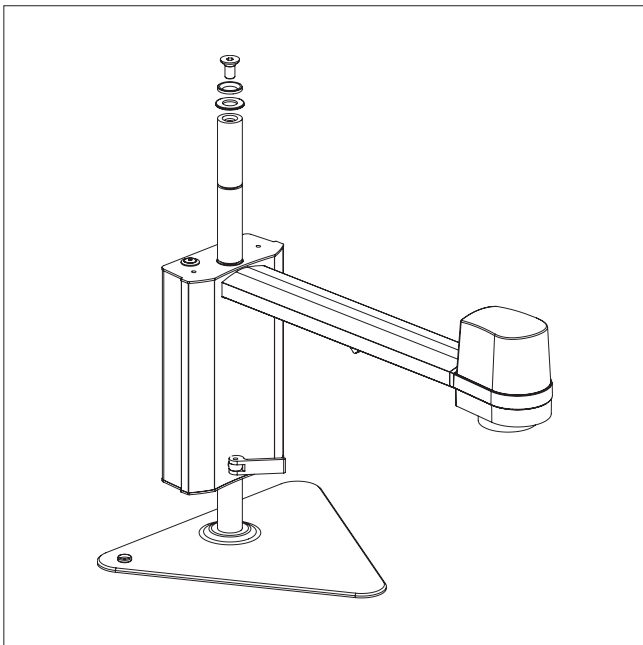
How to install video: tagarno.com/video-tutorials/how-to-install-tagarno-uno.mp4



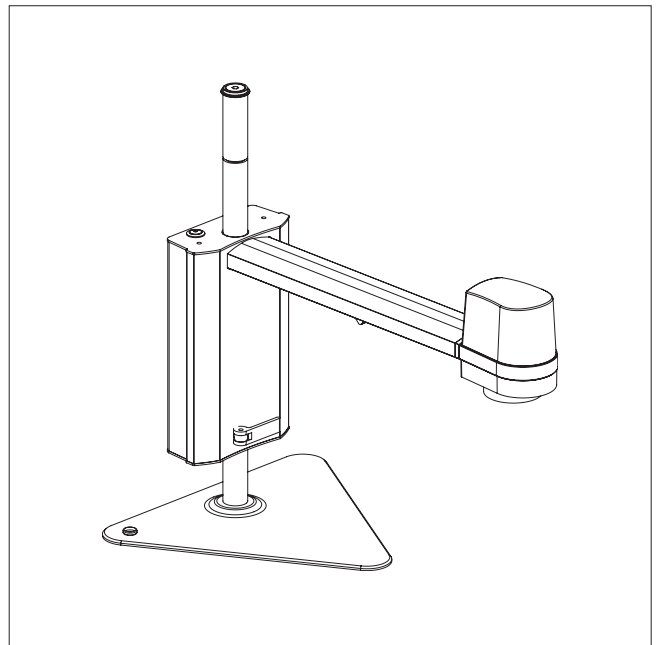
Assemble base and rod with washer and screw



Place the camera arm on the rod

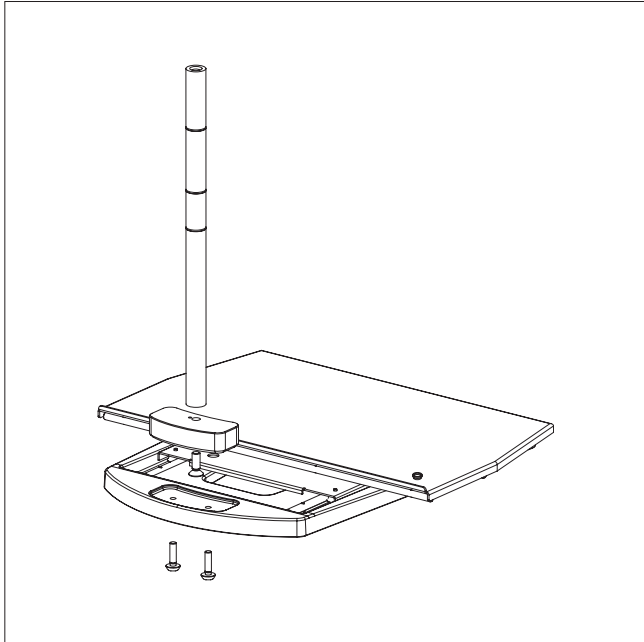


Lock the camera arm and screw the washer on top of the rod

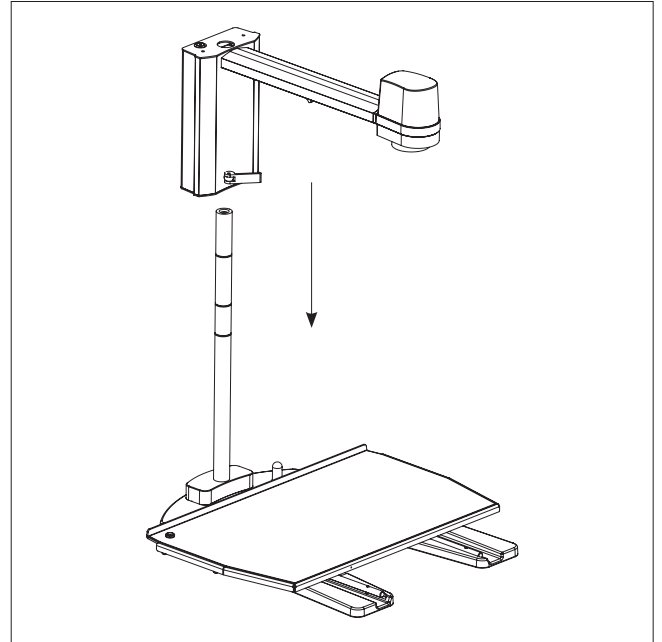


The complete microscope with base

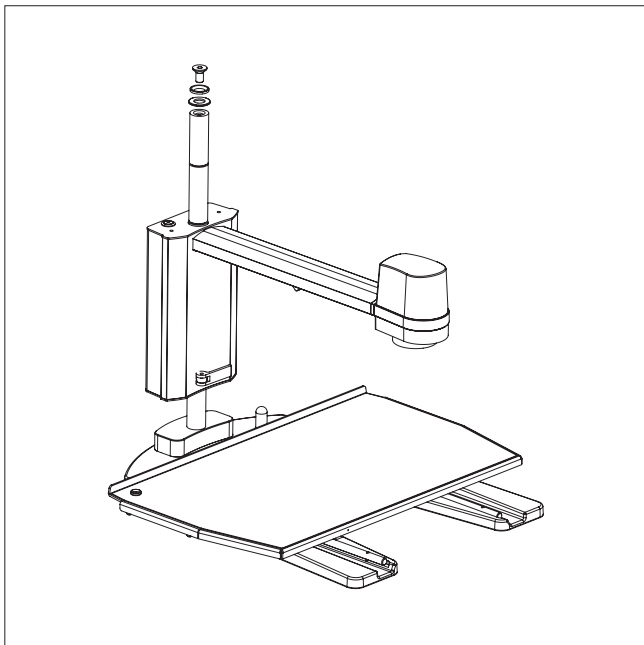
ASSEMBLING | XY TABLE (2/2)



