YOSHIDA

Installation Manual

Mielscope

Important Notice

This Installation Manual describes how to install Mielscope and precautions for installation.

- To prevent unexpected accidents, failures, and damages, always be sure to read the Installation Manual.
- After reading this manual, keep it safe from loss.



Introduction

- Items printed with \triangle in this manual are precautions for safe installation. Always be sure to read this manual prior to installation and follow the instructions.
- To secure the quality, effectiveness, and safety of the device, as well as to prevent unexpected accidents, failures, and damages, always be sure to read this manual prior to installation.
- After reading this manual, keep it safe from loss.
- If you have any questions or suggestions about this manual, please contact YOSHIDA dealer or YOSHIDA.
 - We will replace the manual if any pages are out of order or missing.
- Regardless of the contents provided in this manual, comply with laws and regulations related to installation control.
- We may revise this manual without prior notice.

Disclaimer

Please note that we are not responsible for failures and damages, or conditions listed below:

- Failures and damages caused by installation, relocation, maintenance, and repairs performed by us or a company other than our designated service agent.
- Failures and damages to our device caused by another company's device delivered by other
- Failures and damages caused by maintenance and repairs using repair parts not authorized by us.
- Failures and damages resulting from failure to take the cautions or failure to follow the operating methods described in this manual.
- Failures and damages caused by ambient conditions deviated from usage conditions, such as power source and installation environment, of the device described in this manual, and such conditions.
- Failures and damages caused by a fire or a natural disaster, such as an earthquake, a flood, or a lightning strike.
- Failures and damages caused by external factors, such as water leakage or dust.



- Redeviceion or reprinting this manual in whole or in part without permission is strictly prohibited.
- Transferring or lending this manual to a vendor (or person) other than an installation company (or person) designated by our company is strictly prohibited.

Purpose of This Manual

This manual explains the construction procedures and installation procedures to properly install the device.

As well as people who actually work on the installation, people who are involved with design, sales, and the selection of a device number can use this manual as a reference when constructing and installing the device.

/!\ CAUTION

- When performing construction and installation, be careful not to damage the walls and
- We do not guarantee the quality of commercial members introduced in this manual. Read operation manuals and precautions given by each member manufacturer carefully, and follow construction guidelines to work.

Safety Precautions

Warning Labels

The definitions of symbols with signal words on labels shown in this manual and the device are as follows: To prevent hazardous situations, follow the instruction given in each symbol.



: This symbol is used for unspecified general cautions, warnings, and dangers.



CONTRAINDICATION / : This symbol is used to indicate a danger that, if not avoided, could cause a serious health hazard or death.



WARNING

: This symbol is used for indirect (or potential) dangers that may lead to death or serious injury, serious damage to properties, such as complete failure of the device, and fire, if not prevented.

(Example) Ignoring the warning sign and opening the cover may cause the user to come into contact with a high-voltage terminal, which could result in death.



: This symbol is used for dangers that might cause minor or moderate injury, partial damage to the device, and loss of computer data, if not prevented.

Signage Used in the Manual

The following lists the notations used in this manual:

Note: Is to represent caution concerning operations that are not involved with safety matters.

Additional Is a symbol to represent supplementation of operations and functions that are not involved

Info: with safety matters.

Reference: Is a symbol to represent the title and page of reference.

Precautions for Use of Medical Equipment (for Safety and Hazard Prevention)

- 1. Persons other than skilled workers must not use the device.
- 2. Pay attention to the following points when installing the device.
 - (1) Install the device where it does not get splashed with water.
 - (2) Install the device where it does not have a harmful effect by atmospheric pressure, temperature, humidity, ventilation, sunlight, and air containing dust, salinity, and sulfur.
 - (3) Pay attention to a stable state where the device is installed, such as inclination, oscillations, and impact (including during the transportation of the device).
 - (4) Do not install the device where chemicals are stored or gas is produced.
 - (5) Pay attention to the frequency of a power source, voltage, and allowable current value (or power consumption).
 - (6) Confirm the state of the batteries and power source (such as state of electric discharge, and polarity).
 - (7) Establish a ground correctly.
- Pay attention to the following points before using the device.
 - (1) Inspect the state of the contact of the switch, the polarity, the settings of the dial, and meters to make sure that the device works correctly.
 - (2) Confirm that a ground is established completely.
 - (3) Confirm that all cords are connected correctly and completely.
 - (4) When using the device with another device, it may cause wrong diagnosis and create risks. Pay careful attention in such a case.
 - (5) Re-inspect the external circuit directly connecting to a patient.
 - (6) Check the batteries and power source.
- Pay attention to the following points when using the device.
 - (1) Be careful not to exceed the time and dose required for diagnosis and treatment.
 - (2) Always monitor that there is no abnormality in the device in general and a patient.
 - (3) When abnormality is found from the device and a patient, take appropriate measures, such as stopping the operation of the device in a state where it is safe for the patient.
 - (4) Ensure that a patient does not touch the device.
- Pay attention to the following points after using the device.
 - (1) Turn the power off after restoring the original positions of the operation switch and dials in accordance with the specified procedure.
 - (2) Do not apply an excessive force to disconnect a cord, such as pulling a cord off by holding it.
 - (3) Pay attention to the following points about the place where the device is stored.
 - 1) Store the device where it does not get splashed with water.
 - 2) Store the device where it does not have a harmful effect by atmospheric pressure. temperature, humidity, ventilation, sunlight, and air containing dust, salinity, and sulfur.
 - 3) Pay attention to a stable state where the device is installed, such as inclination, oscillations, and impact (including during transportation of the device).
 - 4) Do not store the device where chemicals are stored or gas is produced.
 - (4) Organize and put accessories, cords, and electrodes after cleaning them.
 - (5) Always clean the device so that it will not have difficulties for the next use.
- In the event that the device should malfunction, do not attempt to correct the problem yourself. Clearly indicate that the device is not operating properly and await repairs by qualified personnel.
- Never attempt to disassemble or modify the device. 7.
- Maintenance
 - (1) All equipment and components should be inspected regularly.
 - (2) When resuming the use of the device that has been unused for a long period, be sure to check that the device operates properly and safely before use.

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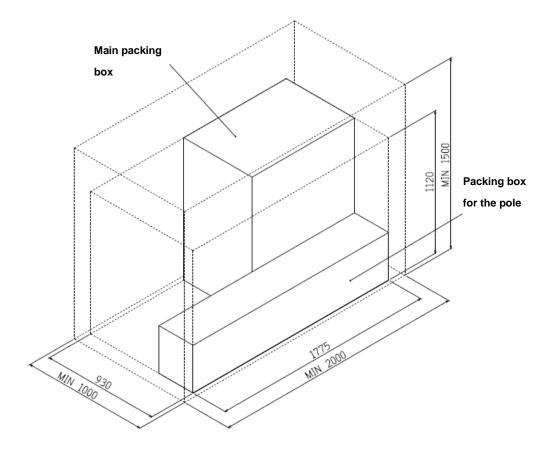
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1. Site Requirements

Space Requirement for Unpacking 1.1

The workspace required for unpacking is shown below.

- * Apart from a space required for unpacking, a space for installation needs to be secured.
- Space required for unpacking: 1,000 (L) × 2,000 (W) × 1,500 (H) or greater Unit: mm

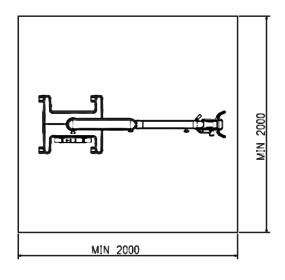


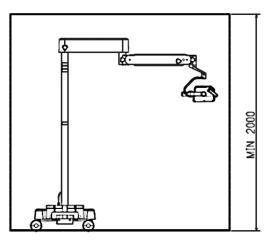
[Size and mass of a packing box]

(1)	Main packing box	:	930 × 620 × 1120	140 kg
(1)-1	Packing box for the arm	:	870 × 565 × 600	39 kg
(1)-1.1	Packing box for the head	:	300 × 270 × 260	3 kg
(1)-1.2	Packing box for the base cover	:	575 × 575 × 110	3 kg
(1)-1.3	Packing box for the 4 gang foot switch	:	510 × 360 × 120	3 kg
(1)-2	Packing box for weight 1 (total of two boxes)	:	545 × 290 × 80	13 kg × 2
(1)-3	Packing box for weight 2 (total of two boxes)	:	545 × 290 × 80	17 kg × 2
(1)-4	Packing box for the base	:	560 × 555 × 350	27 kg
(1)-4.1	Packing box for small articles	:	540 × 530 × 10	5 kg
(2)	Packing box for the pole	:	1775 × 310 × 375	29 kg

Space Requirement for Installation 1.2

• Space required for installation: 2,000 (L) × 2,000 (W) × 2,000 (H) or greater



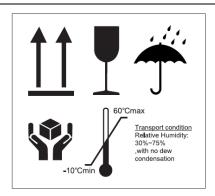


(Unit: mm)

Unpacking 1.3

⚠ CAUTION

A handling caution label shown below is attached to packing boxes. Take due caution in handling packing boxes when transporting and delivering them.



State of packing when transporting

The device will be delievered in the following two packing boxes.

(1): Main packing box



(2): Packing box for the pole



Unpacking the main packing box

When the boxes are delivered to a facility, unpack them in the following manner.

Packaging at the time of receiving



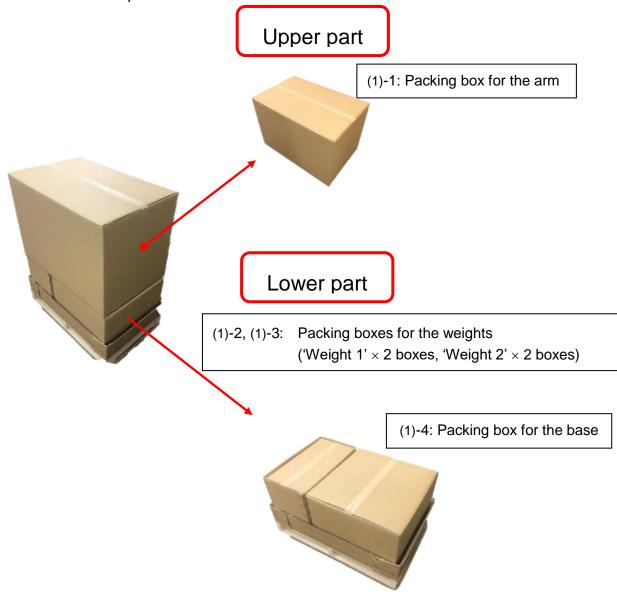
Cut the bands and lift the reinforced packing box upward to remove it.



