MANUAL | TAGARNO ZAP STAND

VERSION: 1.0 | FIRMWARE 5.8 | 2023-01-01

CONTENTS

Go to tagarno.com/productmanuals to find manuals and tutorial videos.

TAGARNO

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 a warning label on the product.

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.

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. Do not position the equipment so that it is difficult to operate the disconnecting device (appliance inlet of external power supply, equipment input connector)
4. If fluids are spilled on the product, turn the system off immediately by pulling the power supply out of the electrical outlet
5. In case of fire close to the microscope, please turn off and disconnect the system
6. Avoid subjecting the lens to sharp or hard objects
7. Please do not connect the microscope, if visible damages appear
8. Do not dismantle any parts of the microscope, except where noted in the manual
9. Never disassemble or clean internal optical surfaces
10. Use only the power supply provided from TAGARNO
11. Always turn off the system before unplugging, when possible

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

CAUTION
Follow these safety instructions when using the product.
- 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

These labels appear visible on the product:

This label is placed near the laser aperture
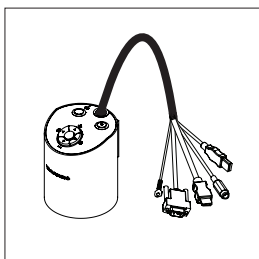The label below is placed on the camera head

CAUTION
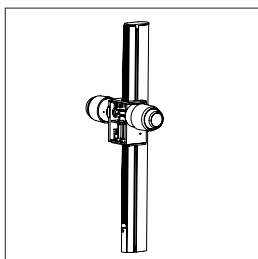CLASS 2 LASER RADIATION   RAYONNEMENT LASER CLASSE 2
DO NOT STARE INTO BEAM   NE PAS REGARDER DANS LE FAISCEAU
<1mW, 650nm CW
IEC/CEI 60825-1:2007 COMPLIES WITH 21 CFR 1040.10 AND 1040.11 EXPECT FOR DEVIATIONS
IEC/CEI 60825-1:2014   PURSUANT TO LASER NOTICE NO. 50, DATED JUNE 24, 2007

4. YOU HAVE RECEIVED

- ZAP STAND / ZAP STAND UPGRADE KIT   4
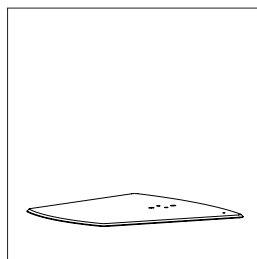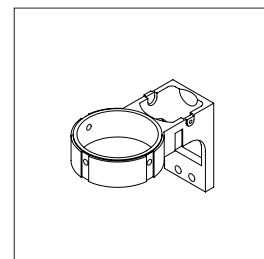
Smart guide	Camera head with lens, lens ring and cables	Rod	Base	Camera mount
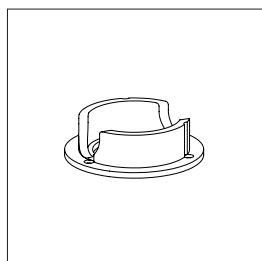
Camera adapter ring	Extension block and cylinder	Power supply	Various screws, hex keys and P clips

- ZAP WITH Ø76 ADAPTER KIT   7

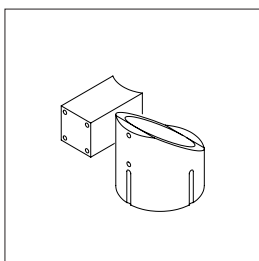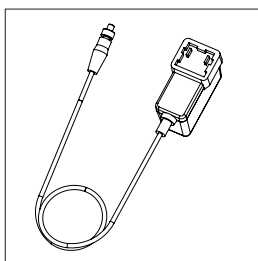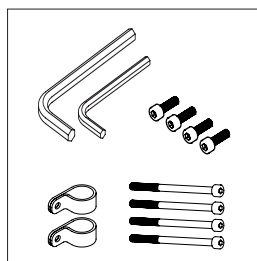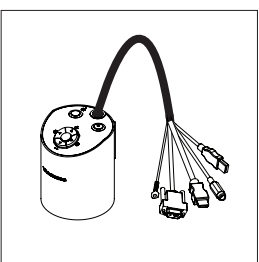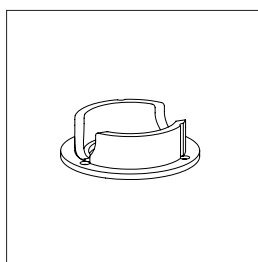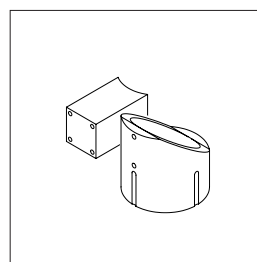|				
Smart guide	Camera head with lens, lens ring and cables	Camera adapter ring	Extension block and cylinder	Power supply
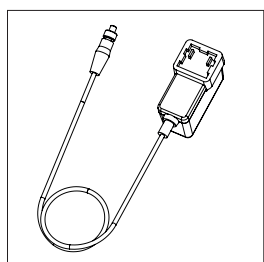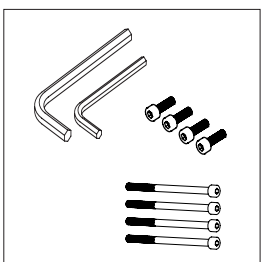
Various screws and hex keys

5. ASSEMBLING - ZAP STAND OR ZAP STAND UPGRADE KIT

ASSEMBLING | ZAP STAND OR ZAP STAND UPGRADE KIT (1/3)
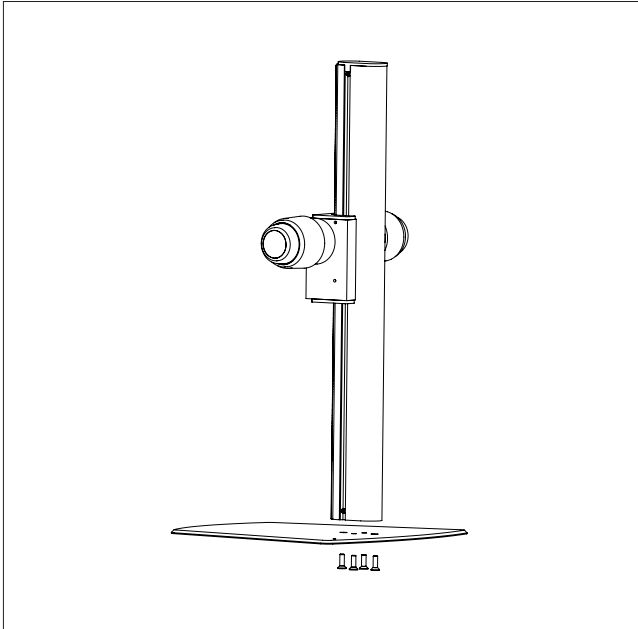
If you have a ZAP camera head already mounted on a flexarm, start by disassembling it by following the ZAP FLEX and ZAP INLINE manual.