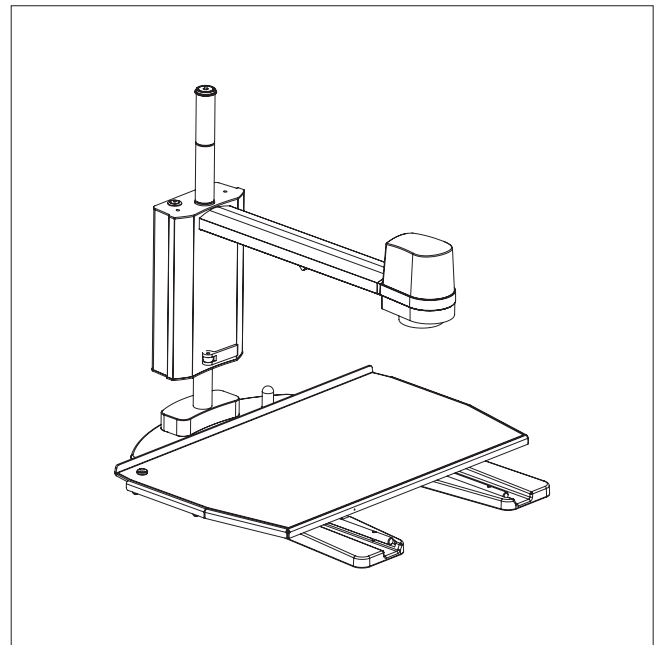
Assemble XY Table, block and rod with three screws



Place the camera arm on the rod



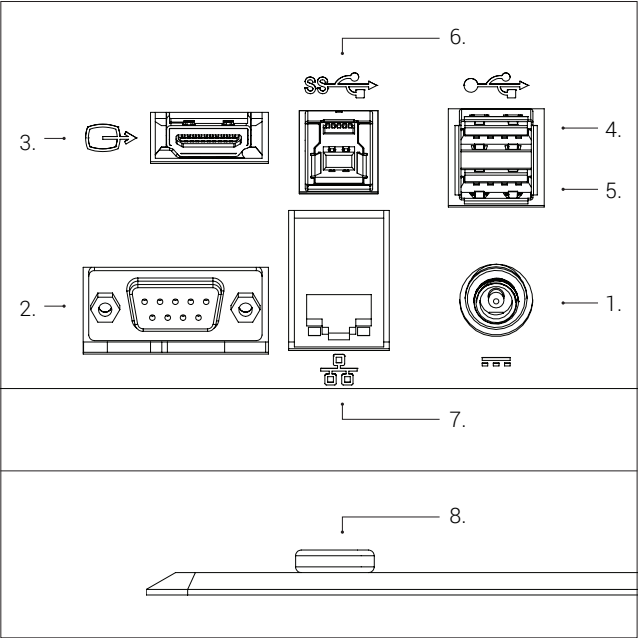
Lock the camera arm and screw the washers on top of the rod



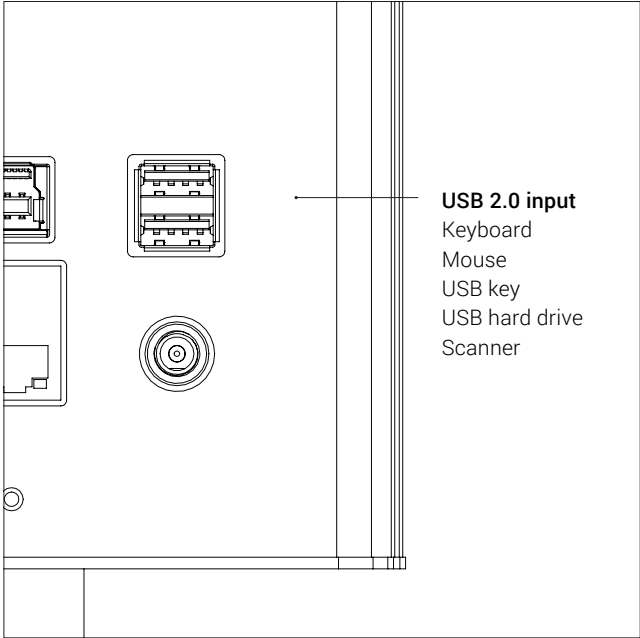
The complete microscope with XY Table

6. CONNECTING

CONNECTING | BASE + XY TABLE (1/3)



Connect USB cable, control box, monitor, Ethernet and power supply in that order.



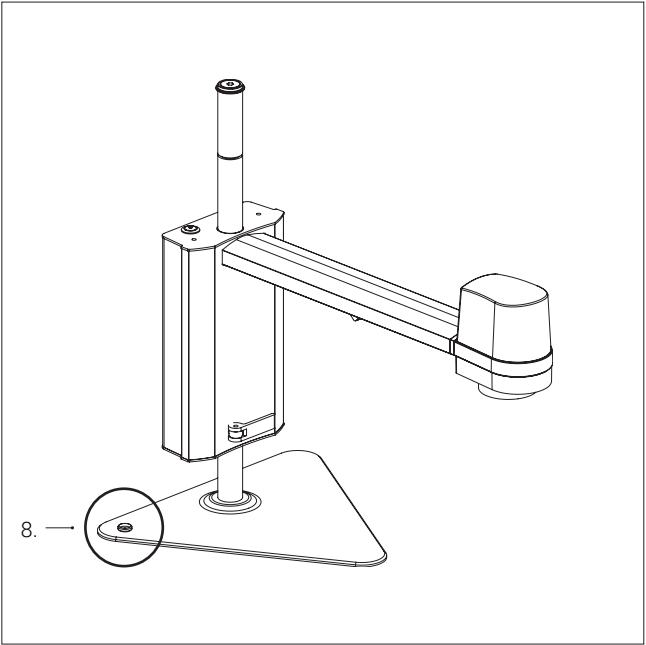
Connect keyboard and mouse in the USB 2.0 inputs (only for use with TMA). Keyboard and mouse need to be HID compliant.

You can also use the USB inputs for a USB key, USB hard drive and/or barcode scanner.

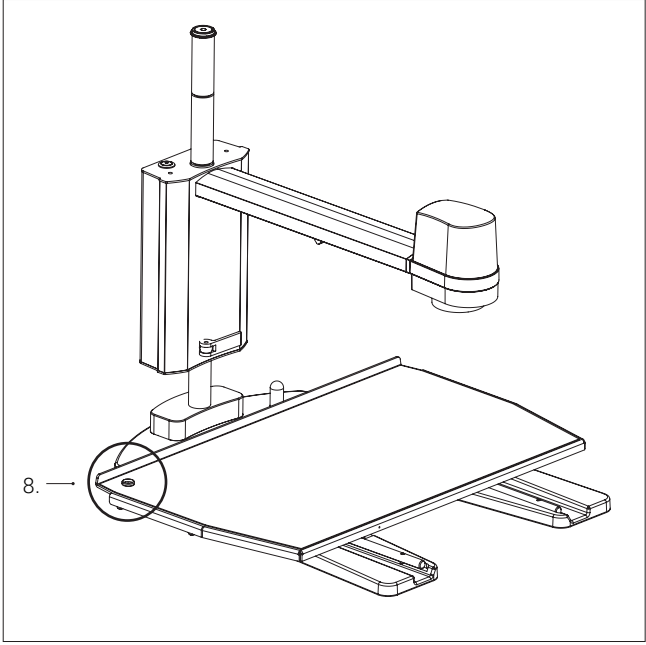
If necessary use a USB hub to get multiple USB ports.