After removing the top and side covers (which cover the sides all the way around), take out each of the packing boxes inside to place them individually in the desired location.

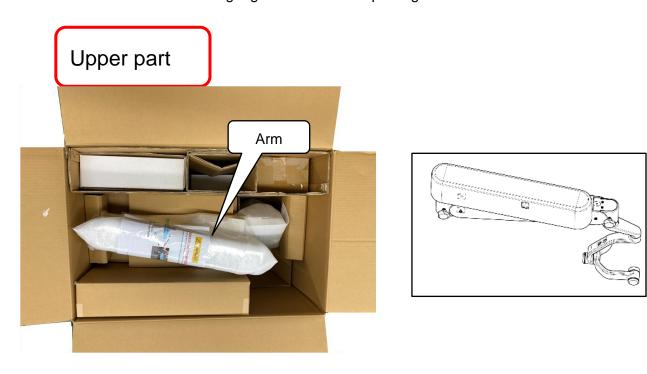
Components inside the main packing box

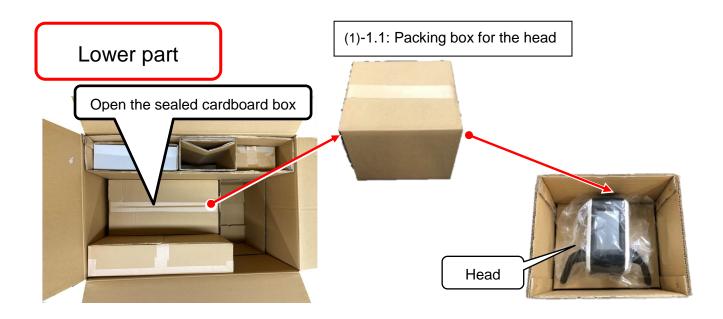
When you remove the top and side covers, you will find (1)-1 Packing box for the arm in the upper part of the box, and (1)-2, (1)-3 Packing boxes for weights, and (1)-4 Packing box for the base in the lower part of the box.

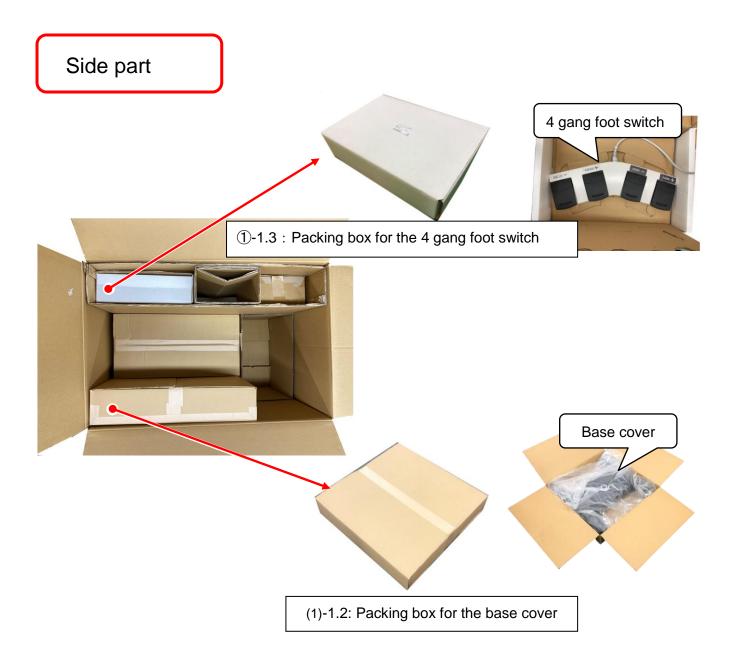


(1)-1: Components inside the packing box for the arm

The upper packing box contains the arm, the lower packing box contains the head. And there are a base cover and the 4 gang footswitch in the packages on the side.





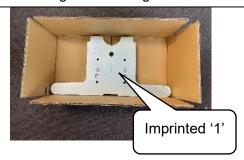


(1)-2, (1)-3: Components inside the packing box for the weights

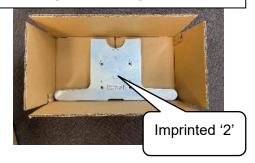
Weight 1 and weight 2 are contained in packing boxes of the same size. (Two boxes each) Open the box. On the weight 1, '1' is imprinted. On the weight 2, '2' is imprinted.



(1)-2: Packing box for weight 1 x 2 boxes

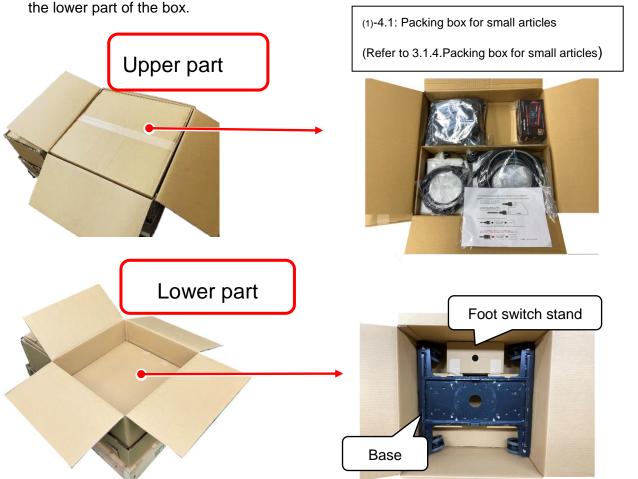


(1)-3: Packing box for weight 2 x 2 boxes



(1)-4: Components inside the packing box for the base

This box contains a packing box for small articles in the upper part of the box, and the base in

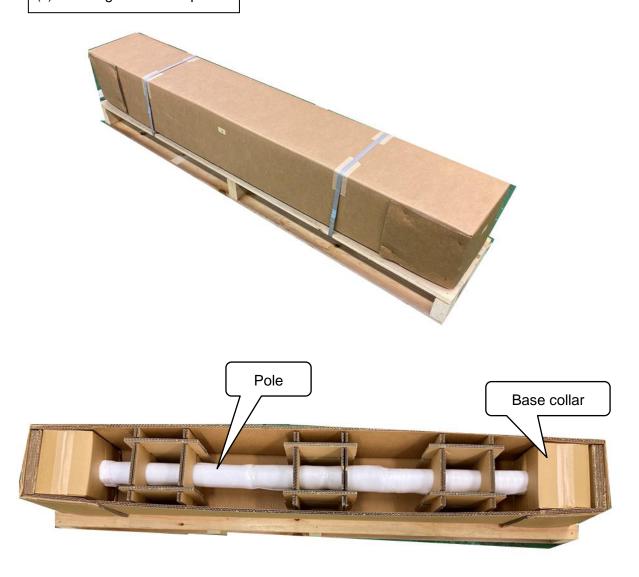


Unpacking the pole from its box

Cut the bands and lift the packing box upward to remove it.

You will find the pole and base collar in the box.

(2): Packing box for the pole



1.4 Disposal of Packing Materials

For the disposal of packing materials, follow laws and regulations, standards, and guidelines for where the device is used.

2. Facility Requirements

Conditions of facility, such as various energies required for a single device, are as follows.

2.1 **Power Source**

Receptacle: Medical earth type power receptacle (with earth electrode)

Number of phases: 1Φ (single phase)

50/60 Hz Frequency:

Power supply voltage: 100 to 120 V AC (when loaded)

Input: 60 VA

- Make sure that wiring from a distribution board to a receptacle is carried out independently. Connect the device only after confirming that appropriate wiring equipment that takes carrying capacity (60VA) into account is used with engineers of wiring equipment or a power company.
- Confirm that the power supply voltage (When loaded) of a receptacle is within ±10% of that of the device.
- If the power supply voltage of a receptacle is not within the designated range, consult engineers of wiring equipment or a power company.
- When connecting a computer, always make sure that the computer is independently wired to a receptacle. Supply power from the same distribution board as that of the device.

2.2 Floor Requirements

<Strength of the floor on which the device is installed> Floor that can resist a load of 2,900 N/m² or greater.

2.3 Floor Leveling Requirements

Horizontal tolerance angle: within ±0.5°

2.4 Requirements for Ambient Environmental Condition

- Install the device where it does not get splashed with water.
- Install the device where it does not receive a harmful effect by atmospheric pressure, temperature, humidity, ventilation, sunlight, and air containing dust, salinity, or sulfur.
- Pay attention to a stable state where the device is installed, such as inclination, oscillations, and impact (including during transportation of the device).
- Do not install the device where chemicals are stored or gas is produced.
- Do not install the device where it is exposed to noise.
- Install the device at a place equipped with lighting equipment. In addition, install the device at a place in which the monitor does not directly receive the reflection of the interior or exterior lighting.

3. List of Components, Consumables, Tools, and Measuring Instruments

3.1 Standard Components

Please confirm that packing boxes of the device contain components listed in the tables below as standard components.

3.1.1 Packing box for the arm

No.	Name	Quantity	No.	Name	Quantity
1	Arm	1	4	Base cover A	1
2	Camera head	1	5	Base cover B	1
3	4 gang foot switch / Foot switch cable panel	1 of each			

4 gang foot switch /

Foot switch cable panel





3.1.2 Packing box for the weight

No.	Name	Quantity	No.	Name	Quantity
1	Weight 1	2	2	Weight 2	2

3.1.3 Packing box for the base

No.	Name	Quantity	No.	Name	Quantity
1	Base	1	3	Cap nut M6 (included on the back of the base)	4
2	Foot switch stand	1			

Foot switch stand



Cap nut M6



3.1.4 Packing box for small articles

No.	Name	Quantity	No.	Name	Quantity
1	Fixing band (long type)	2	11	CAP screw M6 × 60 mm*	1
2	Fixing band (short type)	1	12	Spring washer, nominal size 6	1
3	Cable box	1	13	CAP screw M8 × 70 mm	4
4	Brake knob	1	14	3-combination CAP screw M8x30 mm	4
5	Brake shoe	1	15	Truss head screw M4 × 8 mm	6
6	Conical spring washer, nominal size 4	4	16	Low head socket cap screw M5×12mm	4
7	Head arm cap	1	17	Cable tie	3
8	Head arm ring	1	18	Cables (four cables)	1
9	Wiring grommet (with hole)	1	19	Operation Manual	1
10	Blindfold grommet (no hole)	1			

(1) List of Small Articles

Cable tie 3 pcs.	Brake shoe 1 pc.	Head arm cap Head arm ring One each	Brake 1 p	
	For the First arm	For head	For the F	irst arm
	Conical spring washer, nominal size 4 4 pcs.	Wiring grommet (with hole) 1 pc.	Blindfold grommet (no hole) 1 pc.	CAP screw with MEC thread lock M6 × 60 mm 1 pc.
				Spring washer Nominal size 6 1 pc.
For power source box	For the First arm	For the pole	For the pole	For the head
	M8 × 70 mm ocs.	3-combination CAP screw M8 × 30 mm 4 pcs.	Truss head screw M4 × 8 mm 6 pcs.	Low head socket cap screw M5 x 12 mm 4 pcs.
			For the foot switch cable panel 2 pcs	A PRINCIPAL DE LA PRINCIPAL DE
			For the cable box	
For the	weight	For the pole	4pcs	For the base cover

(2) Cable box

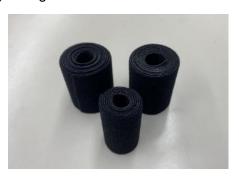


(3) Cable



- Power cable \times 1 pc.
- Image output cable \times 2 pcs.
- Foot switch cable \times 1 pc.