Then, assemble the base and rod with four M5x16 countersunk screws (bag 1) and place the assembled stand on a sturdy table.
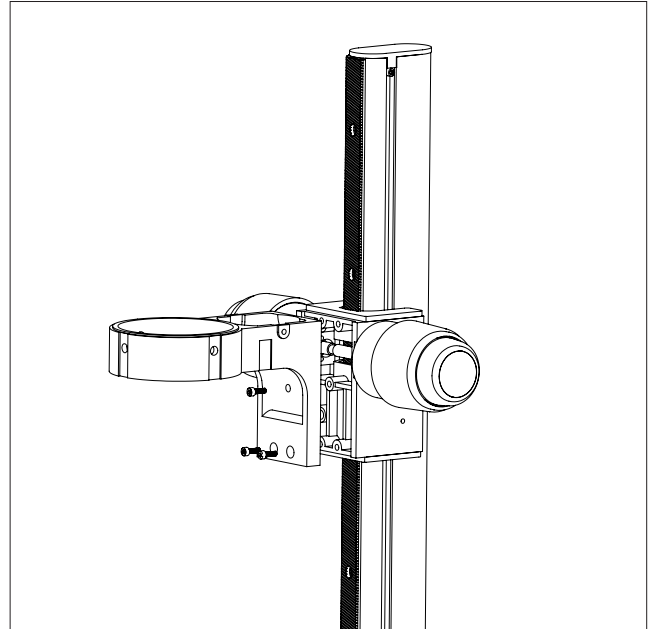
Attach the camera mount to the rod with the three M4x12 screws (bag 1).

OPTION 1: WITH EXTENDED CAMERA ARM
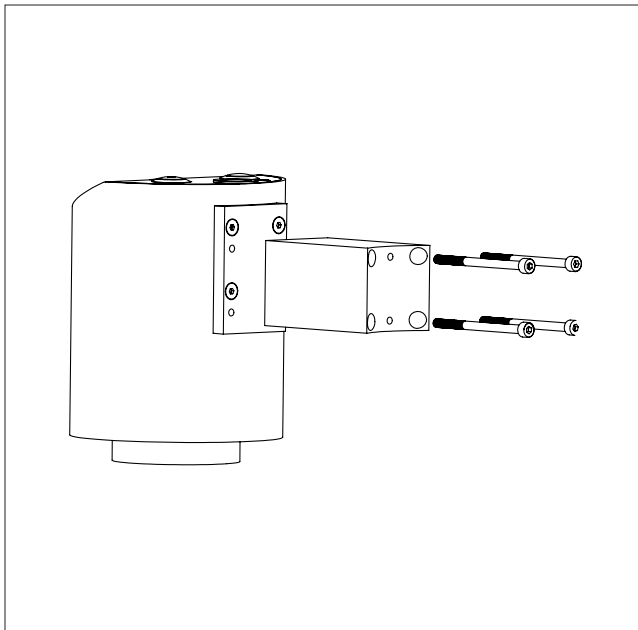
Mount the extension block on the camera head by using the four M4x60 screws (bag 2).
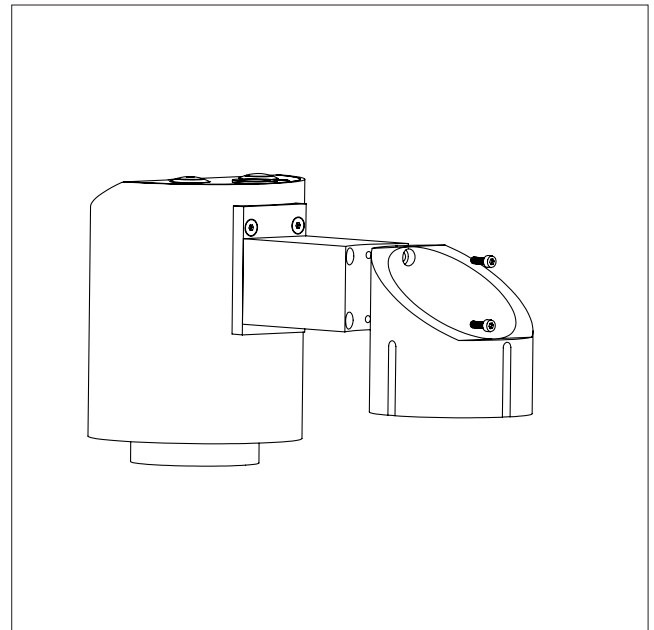
Mount the extension cylinder to the extension block with the two M4x10 screws (bag 2).

ASSEMBLING | ZAP STAND OR ZAP STAND UPGRADE KIT (2/3)

Place the extended camera arm with mounted camera in the camera mount and tighten the front and side finger screws (bag 3).
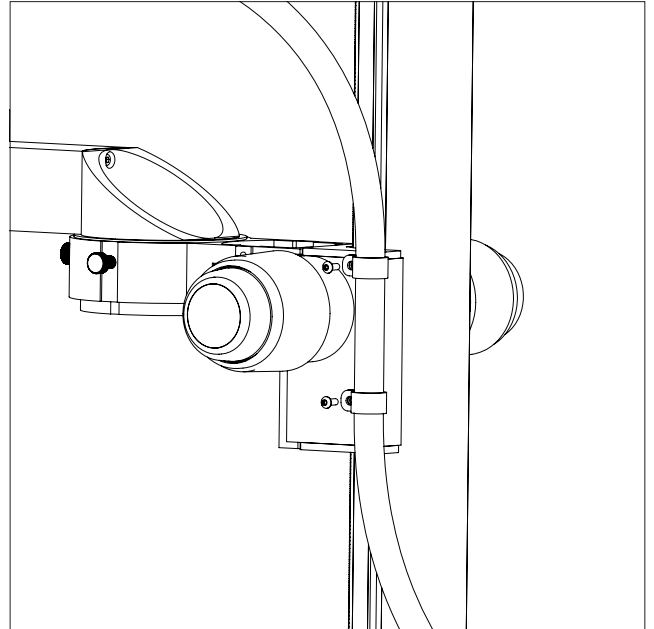
Secure the cable bundle with the two P clips (bag 3). If you're using a US model, make sure to unmount lens protection cap when using this microscope.

OPTION 2: WITH CAMERA DIRECTLY IN CAMERA HOLDER

Unscrew the lens with your hands and remove the lens ring by unscrewing the three M3x6 screws.
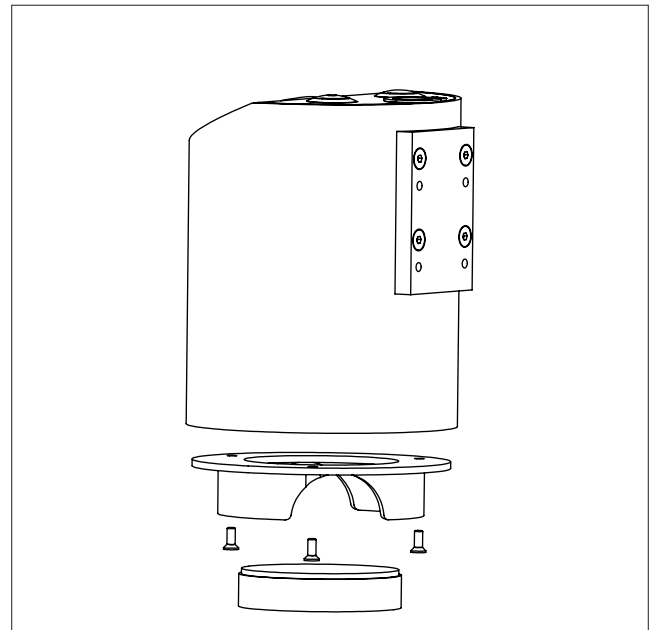
Screw the camera adapter ring on the camera with the three countersunk M3x10 screws (bag 4). For correct assembly, the laser label on the adapter ring must be placed next to the laser itself.

Then, rescrew the lens on the camera.