Connector	Description	Type	Connect to	Specification
1	Power supply (DC)	DC Jack	Power socket	Input: 12V ~ 1.3A ⚠ Use only the power supply provided by TAGARNO: Brand/Model: Mean Well/GSM40A12 Input: 100-240V ~ 1.0-0.5A, 50-60Hz Output: 12V ~ 3.34A Max
2	Control box	D-SUB 9-Pin Female	Control box	Output: 3.3V ~ 6A Max ⚠ Use only control boxes supplied by TAGARNO
3	Output	HDMI Standard Type A	Monitor	HDMI Out 1080p60
4+5	USB 2.0 input	USB 2.0 Type A Socket	Keyboard Mouse USB key USB hard drive Barcode scanner	USB 2.0 Host. Output: 5V ~ 500mA
6	USB 3.0 output	USB 3.0 Type B Socket	Computer	USB 3.0 Device. Self-powered
7	Ethernet	RJ-45	Ethernet wall socket	Ethernet LAN, 100BASE-TX/1000BASE-T
8	ESD	Snap Socket, 10mm	ESD Grounding point	ESD Grounding point. Only black models

CONNECTING | ESD (2/3)

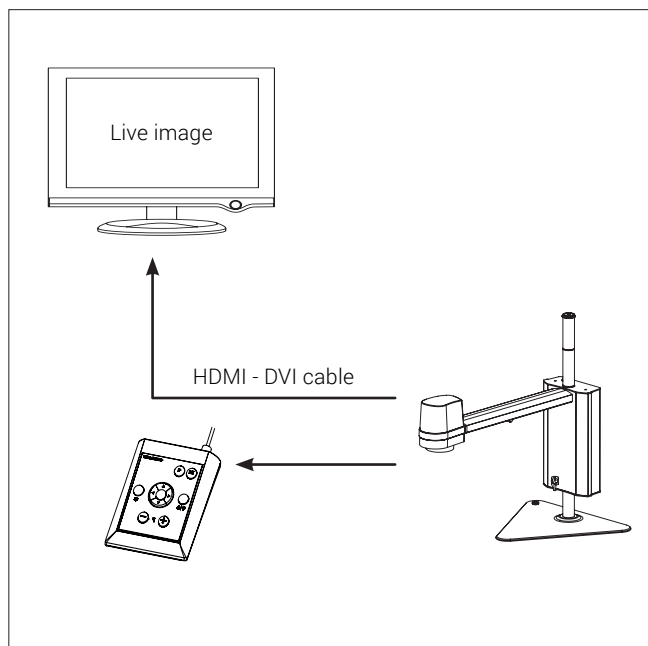


Connect ESD grounding cord (electrostatic discharge)

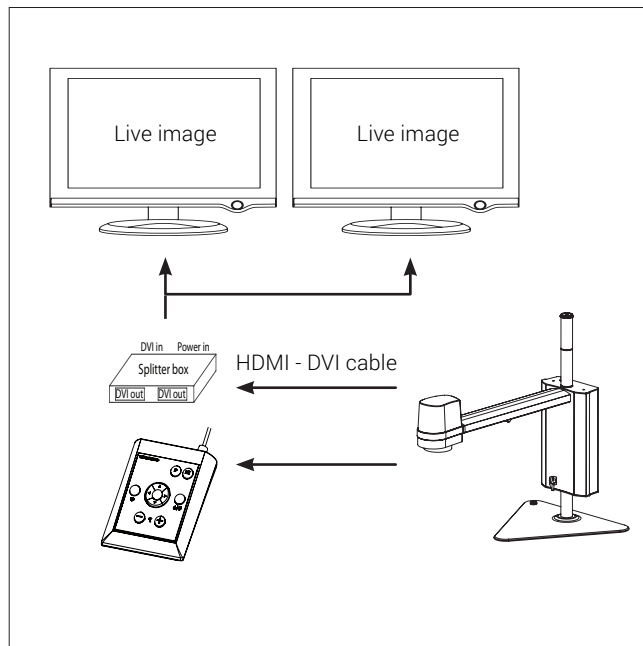


Connect ESD grounding cord (electrostatic discharge)

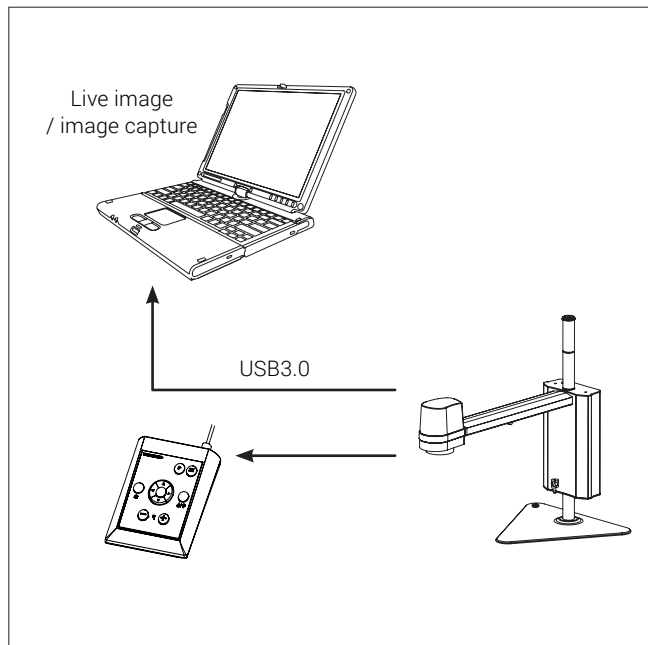
CONNECTING | COMBINATIONS (3/3)



The microscope can be connected directly to a monitor



The microscope can be connected to multiple monitors by adding an active signal splitter between the TAGARNO and the monitors

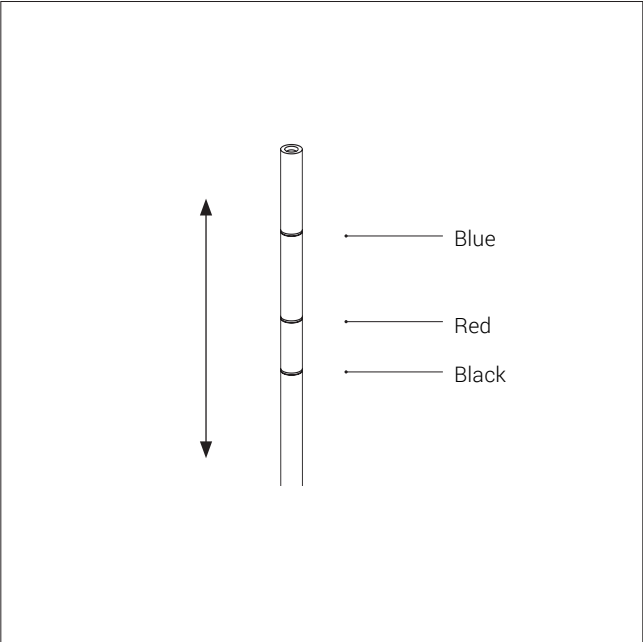


Live image and image capturing through USB3.0 / 3rd part software. See system recommended (third-party) under system requirements. You are still able to connect monitor(s) as described above.