(4) Fixing bands



- Long type: 80 cm \times 2 pcs.
- Short type: $40 \text{ cm} \times 1 \text{ pc}$.

(5) Operation Manual



3.1.5 Packing box for the pole

No.	Name	Quantity
1	Pole	1
2	Base collar	1

3.2 **Tools Required**

- Rubber work gloves (for preventing slipping)
- Phillips screwdriver No. 2
- Hex wrench, nominal size 3
- Hex wrench, nominal size 5
- Hex wrench, nominal size 6
- Spanner, nominal size 10
- Nipper

3.3 **Consumables**

- Masking tape (for temporary fixation)
- Cleaner (for cleaning covers)
- Waste (for cleaning covers)
- Neutral detergent or ethanol for disinfection (70% ethanol) (for cleaning the camera window cover)
- Soft cloth, such as a cotton or a gauze (for cleaning the camera window cover)

A CAUTION

For details of how to use tools, carefully read operation manuals and precautions attached to tools before starting the installation.

Measuring Instruments 3.4

Prepare the following measuring instruments for the installation work beforehand. Use measuring instruments that are regularly calibrated.

⚠ CAUTION

- For details of how to use measuring instruments, carefully read operation manuals and precautions attached to measuring instruments before starting the installation.
- Earth-resistance meter
 - Recommended model: 3197/ HIOKI E.E. CORPORATION
- 1) Digital tester (Digital multimeter)
 - · Recommended model: Fluke 87V / Fluke Corporation or equivalent
 - Type of a measuring instrument: True effective value type (an instrument that displays TRUE RMS) (Analog testers and analog multimeters cannot be used)
 - Required precision: ±1%
- 2) Measuring (a tape measure)
 - Recommended model: GOATU (SUPAKON) 19 / TJM DESIGN CORP. or equivalent
 - · Required precision: JIS Class 1
- 3) Level
 - Recommended model: PRO 360 / M-D Building Products, Inc or equivalent
 - Required precision: 0.0° to 9.9°: ± 0.1 (Reference: JIS B 7510 Precision levels Class B, sensitivity type 3)

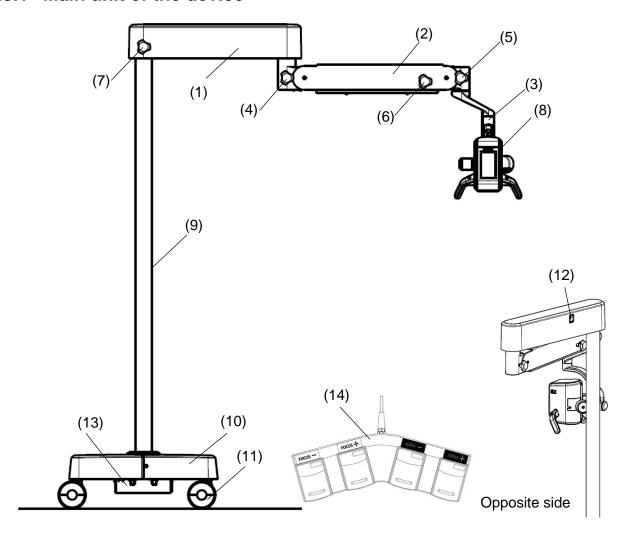






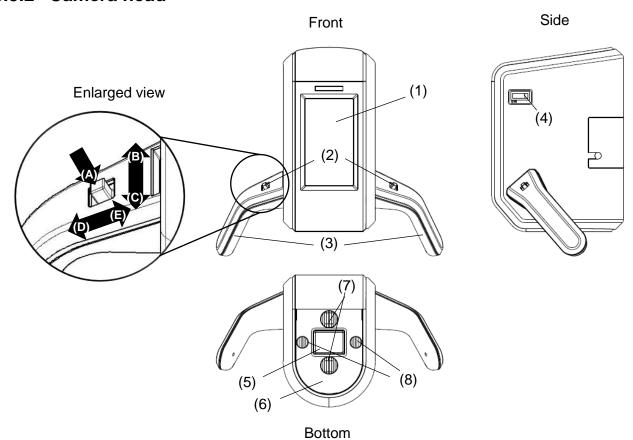
3.5 Name and Function of Parts

3.5.1 Main unit of the device



No.	Name	Function
(1)	First Arm	Horizontally moves the arm part.
(2)	Balance arm	Lifts and lowers the camera head to any given height.
(3)	Three-section arm	Horizontally moves the camera head within a close range.
(4)	Balance arm rotary brake	Fixes the rotation of the balance arm.
(5)	Three-section arm fixing brake	Fixes the rotation of the Three-section arm
(6)	Balance arm up-down brake	Fixes the vertical movement of the balance arm.
(7)	First arm rotary brake	Fixes the rotation of the First arm
(8)	Camera head	With built-in camera and lighting, it takes images.
(9)	Pole	Holds the camera head and the arm part.
(10)	Base	Allows the transportation of the unit to any given position and prevents the device from falling.
(11)	Casters	Allows you to move the device to any given position.
(12)	Main power switch	The main power switch of the device
(13)	Circuit breaker	Push-button type overcurrent protection component
(14)	4 gang foot switch	You can operate the zoom and focus functions at foot.

3.5.2 Camera head



No.	Name	Function
(1)	Control panel	The device can be operated from the touch panel.
(2)	Handle switch	You can operate the zoom and focus functions at hand.
(3)	Handle	Use the handle for moving the camera head.
(4)	Camera power switch	The power switch of the camera head
(5)	Camera window	The window for the camera lens
(6)	Camera window cover	A cover for the camera window
(7)	Light	White LED light. You can turn them on at the "Normal Mode".
(8)	Blue light	Blue LED light. They turn on in the "Blue Light Mode".

<Standard settings for handle switch (common in both right and left handles)>

	Name	Function
(A)	Auto focus	Automatically focuses on an object in the center of the screen.
(B)	Manual zoom + (Enlarge)	While the button is pressed, the camera image is zoomed in and out, and the autofocus function is activated automatically when the button is released.
(C)	Manual zoom - (Reduce)	The zoom direction of the button can be changed in the settings screen.
(D)	Manual focus - (Far)	While depressing it, the focus point on the camera image moves to the front or the back. The focus direction of the
(E)	Manual focus + (Near)	button can be changed in the setting screen.

Additional Info: You can allocate any function by switch customization.

4. Precautions and Installation Procedure of the Device

4.1 **Hazard Prevention**

When installing the device, comply with the following precautions to prevent occurrence of unexpected incidents, such as an accident or damage to the device.

* If you have any question, please contact YOSHIDA dealer or YOSHIDA.

WARNING

- The device is a heavy item. Take extreme care when transporting and installing the device to prevent accidents.
- Installation of the device must be performed by at least two people.
- If you move or operate the device during installation, make sure that the device does not fall over and that there are no obstacles around the device.
- When or after the arms are installed, confirm that there are no obstacles in the range of motion of the device (rotations of the arms and camera head).
- During installation, be sure to disconnect the power plug from a receptacle except when necessary, and be careful not to get an electric shock or accident.
- Take great care not to injure yourself while installing each part of the device.
- When attaching or detaching a power plug and the device's internal connectors, always turn OFF the breaker of the room and the power switch to prevent electric shock, burn, and accidents.
- When approaching moving parts (such as the arms and the camera head), support the moving parts as necessary to prevent accidents.
- Take measures to limit access to the installation site so that only the persons who perform the work can enter.
- Use extreme care whenever you need to place parts of your body such as your hands or feet under heavy items,.

↑ CAUTION

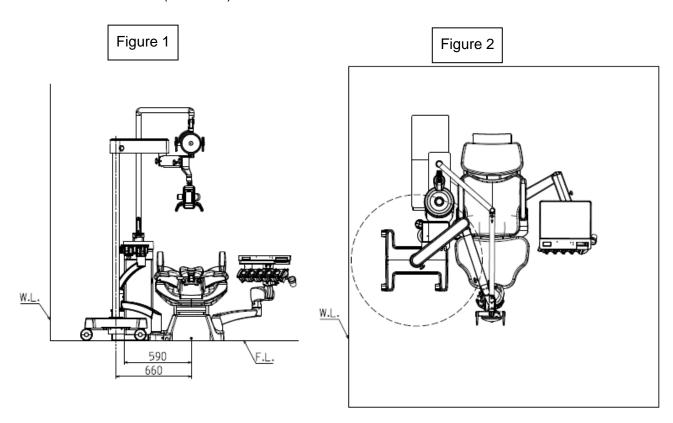
- Install the device where it does not get splashed with water.
- Take care to avoid impact when transporting the device.
- Install the device on a stable place, with no inclination, no vibration, and no impact.
- Do not install the device where chemicals are stored or gas is produced.
- Make sure that the device does not interfere with moving parts of peripheral devices and surrounding objects.
- Let people around the work area know before starting your work and mind the surrounding area during work.
- When temporarily placing a heavy item, ensure that the stability of the place is secured.
- To prevent the exposure of workers to danger, do not perform installation on the upper part and the lower part of the device at the same time.
- Do not insert fingers into the hole of a screw.
- Before operating a power switch, such as the main power switch and the camera power switch, always let people around the place know.
- Do not touch the camera window cover. If you touched the window cover, gently wipe it with a soft cloth, such as a cotton or gauze, moistened with neutral detergent or ethanol for disinfection (70% ethanol).

4.2 Example of Basic Layout

The below figures provide an example of the layout of the device used with a dental unit.