ASSEMBLING | ZAP STAND OR ZAP STAND UPGRADE KIT (3/3)
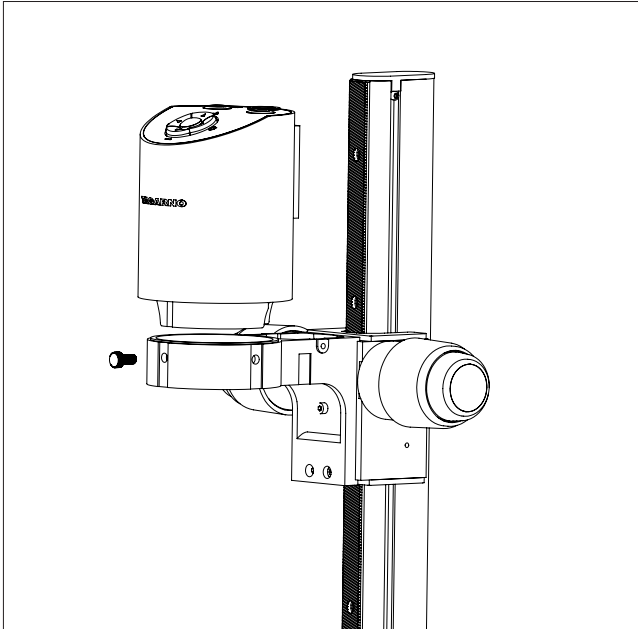
Place the camera in the camera mount before tightening the front finger screw (bag 3).
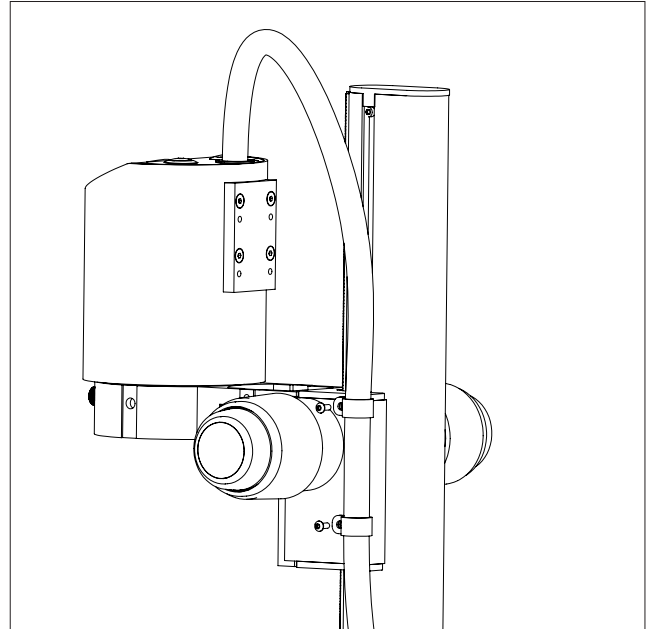
Secure the cable bundle with the two P clips (bag 3). If you're using a US model, make sure to unmount lens protection cap when using this microscope.

6.   ASSEMBLING - ZAP WITH Ø76 ADAPTER KIT

ASSEMBLING | ZAP WITH Ø76 ADAPTER KIT (1/3)
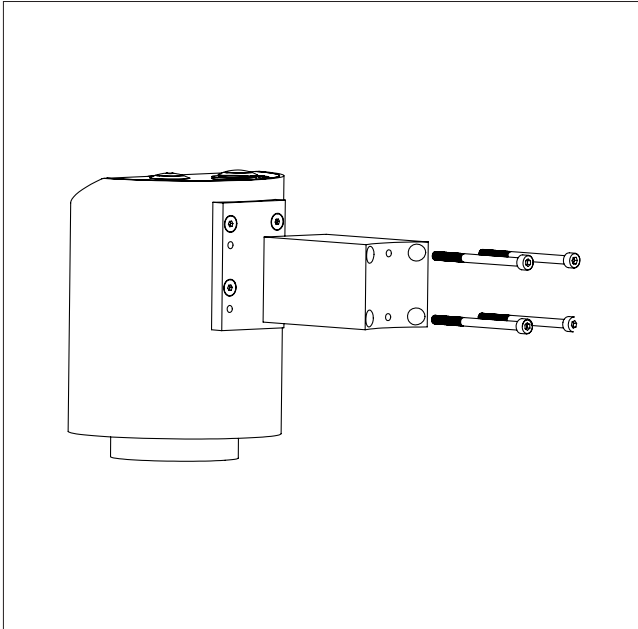
Start by removing the microscope head form your current setup, using the manufacturer's manual.

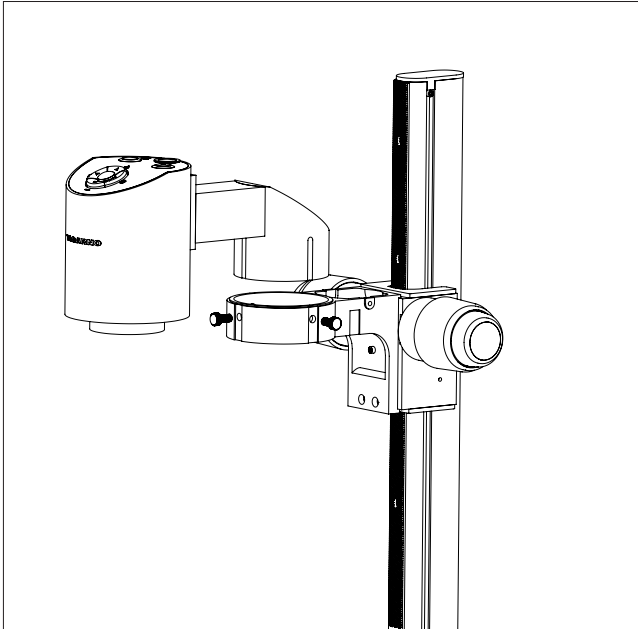### OPTION 1: WITH EXTENDED CAMERA ARM
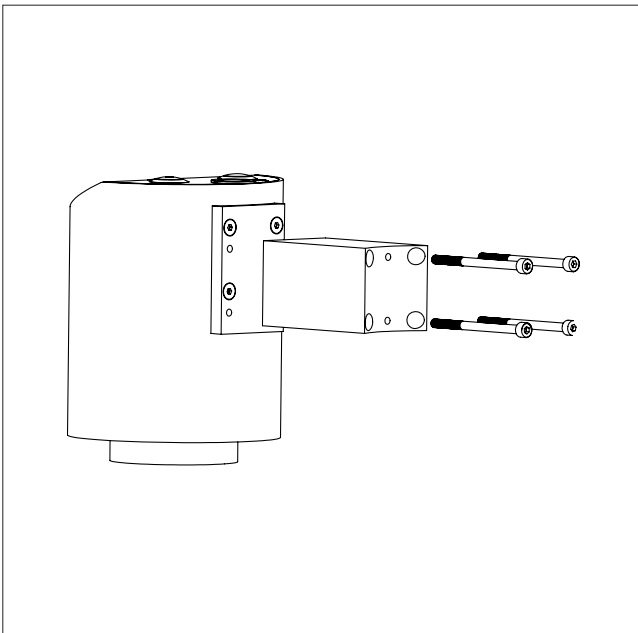
Then, mount the extension block on the camera head by using the four M4x60 screws (bag 1).
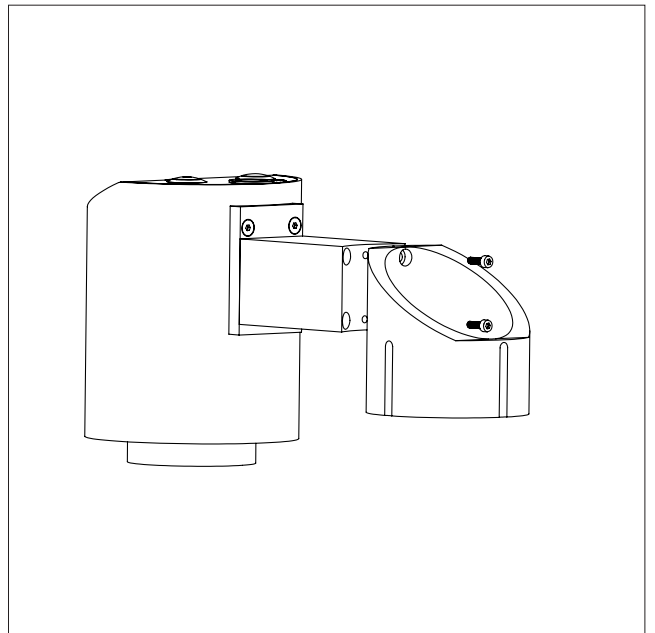