7. OPERATION

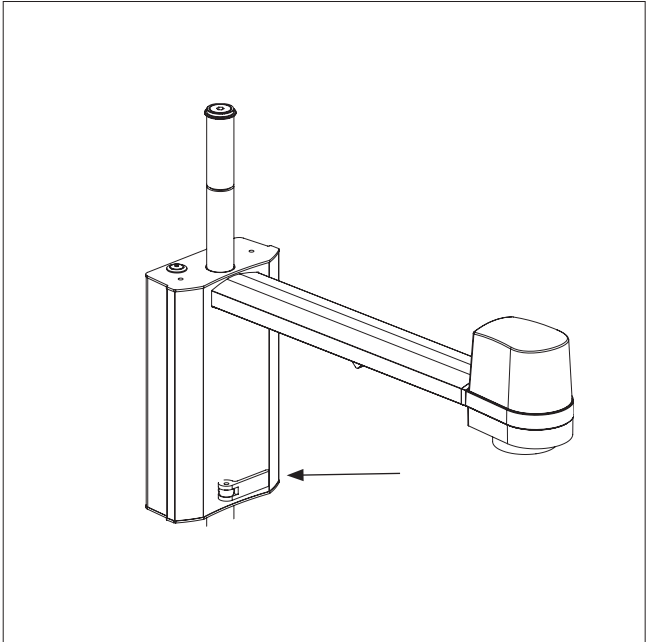
OPERATION | BASE + XY TABLE (1/3)

How to use video: tagarno.com/video-tutorials/how-to-use-tagarno-uno.mp4



Adjust the height of the camera arm according to the mounted lens

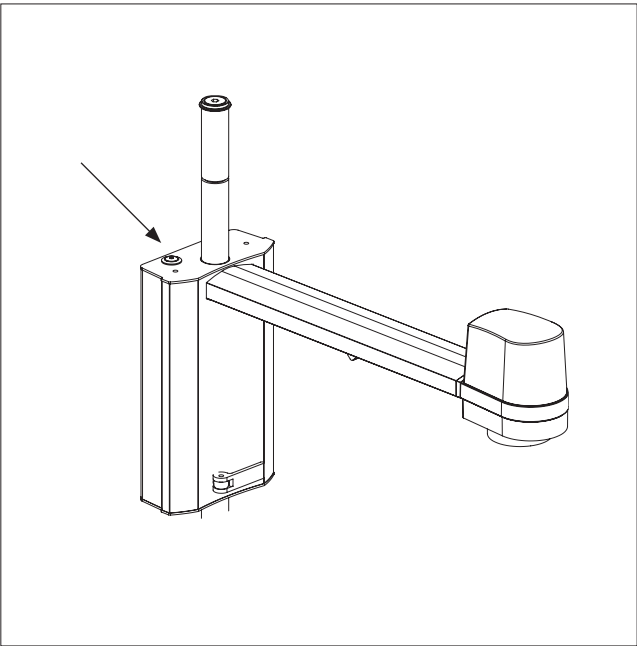
The three coloured rings on the rod mark the correct focus height for a +3, +4 or +5 lens respectively



Lock the camera arm at the ring that fits the lens you are using

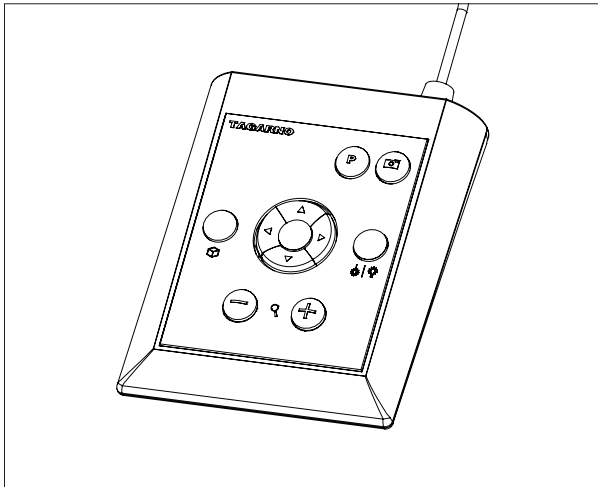
Lens	Ring colour	Lens to object distance
+3	Blue	333 mm/13.1"
+4	Red	250 mm/9.8"
+5	Black	200 mm/7.9"

Lens to object distance with a +10 lens is 100 mm/3.9"



Power on/off

OPERATION | XPLUS FHD CONTROL BOX (2/3)



XPLUS FHD Control box for TAGARNO FHD functions.
Do only connect equipment distributed by TAGARNO.

Dimensions

H: 45mm/1.8" | W: 120mm/4.7" | D: 150mm/5.9".

On screen display (OSD)

The on-screen display provides you with the relevant information when you push a button on the control box or Setup menu. For instance if you change the level of magnification, the white balance, iris, etc. In this way you always know which function you are activating and which parameters you are using.



Zoom

Push this button on the control box to zoom in.



Push this button on the control box to zoom out.

The magnification level will show via On Screen Display.

Manual Focus

Turn autofocus off by pushing both zoom buttons (plus and minus) on the control box at the same time until you hear a beep. You can now adjust focus manually with the help of the zoom buttons.



Push this button on the control box to adjust focus if you wish to focus on something very close.



Push this button on the control box to adjust focus if you wish to focus on something that is farther away.

To turn the autofocus on again, simply push both zoom buttons (plus and minus) at the same time until you hear a beep. The focus values will show via On Screen Display.



Setup Menu

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



Snapshot Function

To take a picture and transfer it to USB or your microscope internal storage, press the image capture button until you hear a beep. Long press on the same button will save an image with graphics, causing the live image to freeze for a few seconds.

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

When taking a picture an information window will appear for a few seconds showing the file name and storage location.

The image will be saved on the inserted USB memory stick. If a USB memory stick is not attached, the image is saved internally on the microscope, provided the share file mode is turned on. Otherwise an error message will appear and you are not able to save images.

To access the files on the microscope, follow descriptions below.

NB: The serial number is available on the system label and via the System information window in the microscope Setup menu.

Access files with Windows operation system:

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

Access files with macOS 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

Double click the images folder and you will be able to save, view, copy, move and rename images.



Memory Function (Preset Button)

To save a favourite setting, press the "P" button.

A Preset Manager menu appears. Here you can choose which of the 4 presets to use/overwrite, this is done by marking and choosing save for the given preset.

To use a preset, simply press "P" and press the center button to choose the preset you want to recall.

The preset values will show via On Screen Display.



Laser pointer (TAGARNO FHD TREND)

Press this button to turn the laser pointer on/off.

You will hear a warning when turning the laser pointer on.

NB! Never look directly into the laser pointer.

If you are using another TAGARNO unit than TAGARNO FHD TREND, a window on the screen will provide you with information.

OPERATION | XPLUS FHD + XKEY CONTROL BOX (3/3)



Light on/off

Press and hold this button to turn the light on/off.
When the light is turned on/off, a white balance calibration will be performed automatically.



Application shortcut

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.