- Place the device next to the backrest of the unit at a distance of about 660 mm as measured from the center axis of the unit chair to the center axis of the pole.
- As for the depth, place the caster shown in the top right of the Figure 2 near, as a guideline, the base of the AEH. (Figure 1)
- Locate the base to a place where, looking from the direction of Figure 1, a cable pulled out from the pole comes to the back side. (Figure 2)

W.L.: Wall Line (wall side)
F.L.: Floor Line (floor side)



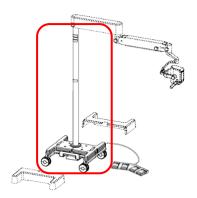
A CAUTION

- Do not place obstacles within the circumference of rotation of the First arm. The arm may contact obstacles, resulting in breakage.
- Make sure that the device does not interfere with moving parts of peripheral devices, such as an dental operating light and an extra-oral vacuum aspirator, and surrounding objects.
- Lock the casters when the position to place the device is decided.
- The layout described above is only an example. Install the device according to the actual condition of the installation site.
- When determining the installation site, take into account the dimension and shape of the room to be installed. In addition, ensure that the main power switch located on the First arm can be accessible and operable.

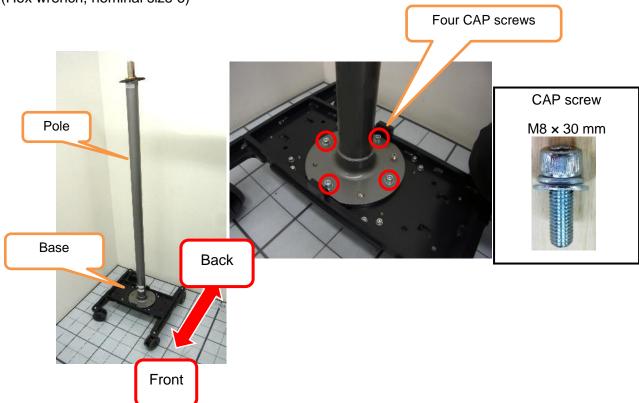
4.3 **Installation Procedure of the Main Unit**

This chapter describes the installation procedure of the device.

4.3.1 Assembling the Base



(1) Stand the pole on the base to fix it with four CAP screws (M8 \times 30 mm). (Hex wrench, nominal size 6)



Note: The pole has an orientation. The side with a long hole on the center of the pole to pull out the cable is the back of the device.

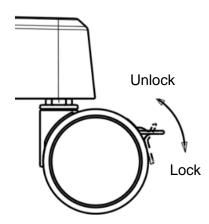
(2) Temporarily fix the base collar on the center of the pole using masking tape, etc.





* Example of temporary fix

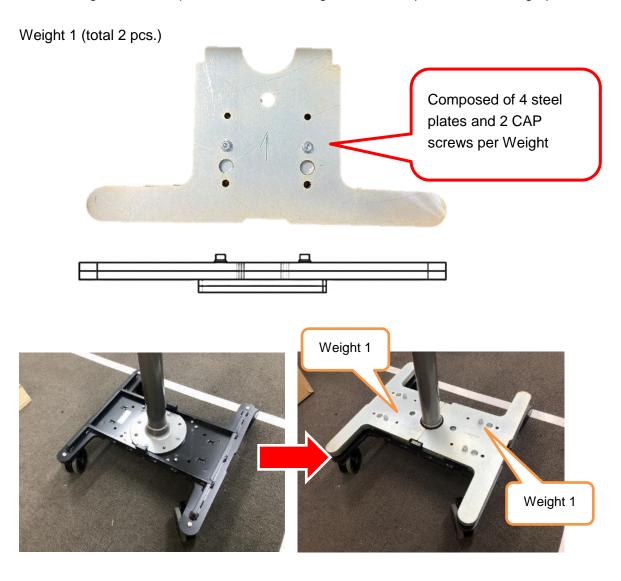
(3) Once the pole is attached, lock the brakes of the casters before putting on the weights.



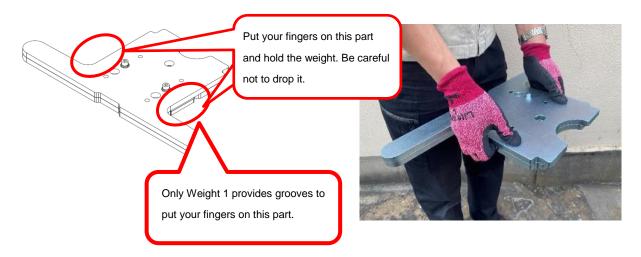
⚠ CAUTION

Pay careful attention to the pole to prevent it from falling when attaching the pole.

(4) Wear rubber work gloves, and place Weight 1 on the base as shown below. On the weight 1, '1' is imprinted. Place the weight with the imprinted side facing upwards.

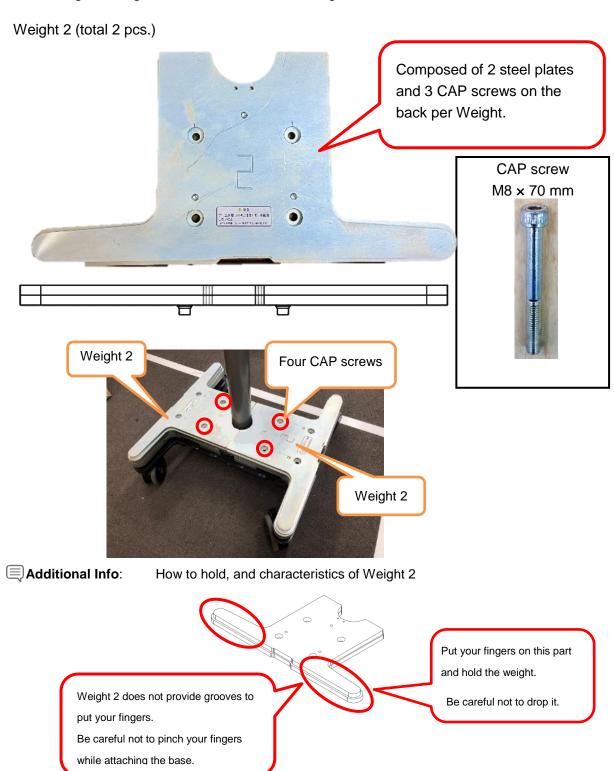


Additional Info: How to hold, and characteristics of Weight 1



(5) Place Weight 2 on Weigh 1 as shown in the figure. Fix them with four CAP screws (M8 x 70 mm). (Hex wrench, nominal size 6)

On weight 2, '2' is imprinted. Place the weight with the imprinted side facing upwards. After fixing the weights, remove the rubber work gloves.



Additional Info: How to place Weight 2

(1) Hold the protruding parts.



(3) Slide the weight to the center.



(2) Place the weight as shown below.



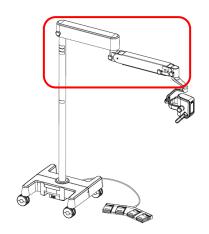
(4) Change the way you are holding the protruding parts as if pinching them. Then place them while paying close attention not to pinch your fingers in between.



CAUTION

- When placing the weights, be careful not to pinch your hands, foot, and fingers.
- Weight 1 and Weight 2 differ in shape. Fit Weight 1 to the bottom, and Weight 2 to the top.

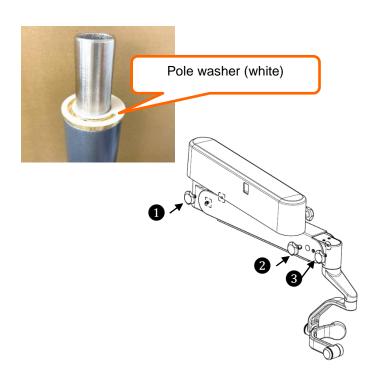
4.3.2 Installing the Arm



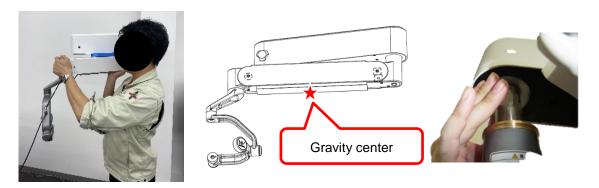
! CAUTION

- Always make sure that you have properly fixed both Weight 1 and Weight 2 before attaching the arm, to prevent the arm from falling.
- The arm is a heavy item. When attaching it, be extremely careful not to drop it or cause an injury.
- Lock each brake before attaching the arm.
- (1) Make sure that the pole washer is inserted in the pole.

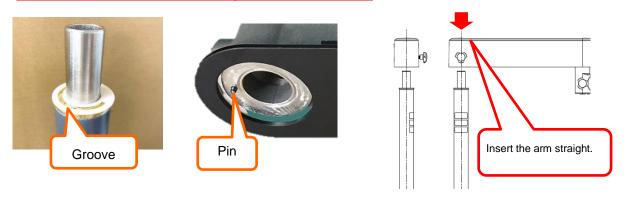
(2) With the balance arm folded, check that the balance arm rotary brake 1, the balance arm up-down brake 2, and the Three-section arm fixing brake 3 are locked.(Not required when unpacking.)



(3) Put the center of the balance arm on your palm and hold the arm as if carrying it on your shoulder. Support the end of the balance arm with your other hand.



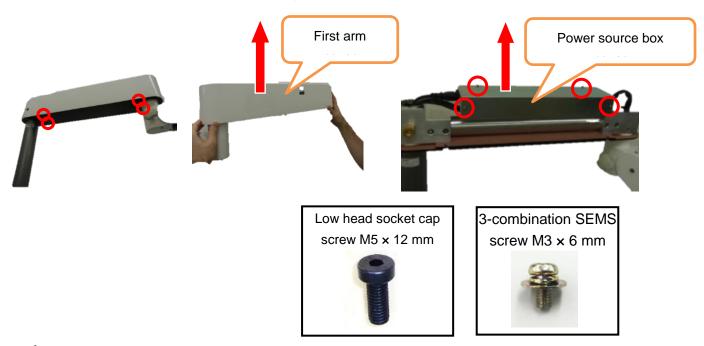
(4) Horizontally insert the First arm into the pole. Insert the pin on the arm into the groove of the washer.



Additional Info:

Since the pole and the arm are designed to fit precisely, jerk the Gravity center of the arm up and down to align the two axes. Then, insert the arm straight down all the way to the bottom to securely engage the arm with the pole.