Mount the extension cylinder to the extension block with the two M4x10 screws (bag 1).
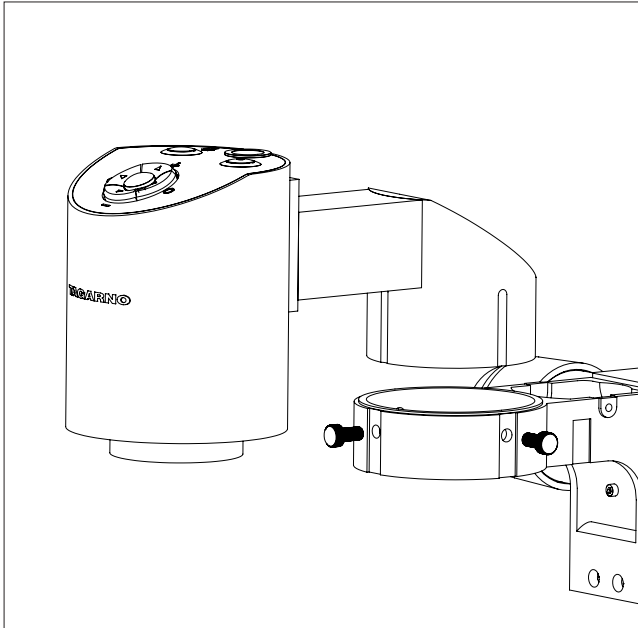
Place the extended camera arm with mounted camera in the camera mount and tighten the front and side finger screws (bag 2).
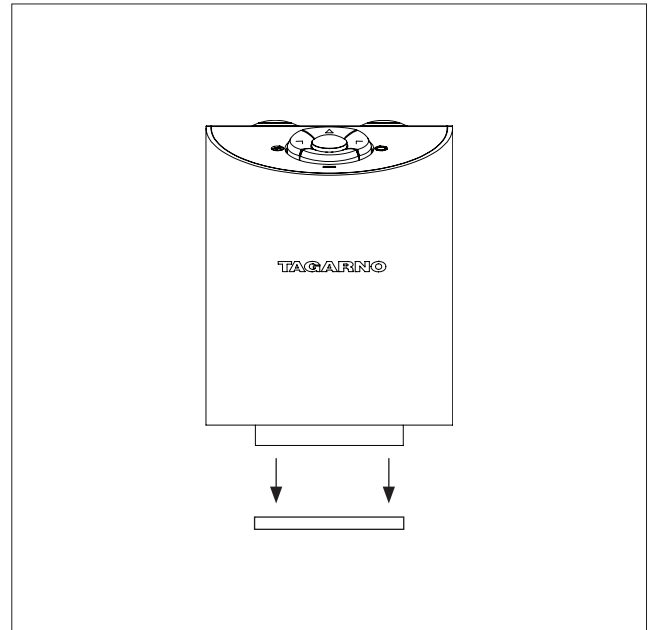
IMPORTANT! Laser beam attenuator. Unmount lens protection cap when using this microscope.

OPTION 2: CAMERA DIRECTLY IN HOLDER
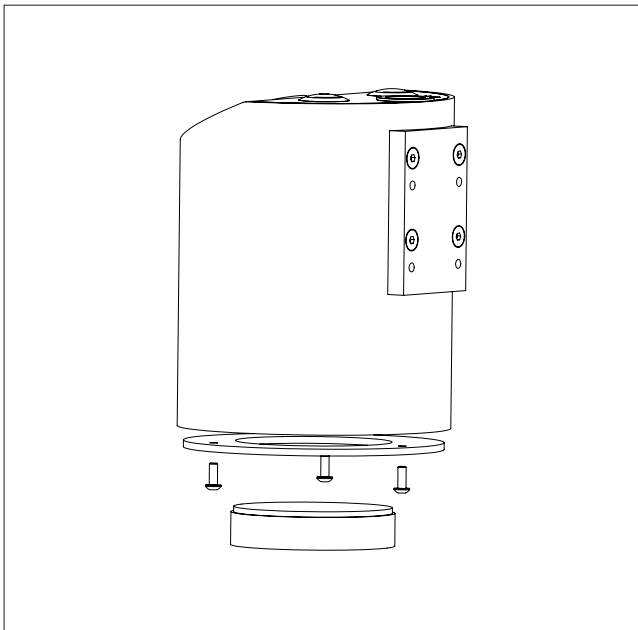
Unscrew the lens with your hands and remove the lens ring by unscrewing the three M3x6 screws.
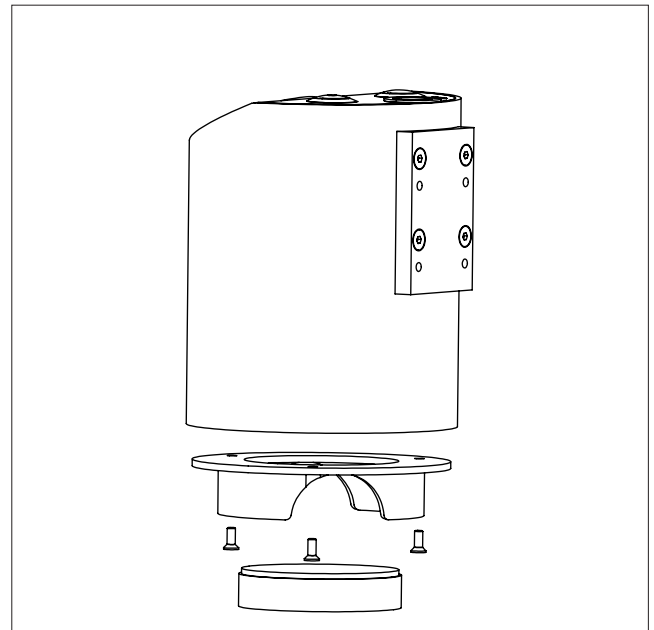
Screw the camera adapter ring on the camera with the three countersunk M3x10 screws (bag 3). For correct assembly, the laser label on the adapter ring must be placed next to the laser itself.