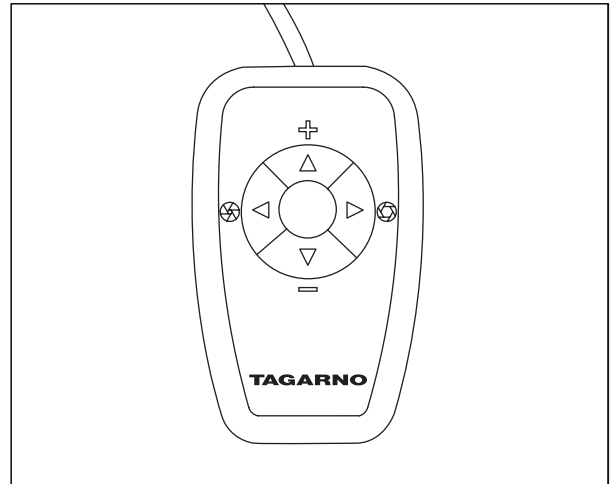
Factory default directs to the Ruler application with both horizontal og vertical ruler activated.



Multi Function Buttons

When the Setup menu is deactivated, you are able to use the Multi Function Buttons to control the iris, gain and exposure time.

Press the center button to switch between auto and manual exposure mode.



XKEY Control box for TAGARNO FHD functions.
Do only connect equipment distributed by TAGARNO.

Dimensions

H: 22mm/0.87" | B: 61mm/2.40" | D: 100mm/3.94"



Zoom

Push this button on the control box to zoom in.



Push this button on the control box to zoom out.

The magnification level will show via On Screen Display.

Manual Focus

Turn autofocus off by pushing both zoom buttons (plus and minus) on the control box at the same time. You can now adjust focus manually with the help of the zoom buttons.



Push this button on the control box to adjust focus if you wish to focus on something very close.



Push this button on the control box to adjust focus if you wish to focus on something that is farther away.

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

The focus values will show via On Screen Display.

Multi Function Buttons

Use the Multi Function Buttons to control the iris, gain and exposure time.



Press the center button to switch between auto and manual exposure mode.

When the On Screen Display is open, all four arrows can be used for navigating the menu and adjustment of settings.

The window will automatically close after 3 seconds inactivity.

8. SETUP MENU

SETUP MENU (1/2)

The setup menu in your TAGARNO FHD microscope provides you with 2 entrances to setup your microscope exactly as you like it.



Access the Setup menu by pressing the round center button on the control box for approx. 1 second.

The 5 possibilities are:

1. Camera settings 2. General settings 3. Applications
4. Info 5. On/off



To navigate in the set-up menu, use the multi function buttons on the control box.

1. CAMERA SETTINGS



When applicable, sliding the button to the right, will activate the feature. Sliding the button left will deactivate the functionality.

White balance calibrate

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 described above.

Optimal working distance

This setup works in 3 steps and needs to be carried out on a flat surface. Take 3 zoom levels into consideration to perform as precise measurements as possible. The magnification settings prior to performance will be restored.

Closeup 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.

Start magnification

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

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.

Picture flip

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

Infrared filter

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

White balance calibrate at LED light change

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

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

Video format

Choose between various available video formats:

1080p60 / 1080p50 / 1080p30 / 1080p25

Exit setup menu

You can always exit the setup menu by pressing the center button on the control box for 1 second or by choosing Exit in the Setup menu.

Same procedure is valid regardless of the menu option accessed.

2. GENERAL SETTINGS

Image format

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

Ruler color

Set the ruler color to your preferred color choice to separate it from your displayed object. Choose between 6 different colors:

YELLOW, BLUE, RED, BLACK, WHITE AND GREEN.

File share mode

Activate file share mode which enables you to save images in the microscopes internal storage and access them via computers on the same network as your microscope.

Auto capture mode

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

Auto interval

Set the function to you horizontally interval to automatically capture images in a certain interval. Intervals start from 10 seconds and up. Start/stop the interval capturing by pressing the image button on the control box.

Monitor auto detect

Turn off to manually set monitor width

SETUP MENU (2/2)

Monitor width

Manually set your monitor width, if you do not wish to use the automatic monitor auto detect, which is read by default. This automatically changes the magnification level shown in the OSD.

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.

System language

The following languages are available as system language: Danish, German, English, French, Russian and Spanish.

System units

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

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.

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.

Time

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

Date

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

3. APPLICATIONS

Focus stacking

In the special features settings, 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.

1. Set magnification level
2. Level 1: Manually set focus to the part of the object farthest away.
3. Level 2: Manually set focus to the nearest part of the object.
4. Choose amount of images to stack between 5 and 50
5. Run stacking until menu displays Stacking done
6. Save image
7. Close Focus Stacking

Ruler

Turn the OSD Ruler Off, Horizontal, Vertical or Both to get a ruler displayed on top of your live image on screen in metrics or imperial units, according to chosen measuring units.

When the Ruler is chosen the system will automatically start in manual focus set to focus on the part of the object farthest away.

It is also possible to save an image with graphics from the Ruler function.

Measurement application

See separate section about Measurement Application

4. INFO

System information

This enables you to see model number, serial number, firmware versions and other information about the product.

Storage information

When choosing this function an information window will appear showing the internal storage capacity on the microscope and on the USB memory stick.

System update

See separate section about System Update.

Restore factory default settings

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

5. OFF

Turn the TAGARNO microscope off.

Menu options, layout and messages might slightly vary from one version of this microscope to another. Please contact your TAGARNO distributor if you have any questions regarding your TAGARNO microscope.

9. SYSTEM UPDATE

SYSTEM UPDATE (1/2)

This is a step by step guide to perform a system update on your TAGARNO FHD TREND, PRESTIGE or UNO.

- To install a new application or updates to your TAGARNO, you need to perform a system update on your current microscope.
- To perform a system update, a system update file needs to be installed directly on the microscope.
- In some cases you need a license key generated from the microscope's serial number in order to activate the application after installation.

See the license key section for further explanation on how to request and activate a license.

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.

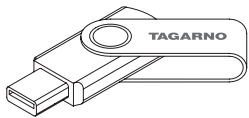
Follow the few steps below, to perform a system update to your TAGARNO microscope.

STEP 1: DOWNLOAD INSTALLATION FILE

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

tagarno.com/firmware-download

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



3. If the file(s) is in a ZIP folder, unzip the files and make sure that only the correct installation file(s) and no ZIP folders 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)

The installation file(s) is identical for TAGARNO FHD TREND/ PRESTIGE/UNO.

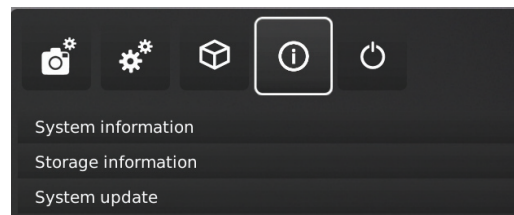
STEP 2: PLUG IN THE USB MEMORY STICK

1. Plug the USB memory stick into one of the two USB 2.0 inputs at the back of the microscope. Leave the other USB 2.0 input empty.



STEP 3: START INSTALLATION

1. The system update process is initiated in the Setup menu - Info - System Update



- A. Access the Setup menu by pressing the round center button on the XPLUS FHD control box until the Setup menu appears
- B. To navigate in the Setup menu, use the multi function buttons on the XPLUS FHD control box
- C. Go to the fourth menu point (Info) in the top menu and access it by pressing the round center button
- D. Navigate to System Update and choose it by pressing the round center button

SYSTEM UPDATE (2/2)

STEP 4: PERFORM INSTALLATION

Screen dialogs will now guide you through the update process

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

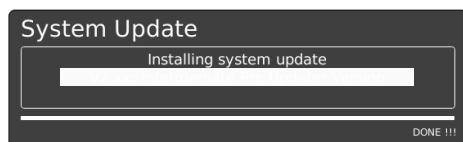


Note: At this point the update process can be cancelled safely by pressing Cancel.