(5) Remove the four low head socket cap screws (M5 x 12 mm) from the bottom of the First arm to remove the First arm cover. Then, remove the four 3-combination SEMS screws (M3 × 6 mm) from the First arm to remove the cover of the power source box. (Hex wrench, nominal size 3, and a Phillips screwdriver)

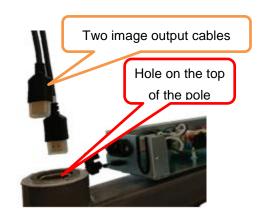


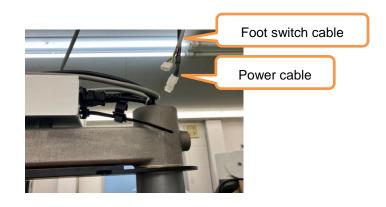
Note: Do not remove the screw on the center.



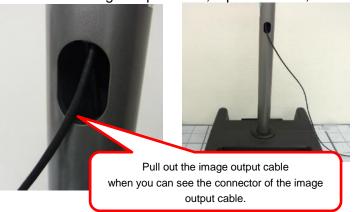


- (6) Put the cables (two image output cables, a power cable, a foot switch cable) through the hole on the top of the pole as shown below. (The cables are bound with a cable tie.)
 - Reference: Refer to 4.3.3 Optical fiber cable installation for details on how to install the fiber-optic cable.





(7) Pull out one image output cable from the long hole near the center of the pole. Pull out one image output cable, a power cable, and a foot switch cable from the bottom of the





Additional Info:

Put the cables through the hole while displacing the connectors, ensuring that they are not caught in the pole.

(8) After pulling out the image output cable connector from the long hole of the pole, attach the wiring grommet (with hole). Attach the blindfold grommet (with no hole), when you will not insert the image output cables.





(1) Attach the upper part



(2) Attach the lower part





(9) Insert the power cable connector into the inlet.



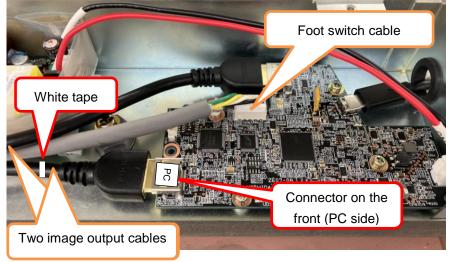
(10) Before inserting the cable, always make sure that an anti-slip cable lock is attached to the power cable as shown below.

(The anti-slip cable safelock is attached to the power source box.)



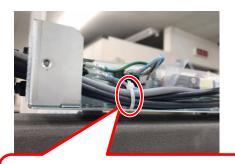
(11) Connect the connectors of the image output cables and the foot switch to the circuit board as show below.



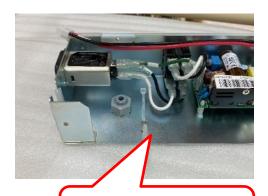


Note: Connect the image output cable wrapped by white tape to the connector on the front (PC side).

(12) Fix the image output cables and the foot switch cable with the attached cable tie using the hole in the power source box. Cut the remaining part of the cable tie with nippers.



Firmly fix them with the cable tie to prevent the connectors from dislodging. Be careful not to strain the cables.



Put the cable tie through the hole on the bottom of the power source box.

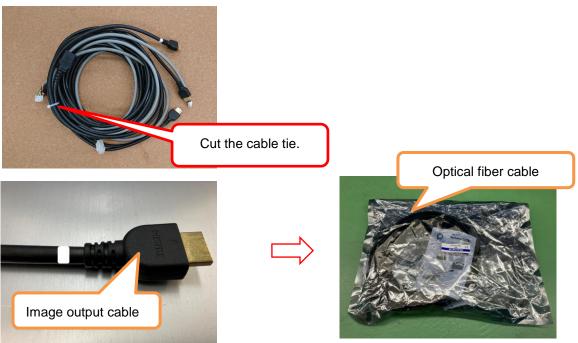
A CAUTION

Be sure to implement the above procedure to prevent the power cable from slipping off. Also, be sure to fix the image output cables and the foot switch cable with the cable tie. Failing to do so may cause the cable to slip off.

4.3.3 Installation of optical fiber cable

Follow the steps below only if you are using a fiber optic cable to connect to your monitor or computer. Please contact YOSHIDA dealer or YOSHIDA to purchase optical fiber cables. Refer to 4.3.2 Installation of the arm for instructions on how to install the power cable and footswitch cable.

- Reference: "4.3.2 Installing the Arm" on page 30
- (1) Cut the cable tie that holds the four cables together, and replace the video output cable with an optical fiber cable.
- Note: When connecting the optical fiber cable to the computer, replace the video output cable with the optical fiber cable that has the white tape wrapped around it.



№ WARNING

- Be especially careful not to damage the power cable when cutting the cable tie. Damage to the power cable may result in fire or electric shock.
- (2) Pass the optical fiber cable through the hole on the top of the pole as shown in the figure, and bring it out from the hole on the bottom of the base.

The connector labeled SOURCE connects to the PCB inside the arm.

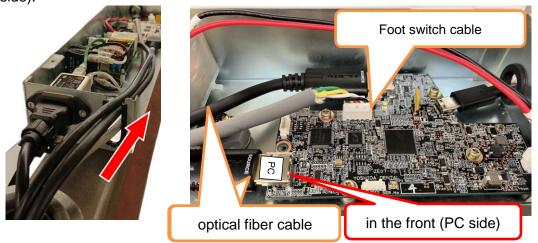
The connector labeled DISPLAY connects to a monitor or computer.







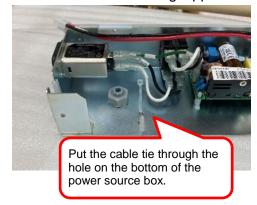
(3) When connecting the optical fiber cable to a PC, connect it to the connector in the front (PC side).



(4) Secure the optical fiber cable and footswitch cable using the hole in the power supply box and the cable ties provided. Cut off the excess portion of the cable tie using nippers or the like.



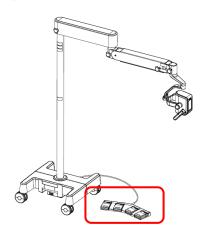
Firmly fix them with the cable tie to prevent the connectors from dislodging. Be careful not to strain the cables.



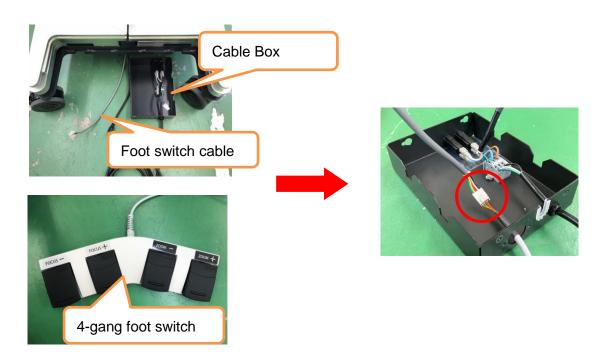
A CAUTION

Be sure to secure the power cable with an anti-slip cable lock. Also, be sure to secure the optical fiber cable and footswitch cable with the cable tie. Otherwise, the cables may come loose.

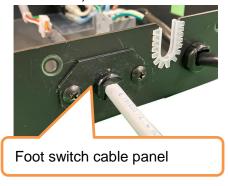
4.3.4 Attaching the 4 gang foot switch



(1) Connect the footswitch cable passed through in 4.3.2Installing the Armand the connector of the 4-gang footswitch in the cable box.

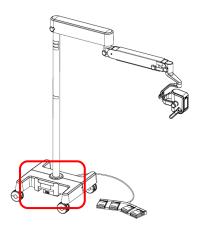


(2) Fix the foot switch cable panel to the cable box with two truss screws (M4 x 8 mm). (Plus screwdriver)

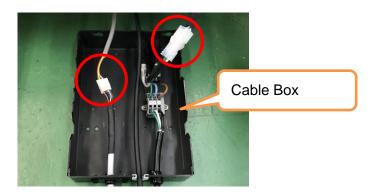




4.3.5 Attaching the Cable Box



(1) Connect the connectors of the power cable and the foot switch cable respectively.



(2) Insert the image output cables through the groove with a U-shaped bush on the cable box.



(3) Attach the cable box to the bottom of the base with four truss head screws (M4 \times 8 mm). (Phillips screwdriver)

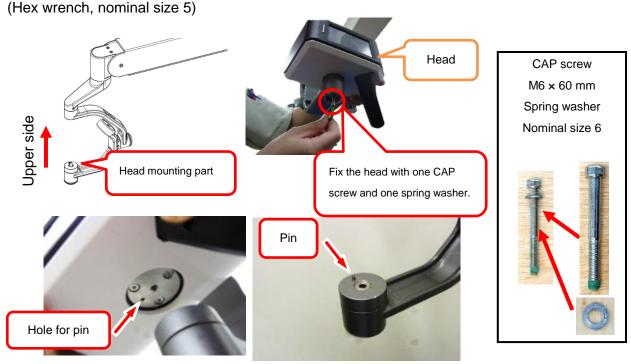


Note: As a side with the port to pull out the cables becomes the back, attach the cable box to make the side face the same direction as the long hole of the pole.

4.3.6 Mounting the Head



- (1) Set the Three-section arm so that the head mounting part faces upward. Align the pin on the mounting part with the hole for pin.
- (2) Set the head and fix it with one CAP screw (M6 x 60 mm) whose tip is processed for an antiloosening, and one spring washer (nominal size 6).

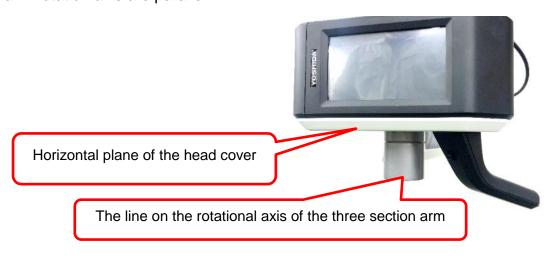


⚠ CAUTION

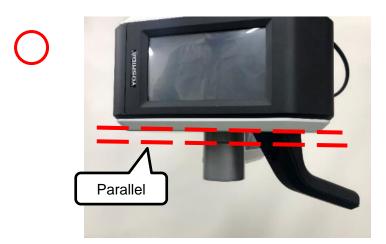
- Always make sure that the pin is correctly inserted into the hole for pin before tightening a CAP screw (M6 x 60 mm). * For how to confirm the correct insertion of the pin, see the
- When mounting the head, if you tighten a CAP screw (M6 x 60 mm) without correctly inserting the pin into the hole for pin, the Three-section arm will not work correctly. (for example, it may have sluggish movement, or a narrow rotation angle)
- The CAP screw (M6×60mm) is not reusable. When removed, the effectiveness of the antiloosening coating on the threaded part will be lost. Therefore, please always order a new one from the YOSHIDA dealer or YOSHIDA.