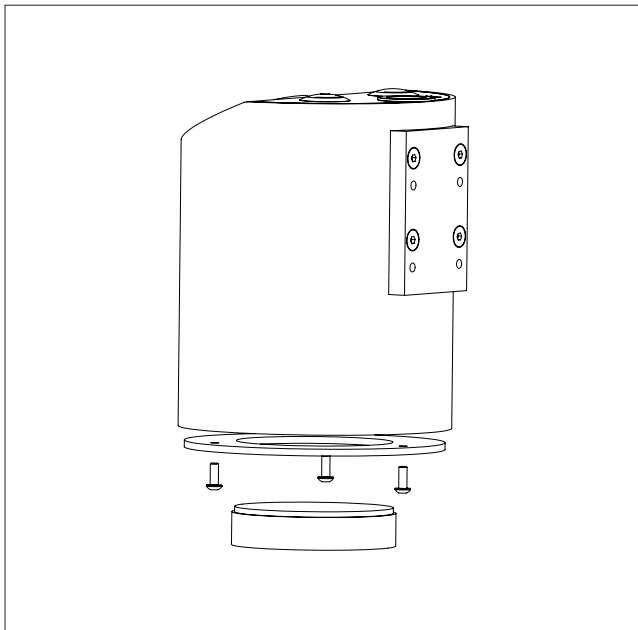Then, rescrew the lens on the camera.

ASSEMBLING | ZAP WITH Ø76 ADAPTER KIT (3/3)
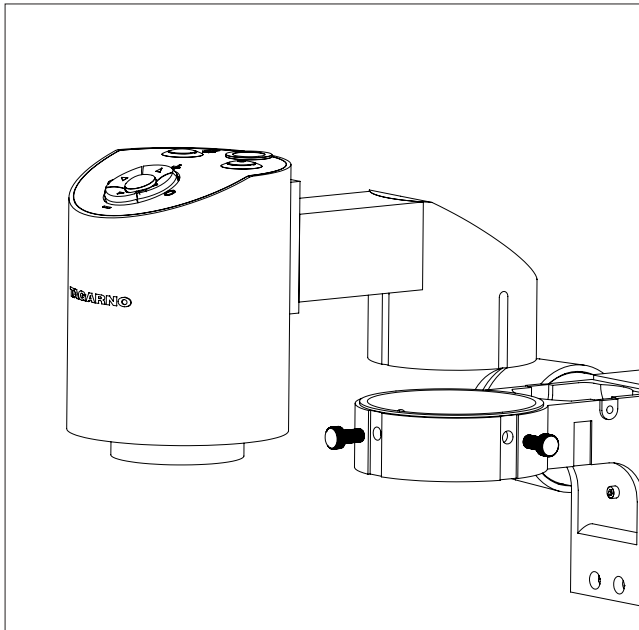
Place the extended camera arm with mounted camera in the camera mount and tighten the front and side finger screws (bag 2).
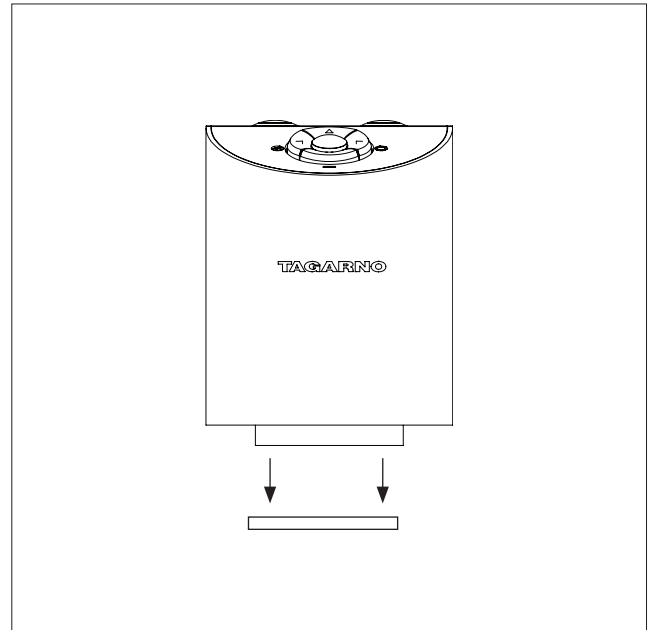

IMPORTANT! Laser beam attenuator. Unmount lens protection cap when using this microscope.

7. CONNECTING

CONNECTING (1/2)
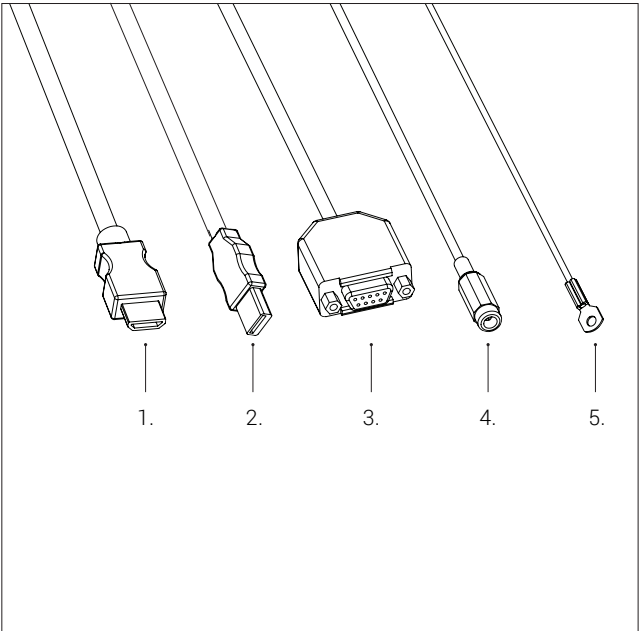
Connect HDMI cable (1), USB 3.0 cable (2), control box or foot switch (3), power supply (4) and ESD - Electro Static Discharge (5).

WARNING! Do not use force when inserting the cable plugs.
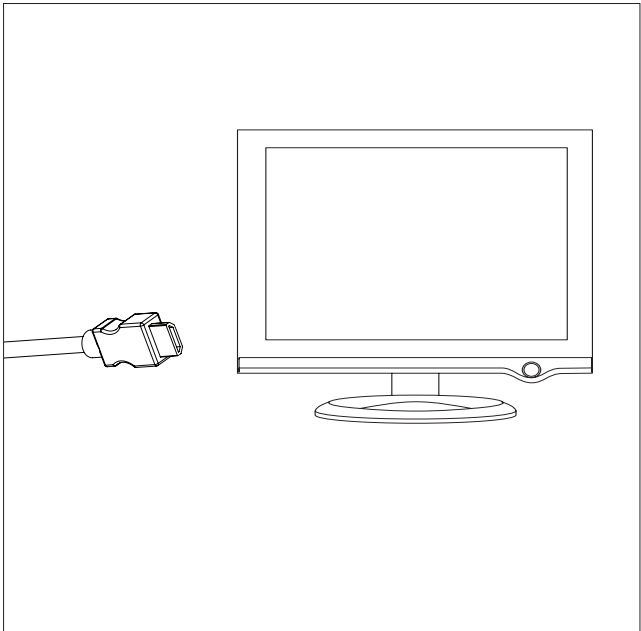
Connect HDMI cable from the microscope to a monitor.

**WARNING!** Do not connect the HDMI cable to a PC.

Wire	Description	Type	Connect to	Cable length	Specification
1	Output	HDMI Type A	Monitor	2700mm	HDMI out 720p50, 720p60, 1080p25, 1080p30, 1080p50, 1080p60
2	USB 3.0 output	USB 3.0 Type A	Computer	2700mm	USB 3.0 Device, Self-powered
3	Control box or foot switch	D-SUB 9-Pin Female	Control box or foot switch	3000mm	Output: 3.3V ⎓ 330µA ⚠ **Use only control boxes supplied by TAGARNO**
4	Power supply (DC)	DC Jack	Power socket	3000mm	Input: 12V ⎓ 0.5A ⚠ **Use only the power supply provided by TAGARNO:** Brand/Model: Mean Well/GEM18I12 ▣ Protection class II Input: 100-240V ∼ 0.45-0.2A, 50/60Hz Overvoltage category ll Output: 12V ⎓ 1.5A Max
5	ESD	Ring Terminal Connector	ESD Grounding point	3000mm	ESD Grounding point

* Note: If you're using the foot switch, connect the cable to the foot switch and then connect the footswitch and control box.