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

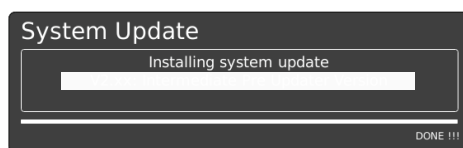
2. When the system update file has been read and validated, information about the new version is shown. Wait for the system to update.



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

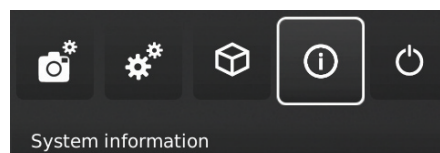
Note: The microscope might switch off after restart. In that case, turn it back on manually.

4. 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

1. 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

A new menu point will appear in the Setup menu under pt. 3 Applications, showing the new application.

Note: To activate the 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.

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

If you have trouble performing a system update please contact the TAGARNO distributor from which you have purchased the product or send an e-mail to support@tagarno.com.

10. LICENSE ACTIVATION

After installation of a TAGARNO application, you might need to activate a unique license key file to be able to access and use the application.

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

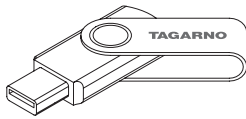
Note: The license can only be paired with the microscope which has the serial number stated in your license. The license can not be removed and transferred to another microscope.

STEP 1: DOWNLOAD LICENSE KEY FILE

1. 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 tagarno.com/request-license

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

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



3. 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.

STEP 2: PLUG IN THE USB MEMORY STICK

4. Plug the USB memory stick into one of the USB 2.0 inputs at the back of the microscope. Leave the other input empty during license activation.



← USB 2.0 input

STEP 3: START ACTIVATION

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



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

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

C. Go to the fourth menu point (Info) in the top menu and access it by pressing the round center button

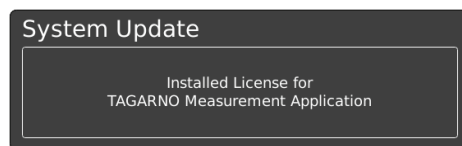
D. Navigate to System Update and choose it by pressing the round center button

STEP 4: PERFORM ACTIVATION

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



7. Press Confirm 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

The TAGARNO application is now activated and is ready for use.

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

11. MEASUREMENT APPLICATION (TMA)

TAGARNO MEASUREMENT APPLICATION | CALIBRATION (1/3)

To use the measurement application the mouse and keyboard must be connected as described on page 6.

CALIBRATION SHEETS

When buying the measurement application you receive calibration sheets from D to I for Dot grid calibration and a ruler for linear calibration. Calibration sheets A, B and C are available at:

tagarno.com/download-calibration-sheets-abc

The calibration sheets provided can be used with lenses up to +10. Use the custom Dot grid or linear calibration methods for lenses +25 and higher.

NEW CALIBRATION

When performing a calibration four current values are locked and saved in the measurement software;

- Zoom level
- Focus height
- Close-up lens
- Scaling factor

After the calibration is performed, the proportions will only be measurable within the focus area.

NEW CALIBRATION - DOT GRID



Advanced calibration is done automatically by placing a predefined dot grid calibration sheet under the camera and taking a picture.

While running the calibration, the software will automatically compensate for lens curve distortion and non-linearity and carry out calculations with a precision of sub-pixels.

1. Select a suitable magnification level
2. Press New calibration

New calibration

3. Place the recommended calibration sheet straight under your microscope, so that the top row of dots is visible
4. Select the recommended calibration sheet in the drop down under Actual calibration sheet

Recommended calibration sheet: **Sheet D**
Actual calibration sheet: **Sheet D**

5. Click Run Calibration and check if the result says PASS

Run calibration

Note: If the calibration sheet is placed incorrectly, the calibration will fail. If the Result says FAIL, try choosing to Live ON to adjust the position of the calibration sheet and recalibrate by pressing Run calibration again.

6. Click OK to save the new calibration and close calibration state
7. Click Cancel to close without saving the calibration

Cancel OK

NEW CALIBRATION - LINEARY



This is a calibration method where you use a reference line and state the line length. The measurement accuracy depends the user's diligence when drawing the reference line.

Linear calibration does not compensate for lens curve distortion.

1. Select a suitable magnification level
2. Press New calibration
3. Choose Lineary calibration in the drop down menu under Actual calibration sheet

Linear calibration
Custom dotgrid

4. Find an object with measurable distances (eg. a ruler) and place it under the microscope
5. Select Lineary calibration in the drop down menu
6. Select one of the predefined ruler lengths from the dropdown menu matching the actual length of your reference line
7. Place the markers according to the chosen ruler length
8. Adjust the image according to the appearing reference line - zoom in and adjust the end points for increased precision

Note! When measuring on a ruler, always measure from forefront to forefront of the lines on the ruler

9. Click Run calibration

Note: If the markers is placed incorrectly, the calibration will fail. If the Result says FAIL, try switching Live OFF to zoom in and adjust the position of the markers and recalibrate by pressing Run calibration again.

10. Click OK to save the calibration and close
11. Click Cancel to close without saving the calibration

TAGARNO MEASUREMENT APPLICATION | CALIBRATION AND TOOL MENU (2/3)

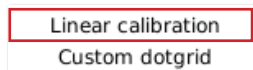
NEW CALIBRATION - CUSTOM DOTGRID



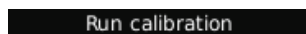
Advanced calibration is done automatically by placing any predefined dot grid calibration tool under the camera and taking a picture. While running the calibration, the software will automatically compensate for lens curve distortion.

The dots should at least have a diameter of 20px on the screen to be recognized by the calibration mechanism.

1. Select a suitable magnification level
2. Press New calibration
3. Select Custom dotgrid in the drop down under Actual calibration sheet



4. Select the dot spacing measure and preferred unit
5. Place the calibration grid straight under the microscope, so that the top row of dots is visible
6. Click Run Calibration and check if the Result says PASS



If the calibration sheet is placed incorrectly, the calibration will fail.

If the Result says FAIL, try choosing to Live ON to adjust the position of the calibration sheet and recalibrate by pressing Run calibration again.

7. Click OK to save the new calibration and close calibration state
8. Click Cancel to close without saving the calibration

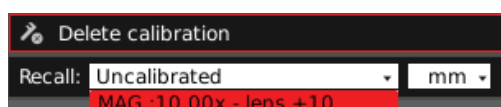


DELETE A CALIBRATION



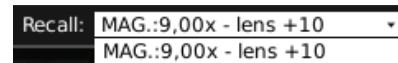
Delete calibration

Use this function to delete a saved calibration.



SAVING AND RECALLING A CALIBRATION

The application will store and recall a calibration, so that you do not have to recalibrate every time the software has been closed.



When you readjust a calibration, the camera focus locks. This means that you maybe have to readjust the physical distance between the camera and the object you are looking at (focus height), to display the image sharply.

When recalling a calibration, it is important that you use the same close up lens as during the initial calibration.