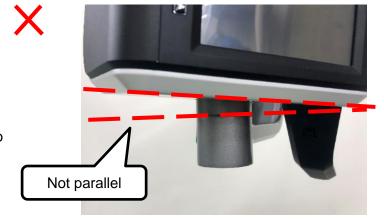
* How to confirm the correct insertion of the pin

Confirm that the horizontal plane of the head cover and the line on the Three-section arm rotation axis are parallel.



• Properly installed:





• If the pin is not inserted into the hole properly

Additional Info: If the pin is not correctly inserted, the head will rattle and be unstable.

(3) Put the Head arm cap on.





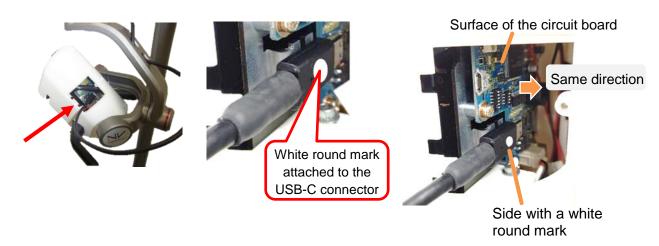
A CAUTION

- Do not tighten the CAP slantingly. A screw will seize up and removal will be impossible.
- (4) Remove one bind screw (M3 x 12 mm) attached to the cover for connecting the USB-C cable of the head to remove the cover. (Phillips screwdriver)

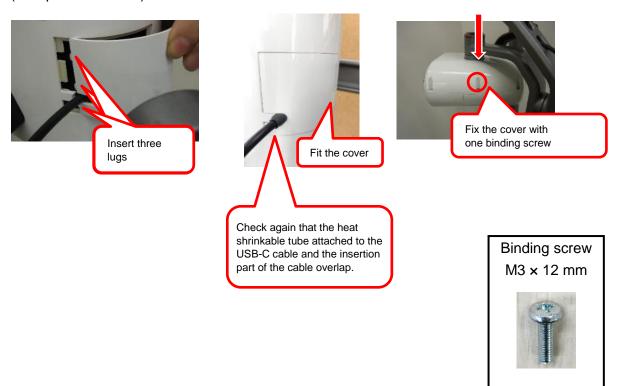




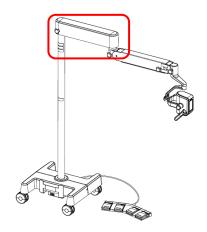
(5) Connect the USB-C cable to the circuit board inside the head. (Connect the cable by placing the side with a white round mark to the opposite of the substrate.) When connecting the cable, move the Three-section arm to check that the cable does not strain.



- (6) Connect an image output cable to the monitor to check that image is output.
 - Additional Info: If an image is not output, reconnect the USB-C cable so that the white round mark comes on on the front side of the board. In rare cases, it is connected in the reversed orientation.
- (7) Fix the cover for connecting the USB-C cable with one binding screw (M3 \times 12 mm). (Phillips screwdriver)



4.3.7 Attaching First Arm Cover



(1) Place the cover of the power source box to fix the cover with four 3-combination SEMS screws $(M3 \times 6 \text{ mm}).$

(Phillips screwdriver)



Four 3-combination SEMS screws

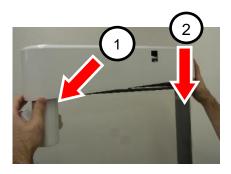


(2) Attach the First arm cover and fix it with four low head CAP screws (M5 x 12 mm). Low head cap

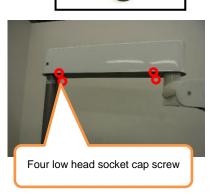
(Hex wrench, nominal size 3)

Additional Info:

In ascending order, insert the cover into the directions as shown below. If it is hard to insert, insert it in while opening the cover.

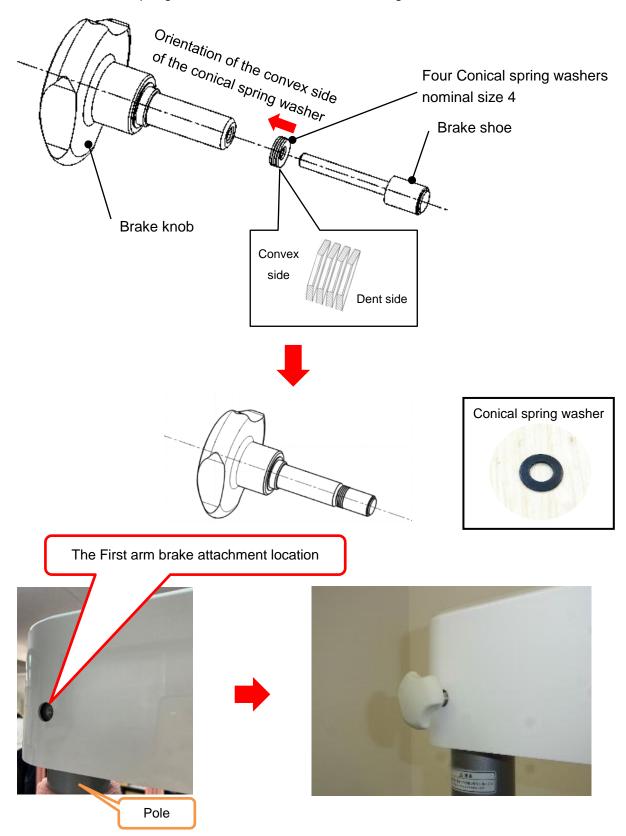




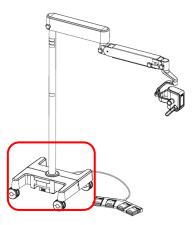


screw $M5 \times 12 \text{ mm}$ (3) Assemble the First arm rotary brake as shown below.

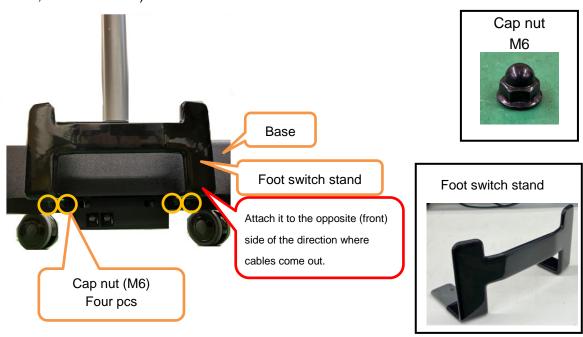
Insert the conical spring washer with the convex side facing the brake knob side.



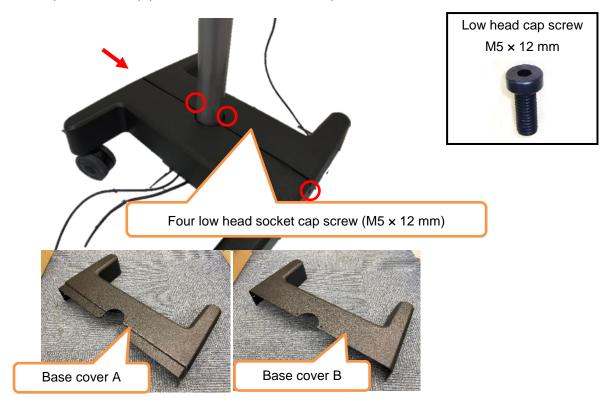
4.3.8 Attaching the Base Cover



(1) Assemble the foot switch stand with four cap nuts (M6). (Spanner, nominal size 1)



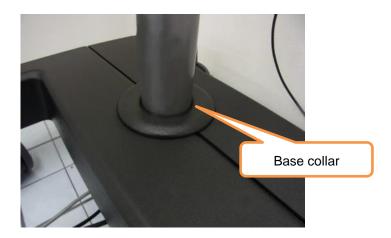
(2) Set the Base cover A and the Base cover B as shown below to fix them with four low head CAP screws ($M5 \times 12$ mm).(Hex wrench, nominal size 3)



Additional Info:

As the attaching orientation of the Base cover A and the Base cover B are not designated, you can attach them in either direction.

(3) Remove the temporary fix of the base collar to put it on the base cover. The attachment of the Base cover is complete.



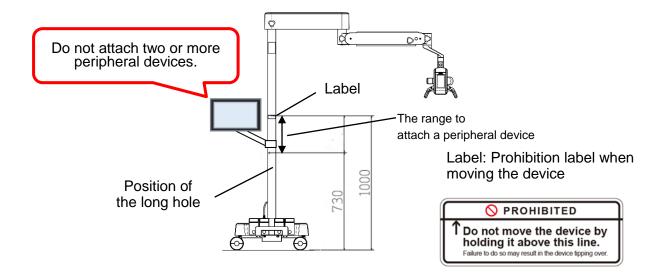
Precautions When Attaching a Peripheral Device, such as a Monitor

When you attach peripheral devices, such as a monitor and a monitor arm, to the pole, use the device specified by us. Please contact YOSHIDA dealer or YOSHIDA for peripheral devices specified by us.

Attach a peripheral device within the range between the line of the 'PROHIBITION label when moving the device' and the long hole located near the center of the pole. (within 730 mm and 1,000 mm above the floor)

If you attach a peripheral device outside the range, the device may get out of balance and fall.

To prevent the risk of a fall, do not attach two or more peripheral devices to the pole.



5. Precautions and Procedure for Connecting to the Energy Source

5.1 Hazard Prevention

When connecting the device to the energy source, comply with the precautions below to prevent occurrence of unexpected incidents, such as an accident and damage to the device.

* If you have any question, please contact YOSHIDA dealer or YOSHIDA.

№ WARNING

- Always make sure that the power switches (the main power switch and the camera power switch) are OFF when it is not needed, to prevent an electric shock and an accident.
- Take great care not to injure yourself when attaching parts of the device.
- Do not install the device in a place to store inflammable chemicals, such as thinner, and in a high concentration oxygen atmosphere. Doing so may cause a fire or an explosion.
- Establish a ground correctly.
- Do not use a conversion plug. Connect the power plug into a receptacle correctly.

CAUTION

- Install the device where it does not get splashed with water.
- Install the device where it does not receive a harmful effect by atmospheric pressure, temperature, humidity, ventilation, sunlight, and air containing dust, salinity, or sulfur.
- Pay attention to a stable state where the device is installed, such as inclination, oscillations, and impact (including during transportation of the device).
- Before operating a power switch, such as the main power switch and the camera power switch, always send a signal to people around the place.