CONNECTING (2/2)
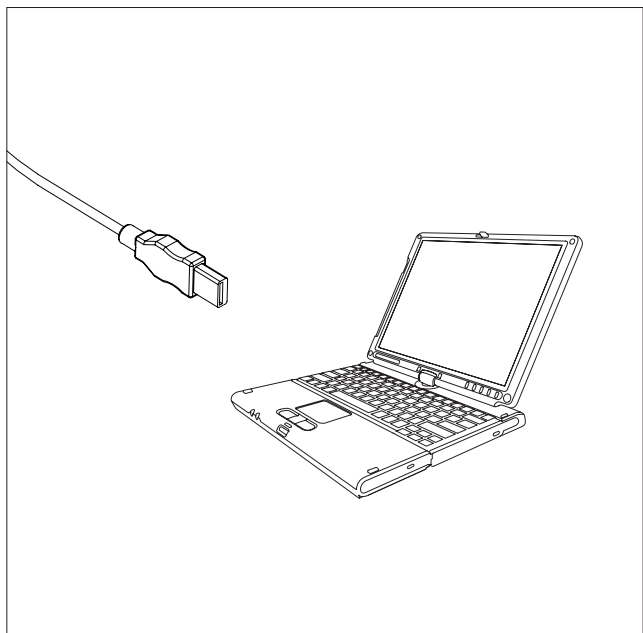
Connect USB 3.0 cable from the microscope to a PC.
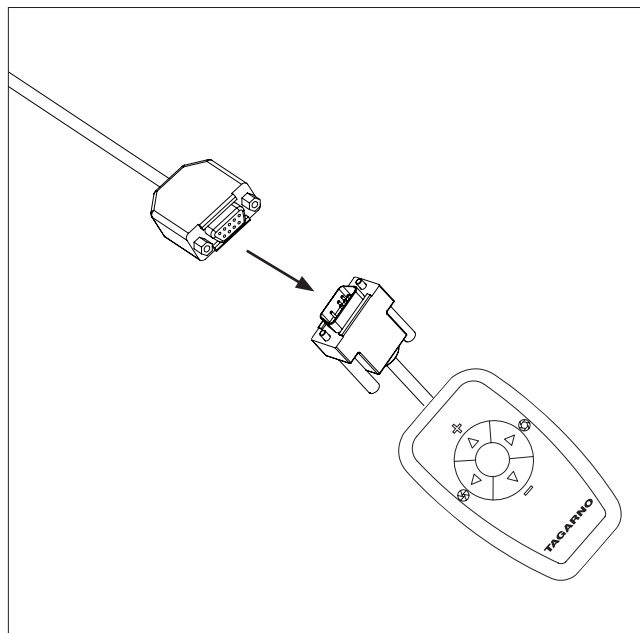
Connect the microscope to the XKEY Control box.

Note: If you're using the foot switch, connect the cable to the foot switch and then connect the footswitch and control box.
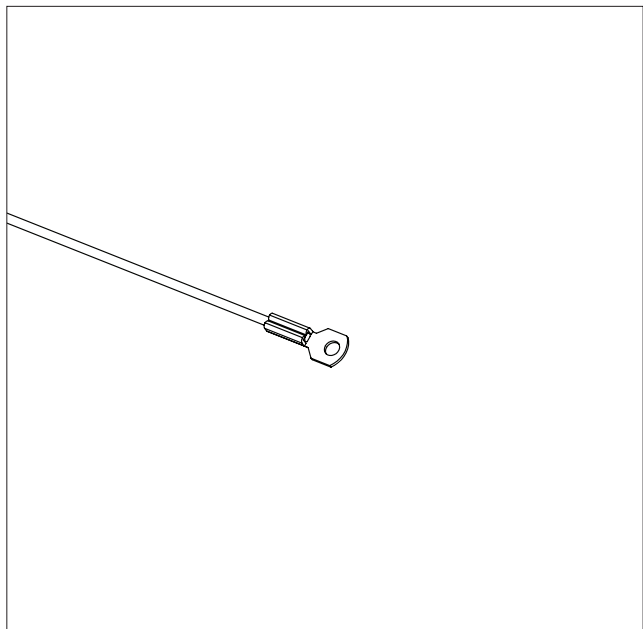
Connect grounding cable to grounding point, to ensure ESD of the microscope.
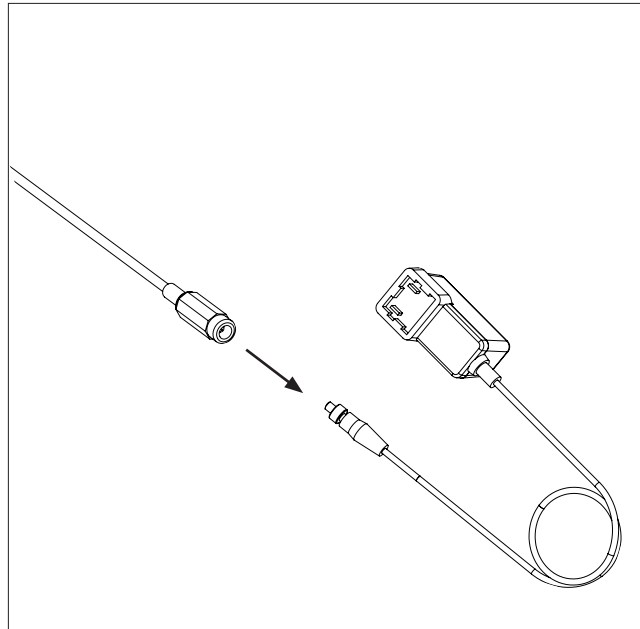
Connect the power supply cable to the power supply battery and then to a electrical outlet.

8. OPERATION

OPERATION (1/3)

CAMERA HEAD
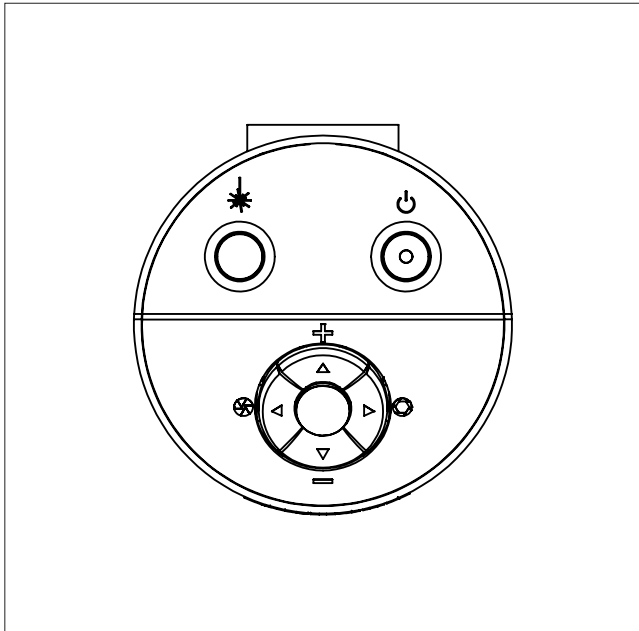
Control buttons for TAGARNO functions.
Do only connect equipment distributed by TAGARNO.