For each measurement the result will automatically appear in a box, which will be editable in size and location.

Is it not possible to edit the text numbers in the box.

TOOL MENU

Settings



Mouse

An information window will occur and you can now adjust the mouse sensitivity by selecting a point on the bar between slow and fast.

Decimals

Choose the number of decimals you want your measurements to be displayed with by using the drop down menu.

Tooltips

When you mouseover a menu point a text box will show tooltips.

Magnification levels

Use the keyboard to change magnification levels



Object and text color adjustment



Use this function to set the colors for drawings and texts before using a tool. The hue is set to black by default. You are not able to edit the color after using the tool.

TAGARNO MEASUREMENT APPLICATION | CALIBRATION AND TOOL MENU (3/3)



Background color adjustment

Adjust the color of the text annotation background before using the text annotation tool. The hue is set to transparent by default. You are not able to edit the color after using the tool.



Line width

Choose the line width of your measurements lines in pix



Choose measurement units

Choose your preferred measurement units in the dropdown menu. It is possible to choose between mm, cm and inches.



Edit

In edit mode all adjustable points will be shown as a small circle which highlights (red circle) on mouse over. When a point is highlighted you can choose and relocate the point. In view mode the points are hidden. By right-clicking on a point, you are able to delete the point.



Clear all

Use this button to clear all drawings.



Point-to-point measurement

With this measurement tool it is possible to measure the distance between two points. Use left mouse click to place the two endpoints.



Circle measurement

This tool enables you to calculate a radius of a circle. Place three points in the periphery of a circle and it will calculate the radius. Use left mouse click to place the three points.



Angle measurement

This function makes it possible to measure any given angle. Use left mouse click to place four points - two on each side of the angle you want to measure.



Area measurement

Use this function to make a polygon area measurement. Use left mouse click to place at least three points. To stop adding points to your polygon just right-click on the mouse.



Text Annotation

This function makes it possible to add text annotations anywhere in the window. Use the Keyboard to type the text. Move the text box to the wanted location and left click the mouse to confirm the position.



Arrow Annotation

With this tool it is possible to add arrow annotations anywhere in the window. Use the left mouse button to place the endpoints. The second point is the end of the arrow.



Live View

Use this button to toggle between live and still image mode. In Live mode the live camera image is active. In Still image mode the latest snapshot will be shown.



Lens Correction

This function takes the calibration data and corrects the image for lens curve distortion. Lens correction can only be processed in a calibrated state, not in lineary calibrated mode.

Moreover this button can be used to toggle between latest snapshot and a corrected version of the snapshot.



Snapshot

Use this button to take a snapshot of the live image. The snapshot will not be saved automatically.



Save Image

This button gives a choice between saving the image with or without drawing overlay. When saving with drawing overlay the actual view will be saved (including digital zoom).

When taking a picture an information window will appear for a few seconds showing the file name and storage location.

The image will be saved on the inserted USB memory stick. If a USB memory stick is not attached, the image is saved internally on the microscope, provided the share file mode is turned on. Otherwise an error message will appear and you are not able to save images.



Close

Use this function or hold center button down for a few seconds to close the measurement application.

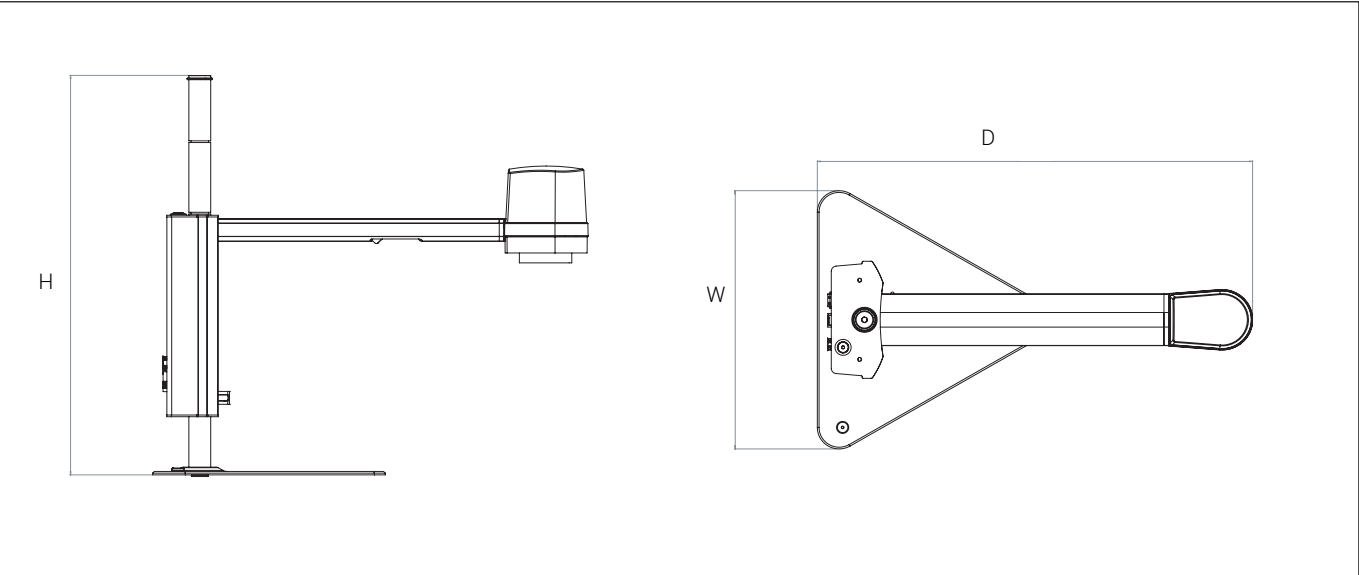


Move Toolbar

Press and hold left mouse button down to move the toolbar around the window and place it by releasing the mouse button.