Connecting to Power Receptacle 5.2

5.2.1 Precautions for Connection

The device uses a medical 3P plug in which an earth terminal is inserted into the power plug. Always connect the power supplies of the medical equipment to a grounding resistance of 100 Ω or lower.

∕ ! WARNING

- Insert a medical 3P plug of the device into a medical 3P receptacle with a rated voltage of 100 to 120 V AC and a rated current of 15 A or greater, independently (earth work is required). Do not connect multiple strips together. Heat generation may cause a fire or an electrical shock.
- Be sure to remove dust from the power plug and the receptacle. If you continue to use the device without removing dust, a very small amount of current flows on the surface due to humidity, which could cause heat generation and a fire.
- Do not use an extension cord. Doing so could cause heat generation or a fire.
- Do not damage, break, or process the power cord. Do not place a heavy load, pull, or forcibly bend the power cord. Doing so may damage the power cord, resulting in a fire or an electrical shock.

5.2.2 Connection Procedure

- 1) Check the connection state of the existing power receptacle (medical 3P receptacle). (When it is connected, make sure that it is not loosely connected.)
- 2) Make sure that the power switches (the main power switch and the camera power switch) of the device are turned OFF.
- 3) Insert the power plug of the device into a power receptacle.

WARNING

Do not use a conversion plug. Connect the power plug into a receptacle correctly.

♠ CAUTION

When connecting to a receptacle, be careful of an electric shock.

6. Precautions and Conformation Procedure Before Trial Run

6.1 Hazard Prevention

When confirming the state of the device before a trial run, comply with the precautions below to prevent occurrence of unexpected incidents, such as an accident and damage to the device.

* If you have any question, please contact YOSHIDA dealer or YOSHIDA.

! CONTRAINDICATION / PROHIBITION

 It is extremely dangerous to perform a confirmation procedure before the trial run while an assembly of the device is not completed.
 Be sure to complete the assembly of the device first.

№ WARNING

- After the device is installed, make sure that there are no obstacles within the movable range of the arm.
- Always make sure that the power switches (the main power switch and the camera power switch) of the device are OFF when it is not needed, to prevent an electric shock and an accident.
- When attaching or detaching a power plug and the device's internal connectors of the
 device, always turn OFF the breaker of the room and the power switch of a dental unit to
 prevent an electric shock, a burn, and accidents.
- When approaching moving parts, support the moving parts as necessary to prevent accidents.
- Always confirm that the degree of horizontality and the degree of verticality match before carrying out a trial run.
- Do not use a conversion plug. Connect the power plug into a receptacle correctly.

! CAUTION

 When attaching or detaching the power plug of the device, always send a signal to people around the place.

6.2 Items to be confirmed and Procedure before Trial Run

Refer to the "State of the installation" and "Main unit" sections of the "8.1 Operation Checklist after the Installation" and perform the pre-operation confirmation.

Reference: "8.1 Operation Checklist after the Installation" on page 54

7. Precautions and Procedure of Trial Run

Refer to the 'Camera head' and '4-gang foot switch' sections of the 8.1 Operation Checklist after the Installation" and perform the final confirmation.

Reference: "8.1 Operation Checklist after the Installation" on page 55

8. Procedures for Checking Performance and Safety Items and Performance Criteria

Operation Checklist after the Installation

State of the installation

Items	Action	Judgment / performance criteria	
Check the power source	Visually check the power plug.	It is connected to a medical 3P connector.	
Check the power source	Visually check the power plug.	A conversion plug is not used.	
Check earthing	Measure the resistance between the earth terminal and N terminal of the receptacle using an earth-resistance meter. Before measuring the resistance, make sure that the items contained in "1Site Requirements" and "2Facility Requirements" are satisfied.	Between the earthing and N terminal: 100 Ω or less	

Main unit

Items	Action	Judgment / performance criteria	
Check components	Check them in accordance with "3.1.Standard Components".	Confirm that they are the components mentioned in "3.1.Standard Components".	
The First arm does not drift.	Operate the First arm in a side-to-side direction.	When you release your hand, the First arm stops at any give position and does not drift.	
Check the balance of the balance arm	Operate the balance arm in vertical directions.	(1) Position the balance arm at the upper limit and check that it does not move down.(2) Position the balance arm at the horizontal position and check that it does not move up and down.(3) Position the balance arm at the lower limit and check that it does not move up.	
Check that the balance arm does not drift.	Operate the balance arm in a side-to-side direction.	When you release your hand, the balance arm stops at any given position and does not drift.	
The Three-section arm does not drift.	Operate the Three-section arm in the Yaw direction, the Roll direction, and the Pitch direction.	 When you release your hand, (1) Check that the Three-section arm stops at any given position in the Yaw direction, and does not drift. (2) Check that the Three-section arm stops at any given position in the Roll direction, and does not drift. (3) Check that the Three-section arm stops at any given position in the Pitch direction, and does not drift. 	
Check the proper operation of the brakes of the arms.	Lock each brake of the arms. (Four locations in total)	al) Check that the brakes work properly.	
Check for an unusual sound	Move all movable parts of the head and the arms.	Check that they do not make an unusual sound.	
Check that there are no typos on the nameplate. Check that the nameplate does not come off.	The nameplate does not come off.	Make sure that the nameplate does not come off.	
No scratches, no stain	Visually check the state of the exterior.	Check that there is no stain that cannot be wiped off by a cloth and no noticeable scratches on the exterior.	
Check for stains on the camera window and the touch panel	Visually check the camera window and the touch panel	Check that no stain is on the camera window and the touch panel.	
Check for interference with	Move all movable parts of the head and the arms.	Check that interference with other devices does not cause a problem. (such as a unit chair, an dental operating light, and AEH)	

Additional Info:

The Yaw, Roll, and the Pitch direction







■ Camera head

Items	Action	Judgment / performance criteria	
Check the irradiation pattern of the lights	Turn the lights on to check light irradiated at the distance of about 300 mm.	Check that an irradiation pattern is not largely divided.	
Check the irradiation pattern of the blue lights	Turn the blue lights on to check light irradiated at the distance of about 300 mm.	Check that an irradiation pattern is not largely divided.	
Check image output	Visually check an image displayed on a monitor.	Check that an image is not flickering.	
Check the proper operation of the touch panel	Depress the Light ON/OFF button, the Light Dimmer buttons + and -, and the Blue Light button.	 (1) Press the Light ON/OFF button to check the lights turn on and off. (2) Press the Light Dimmer button + to check the illuminance increases. (3) Press the Light Dimmer button - to check the illuminance decreases. (4) Press the Blue Light button to confirm that the blue lights turn on. 	
Check the proper operation of the handle switch	Depress \uparrow , \downarrow , \rightarrow , and \leftarrow (up, down, right, and left) of both of the right and left handles.	The following operations can be carried out with each handle. (1) ↑: Zoom in (enlarge) (2) ↓: Zoom out (reduce) (3) →: Focus out (Near) (4) ←: Focus in (Far) (5) Depress: Auto focus	

■ 4-gang foot switch

Items	Action	Judgment / performance criteria
		Check that the following operations can be carried out with
Check the proper operation of		the 4 gang foot switch:
the 4-gang foot switch		(1) 'ZOOM +': Zoom in (enlarge)
the 4-gang foot switch	'FOCUS -' switches of the 4-gang foot switch.	(2) 'ZOOM -': Zoom out (reduce)
		(3) 'FOCUS +': Focus out (Near)
		(4) 'FOCUS -': Focus in (Far)

■ Instructions to the user

Items	Action	Judgment / performance criteria
the device, how to maintain,	Explain the outline of 3. Operating Instructions, 4. Troubleshooting, and 5. Maintenance contained in the Mielscope Operation Manual.	

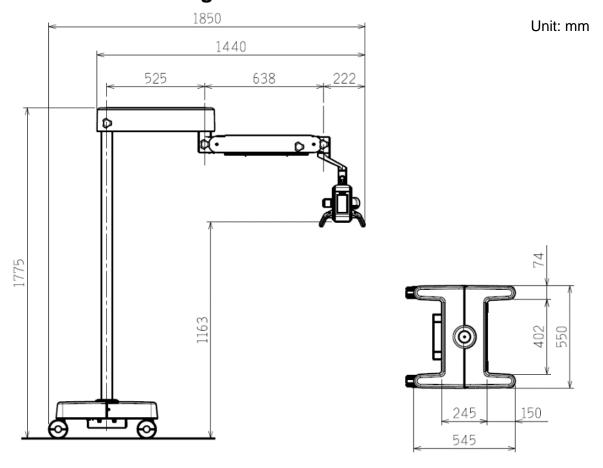
Additional Info: Irradiation pattern: Within WD: 450 mm, X: 150 mm, Y: 90 mm

9. Main Specifications

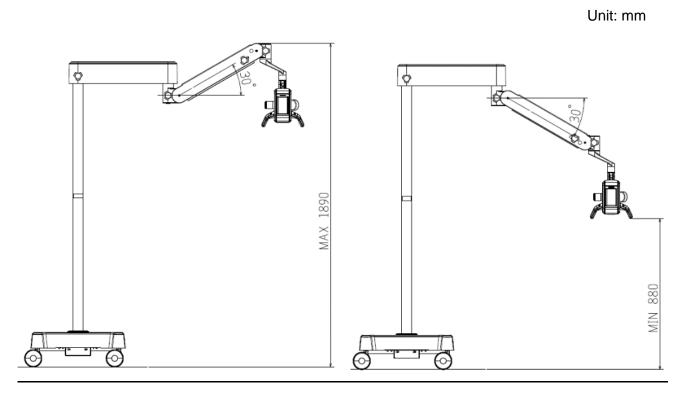
9.1 Specifications

Items	Specifications	
Common name	SURGICAL MICROSCOPE	
Product name	Mielscope	
	Number of phases: 1Φ (single phase)	
Downer course	Frequency: 50/60 Hz	
Power source	Power supply voltage: 100 to 120 V AC	
	Input: 60 VA	
Image sensor	About 8.51 million pixels, CMOS sensor	
Output recolution	2K mode: 1920 × 1080, 59.94 fps	
Output resolution	4K mode: 3840 × 2160, 29.97 fps	
Zoom	Optical zooming / Electric zooming / Digital zooming	
Zooming magnification	2K mode: 8 to 30x (maximum) magnification	
200ming magnification	4K mode: 8 to 80x (maximum) magnification	
Focus	Electric focus / Auto focus	
Imaging distance (working distance)	300 to 500 mm	
Protection against electric shock	Class I device	
Mass	110 kg	
	Range of ambient temperature: 10 to 30°C	
Operating condition	Range of relative humidity: 30 to 75% (No dew condensation)	
	Range of air pressure: 800 to 1060 hPa	
	Range of ambient temperature: −10 to 60°C	
Storage and transportation conditions	Range of relative humidity: 30 to 75%	
	Range of air pressure: 800 to 1060 hPa	