Turn off/on
Laser on/off (WARNING! Laser radiation when turned on)
Zoom in
Zoom out
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
If you wish to focus on something close
If you wish to focus on something further away

XKEY CONTROL BOX

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

Short push switches between Iris, Gain and Preset mode.
Increase Iris/Gain or switch between zoom preset 1, 2 or 3.
Decrease Iris/Gain or switch between zoom preset 1, 2 or 3.
To change and save a zoom preset, use zoom buttons to select a zoom level and simultaneously press left/right buttons. OSD will show STORED: PRE(X)
Hold for 3 sec. to use auto exposure mode

RESET TO FACTORY SETTINGS

Follow this procedure to change back to factory setting 1080P60.

1. Turn the microscope off
2. Press and hold the center button down while turning the power on
3. Keep holding the center button down for 25 seconds
4. Release the center button and turn the power off
5. Turn the power back on and the microscope is set to factory setting 1080P60

OPERATION (2/3)

FOOT SWITCH
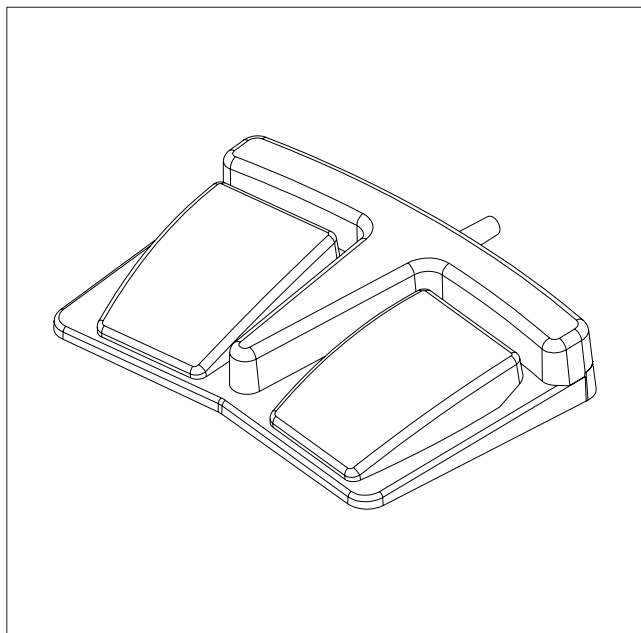
Foot switch for TAGARNO functions.

When in magnification mode:

+   Zoom in

—   Zoom out

Change 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

When in focus mode:

+   If you wish to focus on something close

—   If you wish to focus on something further away

OPERATION (3/3)

ON SCREEN DISPLAY (OSD)

```
--TAGARNO OSD MENU--
CLOSE-UP LENS:        4
MONITOR WIDTH:  531MM
SET START MAG:   1.7X
FORMAT:       1080P60
OSD:        ALWAYS ON
COLOR BOOST:       ON
PICTURE FLIP:     OFF
WHITE BAL.:      AUTO
SAVE AND EXIT
```
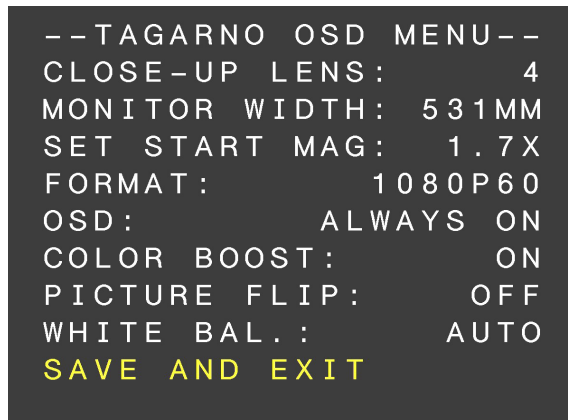
When turning on your FULL HD system, you are informed of the given units, serial number (SN), version and resolution.

1. Open the OSD menu
To open the TAGARNO On Screen Display Menu, press and hold the center button for approximately 5 seconds.

2. Choose lens
Set the current close-up lens by using the left/right arrows on the CONTROL BOX XKEY. On a TAGARNO FULL HD system, the choice naturally is between LENS +2, +3, +4, +5 or +10. LENS +4 is factory default. Continue using the down arrow.

3. Choose monitor width
Press the center button to set up the width of the monitor. You need to measure the horizontal width of the monitor panel on your monitor, Select one digit at a time by using the left/right arrows and adjust the digits with the up/down arrows. Switch between millimeters and inches via the up/down buttons. Monitor 24" FHD is factory default. To store change in settings press the center button.

4. Set start magnification
Select which magnification level you need your system to use as start up level. Press the center button and select one digit at a time in the bottom of the page, by using the left/right arrows and adjust the digits with the up/down arrows. By pressing the center button one more time, you have selected the values chosen. Press the down arrow to choose format.

5. Choose format
You have the option to switch between different video formats, 1080p 60fps being the highest quality. Select the required format by pressing the center button, and use arrow keys left/right to select between 6 different formats.

6. Select OSD presets
You need to choose between respectively ALWAYS ON, OFF or TIMEOUT using the left/right arrows in order to have the OSD Menu displayed continuously, never or for 3 seconds at the time. Continue by pressing the down arrow.

7. Color boost
The OSD menu gives you the possibility to choose between two color settings; Color boost on or off, by using the left/right arrows. Which setting chosen, is a matter of individual preferences and the object projected on screen. Continue by pressing the down arrow.

8. Flip picture
In the menu you have the possibility to rotate the screen image 180 degrees, or choose the standard view by using the left/right arrows. Choose between the two views by pressing the left/right buttons. Continue by pressing the down arrow.

9. White balance
Choose between these settings: AUTO and POWER UP by using the left/right arrows. In AUTO mode the white balance is continuously adjusted to achieve the best color reproduction. In POWER UP mode the white balance calibration is performed only once when the system is turned on. In this mode it's important that a white sheet of paper is visible in the field of view when the microscope is switched on. Continue by pressing the down arrow.

10. Save presets
To save your presets and exit the menu, press the center button and thereby return to the image displayed on the monitor, using your recently saved presets.

If you have changed the various formats, your FULL HD system needs to be restarted. This will be indicated in the bottom if needed.

9. TECHNICAL SPECIFICATIONS

TECHNICAL SPECIFICATIONS (1/2)