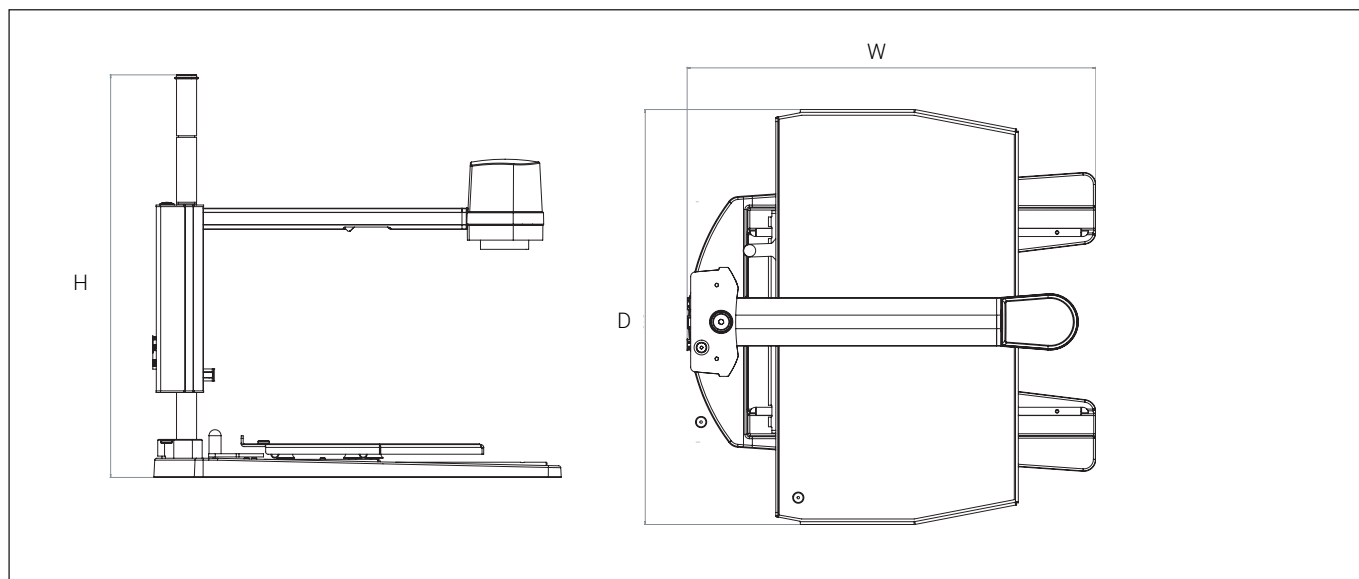
12. TECHNICAL SPECIFICATIONS

TECHNICAL SPECIFICATIONS | BASE (1/3)



Dimensions	H:464 mm/18.3", W:300 mm/11.8", D:499 mm/19.6"
Weight	5,2 kg/11.46 lbs
Camera resolution	FHD 1080p, 1920x1080@60Hz
Camera zoom	20x optical
Autofocus	Yes
Power consumption	17,1W
Standby consumption	0.7W
Storage	-5 - +60°C / +23 - +140°F, 20 - 90% RH
Operation	+5 - +40°C / +41 - +104°F, 20 - 80% RH
Work height	Min: 200mm/7.87" Max: 415mm/16.34"
Work depth	370mm/14.57"
Auto Monitor Detect	Yes
Plug connection	HDMI output, HDMI input, USB 3.0 output, USB 2.0 input, Ethernet and Sub-D for Control box

TECHNICAL SPECIFICATIONS | XY TABLE (2/3)



Dimensions	H:503 mm/19.8", W:518 mm/20.4", D:508 mm/20"
Weight	11.0 kg/24.3 lbs
Camera resolution	FHD 1080p, 1920x1080@60Hz
Camera zoom	20x optical
Autofocus	Yes
Power consumption	17,1W
Standby consumption	0.7W
Storage	-5 - +60°C / +23 - +140°F, 20 - 90% RH
Operation	+5 - +40°C / +41 - +104°F, 20 - 80% RH
Work height	Min: 200mm/7.87" Max: 406mm/16.34"
Work depth	370mm/14.57"
Auto Monitor Detect	Yes
Plug connection	HDMI output, HDMI input, USB 3.0 output, USB 2.0 input, Ethernet and Sub-D for Control box

TECHNICAL SPECIFICATIONS (3/3)

FEATURES

Auto & Manual Focus	Picture flip	Image format
Iris, Gain & Exposure Time	Start and lock magnification	Auto capture mode and interval
Snapshot	Closeup Lenses	System units
Presets	Date and time	Focus stacking (Optional)
White balance calibration	Ruler on/off and choose ruler color	
Turn light on/off	Monitor width or Monitor Auto Detect	

LENS

Dimensions	52mm/2.3"
Included lens	+4

LENS	Lens to object distance	Magnification on 22" monitor
+3	333 mm/13.1"	1.3x – 25.6x
+4	250 mm/9.8"	1.7x – 33.6x
+5	200 mm/7.9"	2.1x – 42.2x
+10	100 mm/3.9"	4.1x – 82.2x


RECOMMENDED MONITOR FORMAT

Panel format	16:9 (Widescreen)
How to link	DVI or HDMI input
Response time	2 ms
Signal format	FHD 1920x1080

ACCESSORIES

Lens, +3, +4, +5 and +10	FHD monitor 22" and 24	Cleaning kit
XPLUS FHD Control box	Mounting arm for monitor	Dust cover
XKEY Control box	Table and wall mount for monitor arm	Coaxial light
Foot switch	Circular tilting table	
Ring light kit	Height Adjustment Table	
Ultra Violet ring light	XY-Table	
Infrared ring light	Backlight kit	

POWER SUPPLY

Description	Power supply
Type	DC Jack
Input microscope	Input: 12V \approx 1.3A
Warning	 Use only the power supply provided by TAGARNO
Brand/Model	Mean Well/GSM40A12
Input power supply	100-240V \sim 1.0-0.5A, 50-60Hz
Output	12V \approx 3.34A Max

13. SYSTEM REQUIREMENTS

FULL HD 1080P @ 50/60HZ		
OS	Desktop	Laptop
	Windows 7, 8 or 10 (with DirectX 11)	
Memory	8GB	
CPU	Intel® Core™ i5 or i7 @2.4GHz, (3th or 4th generation named 3xxx or 4xxx)	CPU: Intel® Core™ i5 or i7 @2.4GHz (4th generation named 4xxx)
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	

FULL HD 1080P @ 25/30HZ		
OS	Desktop	Laptop
	Windows 7, 8 or 10 (with DirectX 11)	
Memory	4GB	
CPU	Intel® Core™ Dual@3.0GHz or i3@2.4GHz, (3rd generation named 3xxx)	Intel® Core™ i3 @ 3.2GHz, (3rd generation named 3xxx)
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	

SOFTWARE RECOMMENDED (THIRD-PARTY)

Windows 7	Youcam 6 + Youcam 7 (Youcam 7 is only compatible with video format FULL HD 1080P @ 25/30HZ)
Windows 8	Windows 8 Camera App
Windows 10	Windows 10 Camera App

14. MAINTENANCE

- 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 repair, 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.

15. 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.

16. LICENSE AGREEMENT

This TAGARNO product contains open source and third-party components.
tagarno.com/license-agreement

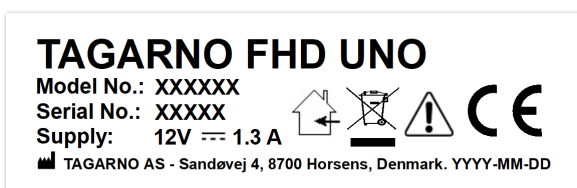
17. ERGONOMIC RECOMMENDATIONS

Please be careful when carrying the product from one place to another.

Always lift the microscope with one hand around the rod and the other hand beneath the base.

Please do not lift the microscope by grabbing the camera arm.

All TAGARNO products are marked with a product label:



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

18. DECLARATION OF CONFORMITY

PRODUCT

MODEL

TAGARNO FHD UNO | Type no.: 870000

ART

Inspection camera unit

MANUFACTURER

NAME

TAGARNO A/S

ADRESS

Sandøvej 4

ZIPCODE/CITY

8700 Horsens

COUNTRY

Denmark

PHONE

+45 76251111



DESCRIPTION

TAGARNO A/S hereby declares that the product listed above, consisting of a camera unit and a 12V power supply, is in compliance with the following European directive:

EMC DIRECTIVE 2014/30/EU

By conforming to the following harmonised standards:

EN 61010-1:2010

EN 61326-1:2013

The declaration is issued by:

MANUFACTURER

TAGARNO A/S



TAGARNO A/S

Sandøvej 4

8700 Horsens

Denmark

+45 76251111

mail@tagarno.com

www.tagarno.com