ZAP STAND and ZAP STAND Upgrade kit
with Extended camera arm
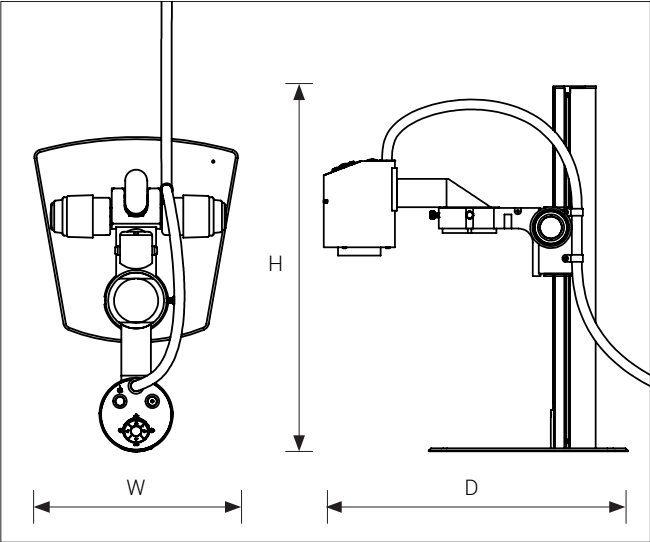
ZAP STAND and ZAP STAND Upgrade kit with
camera directly in mount
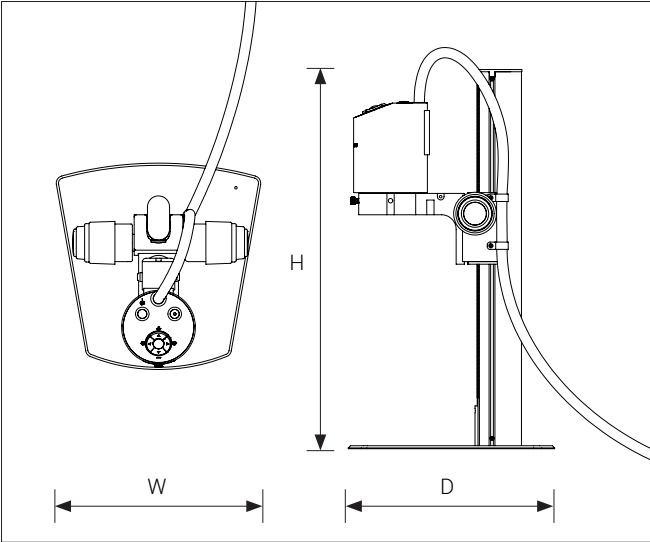
	WITH EXTENDED CAMERA ARM	WITH CAMERA DIRECTLY IN MOUNT
Dimensions (HxWxD)	515 mm x 280 mm x 430 mm 20.28″ x 11.02″ x 16.93″	515 mm x 280 mm x 280mm 20.28″ x 11.02″ x 11.02″
Working depth, max	275 mm / 10.83″	120 mm / 4.72″

	REGARDLESS OF SETUP	
Weight	7.3 kg / 16.1 lbs	
Work height	460 mm / 18.11″	
Camera resolution	FHD 1080p, 1920x1080p at 59,94/50/29,97/25Hz	
	HD 720p, 1280x720p at 59,94/50Hz	
Camera zoom	30x optical	
Autofocus	Yes	
Auto Monitor Detect	No	
Power requirements	Line voltage	100 - 240V ~ ± 10%
	Line frequency	50/60Hz
	AC current consumption (typ.)	70mA/100V~ 30mA/240V~
	DC current consumption (typ.)	0.5A/12V ⎓
Environmental conditions	Temperature	Storage -5 to 60ºC / 23 to 140ºF Operation 5 to 40ºC / 41 to 104ºF
	Humidity range	Storage 20 to 90% RH non-condensing Operation 20 to 80% RH non-condensing
	Altitude	0 to 2000m / 0 to 6500ft above sea level
	Pollution degree	2

TECHNICAL SPECIFICATIONS (2/2)

LENS	Lens to object distance	Magnification on 24" monitor	Work depth
+3	333 mm / 13.22"	1.3x - 40.1x	590-740 mm/ 23.23-29.13"
+4 (Included)	250 mm / 9.84"	1.7x - 53x	630-760 mm/ 24.80-29.92"
+5	200 mm / 7.87"	2.2x - 66x	640-760 mm/ 25.20-29.92"
+10 (Plan - 1x)	78 mm / 3.07"	4.3x - 133x	635 mm/ 25"

FIELD OF VIEW	MAXIMUM		MINIMUM	
Lens	X-Direction	Y-Direction	X-Direction	Y-Direction
+3	409 mm / 16.10"	230.10 mm / 9.06"	13.40 mm / 0.53"	7,54 mm / 0,02"
+4	290 mm / 11.42"	163.10 mm / 6.42"	10.50 mm / 0.41"	5,91 mm / 0,02"
+5	245 mm / 9.65"	137.80 mm / 5.43"	8 mm / 0.32"	4,50 mm / 0.18"
+10 (Plan - 1x)	87 mm / 3.42"	48.94 mm / 1.93"	4 mm / 0.16"	2,25 mm / 0.089"

RECOMMENDED MONITOR FORMAT

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

ACCESSORIES

Lens +3, +4, +5 and +10 (Plan - 1x)	TAGARNO Ring light White**	XY table
Magnetic lens ring*	TAGARNO Ring light IR**	Glass table
XKEY Control Box	TAGARNO Ring light UV**	Cleaning kit
Foot switch	Backlight kit	Circular tilting table
FHD monitors per request	Coaxial light	

Magnetic lens rings are only compatible with ZAP when the camera is mounted with the extension kit.

**TAGARNO Ringlights can't be mounted on ZAP on lens +3, +4 and +5 when the camera is placed directly in the camera mount*

10. PC REQUIREMENTS

FULL HD 1080P @ 59,94/50HZ		
OS	**Desktop**	**Laptop**
	Windows 7, 8 or 10 (with DirectX 11)	
Memory	8GB	
CPU	Intel® Core™ i5 or i7 @2.4GHz, (4th generation named 4xxx or newer)	CPU: 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)	

FULL HD 1080P @ 29,97/25HZ AND HD 720P @ 59,94/50/30/25HZ		
OS	**Desktop**	**Laptop**
	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

11. 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 untill 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.

12. 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.

13. ERGONOMICAL RECOMMENDATIONS

Please be careful when carrying the product from one place to another.
Please do not lift the microscope by grabbing the camera arm.

All TAGARNO products are marked with a product label. Products sold in the US also have a FDA approval label (right):

TAGARNO ZAP
Model No.: XXXXXX
Serial No.: XXXXX
Supply: 12V --- 0.5 A
TAGARNO A/S - Finlandsvej 2, 8700 Horsens, Denmark. YYYY-MM-DD

UK CA   CE

Manufactured by: TAGARNO A/S
Finlandsvej 2
DK-8700 Horsens
Denmark
Made in Denmark
Manufactured: Month-Year
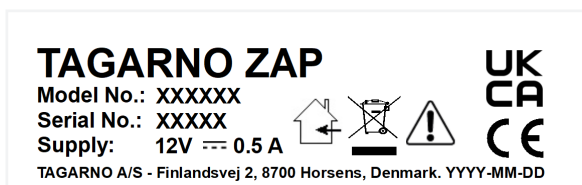
Values marked with X varies from product to product and are replaced by specific numbers and letters.

14. DECLARATION OF CONFORMITY

PRODUCT

MODEL   TAGARNO FHD ZAP | Type no.: 690800 (U.S) / 690600 (Rest of world)
ART   Inspection camera unit

MANUFACTURER

NAME   TAGARNO A/S
ADRESS   Finlandsvej 2
ZIPCODE/CITY   8700 Horsens
COUNTRY   Denmark
PHONE   +45 76251111

$C\epsilon$

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 directives:

2006/25/EU	**Artificial Optical Radiation**
2014/30/EU	**Electromagnetic Compatibility**
2014/35/EU	**Low Voltage Directive**

By conforming to the following harmonized standards:

IEC 60825-1:2014	**Class 2**
EN 61326-1:2013	**Class B / Basic Electromagnetic Environment**
IEC 61010-1:2010	**IECEE CB Scheme Ref. Certif. No. NO104184**

THE DECLARATION IS ISSUED BY

MANUFACTURER   TAGARNO A/S

TAGARNO

TAGARNO A/S
Finlandsvej 2
8700 Horsens
Denmark

+45 76251111
mail@tagarno.com

www.tagarno.com

15. COMPLIANCE STATEMENTS

INDUSTRY CANADA COMPLIANCE STATEMENT

CAN ICES-3 (B)/NMB-3(B)

This Class B digital apparatus meets the requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la Classe B respecte toutes les exigences du Règlement sur le Matériel Brouilleur du Canada.

FCC COMPLIANCE STATEMENT (UNITED STATES)

Federal Communications Commission (FCC) Statement
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules.
These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.
If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.