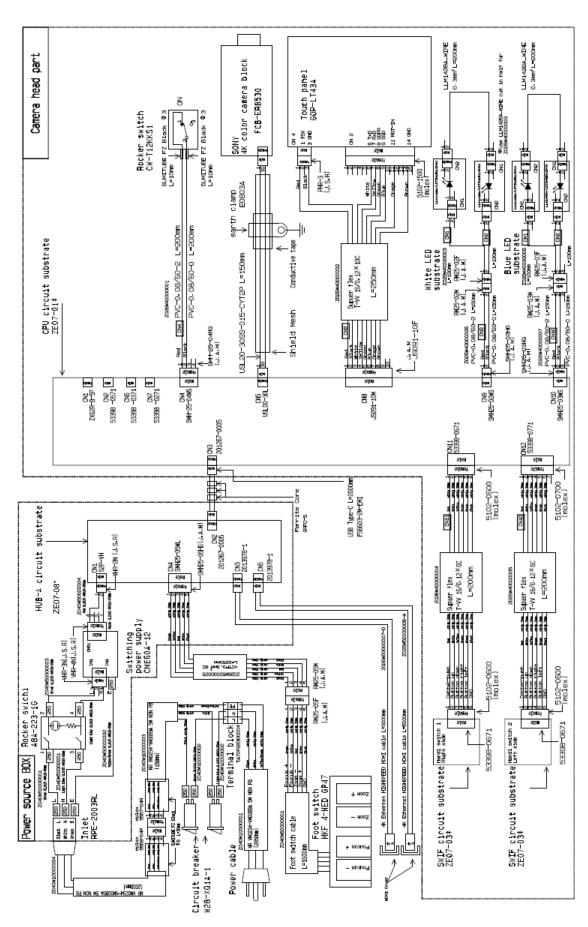
Dimension Drawing 9.2



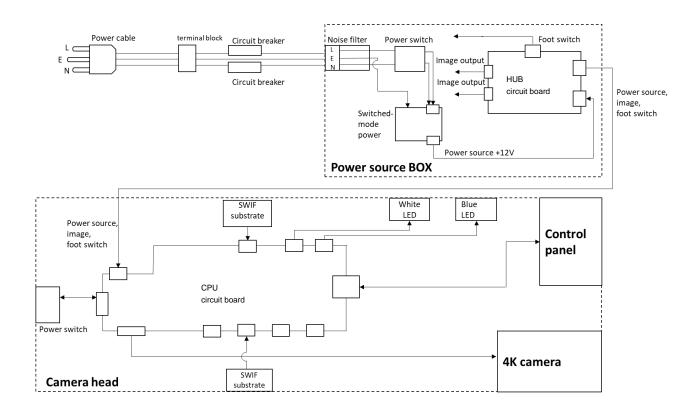
Highest position / Lowest position



9.3 Actual Wiring Diagram



Block Diagram 9.4



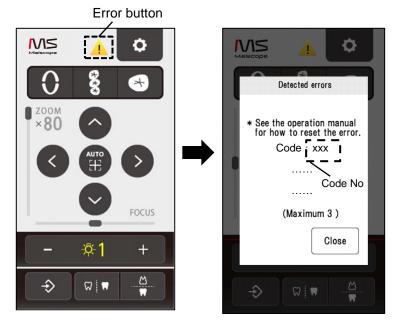
10. Error Messages

10.1 How to Refer to Error Information

If an error occurred, a warning message or the "Error" button will appear on the control panel. When you refer to the recorded error log, enter the "Service Mode" from the "Setting Menu" screen to select Error Information [S].

Reference: "11.1 Entering the Service Mode" on page 65

Depress the "Error" button on the screen to check the error that occurred. (When no error occurs, the "Error" button is not displayed.)



10.2 Error Codes

List of error codes

code	e Status		Error display	Continue or stop the operation when an error has occurred
000	Starting p	power supply (it is not an error)	Error log only	Continue
001	Handle switch or 4 gang foot switch depressed at start up		Error Messages	Continue with conditions
002	Handle switch or 4 gang foot switch depressed at start up		Error Message	Continue with conditions
003	3 CPU temperature rising		Error Message	Continue
100		Abnormal communication	Error Message	Stop
101	Comoro	Abnormal response	Error log only	Continue
102	Camera	Abnormal operation	Error log only	Continue
103		Internal temperature rising	Error Message	Continue
200	Comtra	Abnormal communication	Error Messages	Continue with conditions
201	Control	Abnormal response	Error Messages	Continue
202	panel	Abnormal communication (when starting-up)	Error Message	Continue with conditions

- Some errors display an error message and some errors are only recorded in the error log.
- When an error message appears, handle the error in accordance with descriptions in the next section.
- An error that is only recorded in the error log will be automatically recovered. In general, as the operation continues, no action needs to be taken. It is recorded in the error log as a guideline to recognize the timing of the occurrence of another error.
 - Note: When an error of the control panel has occurred, you may not be able to check an error message or the error log. In such a case, read the Service Manual.

Code No. 000 (* It is not an error)

It is recorded when the CPU starts up.

It is recorded in the log as a guideline to recognize the timing of the occurrence of an error.

Code No. 001

Status: Handle switch / 4 gang foot switch depressed at startup.

Cause: Handle switch signal or 4 gang foot switch signal was detected when the power switch was

turned ON.

Action: Check the handle switch and the 4 gang foot switch, and cancel the switch.

(A warning message will automatically disappear when the switch is cancelled.)

If a warning message appears even though the handle switch or the 4 gang foot switch is not depressed, turn OFF the power switch once and then turn ON the power switch with the handle switch and 4 gang foot switch released. If the error still occurs frequently even after turning the power switch OFF then ON again, please contact YOSHIDA dealer or

YOSHIDA.

Code No. 002

Status: Handle switch / 4 gang foot switch operation disabled

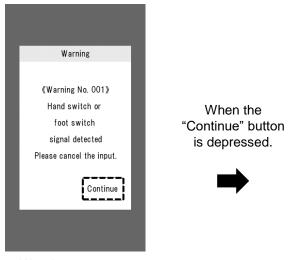
Cause: Depression of the handle switch or 4 gang foot switch was detected when the power was

turned ON. A warning message appeared and 'Continue' was selected.

Action: Continue the operation using the control panel only or, alternatively, turn the power switch

OFF to cancel the handle switch or the 4 gang foot switch, and then turn the power switch

ON.





Warning message

Error message

Code No. 003

Status: The temperature sensor on the CPU detected a temperature exceeding the specified

temperature.

Cause: The CPU detected the relevant signal.

Action: Turn the power switch OFF and leave the device unused for about 30 minutes. After

cooling it sufficiently, turn the power switch ON again.

Code No. 100

Status: Abnormal communication between the camera and the CPU was detected.

Cause: A response, Non-executable, is returned to an operation command sent from the CPU.

(It occurs when no response is received even the command is sent five times.)

Action: Turn the power switch OFF, and then turn it ON again. If the error still occurs frequently

even after turning the power switch ON again, please contact YOSHIDA dealer or

YOSHIDA.

Code No. 101

Status: Abnormal operation of the camera was detected.

Cause: A response, Non-executable, is returned to an operation command sent from the CPU.

(This error occurs when a normal response is not received even when the command is

sent three times.)

Action: In general, no action required.

Code No. 102

Status: Abnormal communication between the camera and the CPU was detected.

Cause: A response, Execution complete, is not returned for a certain period of time to a command

sent from the CPU.

(This error is detected when a response, Execution complete, is not returned even a

command is sent three times.)

Action: In general, no action required.

Additional Info: This error occurs when many commands to the camera are in a queue as a result of

pressing buttons repeatedly.

Code No. 103

Status: The temperature sensor inside the camera detected a temperature exceeding the specified

temperature.

Cause: The CPU detected the relevant signal.

Action: Turn the power switch OFF and leave the camera unused for 30 minutes. After cooling it

sufficiently, turn the power switch ON again.

Code No. 200

Status: Abnormal communication between the control panel and the CPU was detected.

Cause: A response, Non-executable, is returned to an operation command sent from the CPU.

(This error is detected when no response is received even a command is sent three times.)

Action: Turn the power switch OFF, and then turn it ON again. If the error still occurs frequently

even after turning the power switch ON again, please contact YOSHIDA dealer or

YOSHIDA.

Code No. 201

Status: Abnormal communication between the camera and the CPU as detected.

Cause: A response, Non-executable, is returned to a command sent from the CPU.

(This error is detected when no response is received even a command is sent three times.)

Action: In general, no action required.

Code No. 202

Status: Abnormal communication between the control panel and the CPU was detected at the

startup of the device.

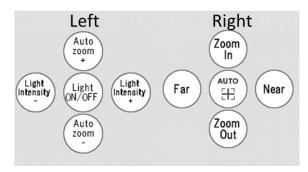
Cause: No response to a command sent from the CPU.

Action: Operate the device with the handle switch or the 4 gang foot switch only, or restart the

device. When you operate the device with the 4 gang foot switch only, the following

functions are forcibly allocated to the handle switch.

(These functions are forcibly allocated even if the Switch Customization is set.)

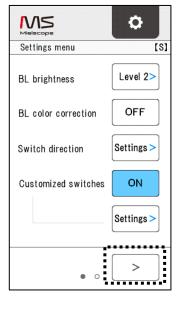


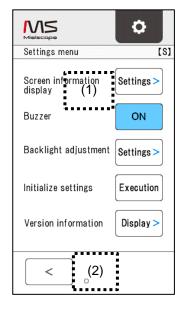
11. Service Mode

11.1 Entering the Service Mode

Enter the "Service Mode" from the control panel.



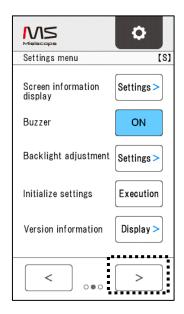


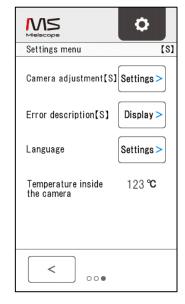


1. Press the "Setting Menu" button to display the Setting Menu screen.

2. The screen moves to the second page of the "Setting Menu" screen.

3. Press exact points whereindicated as (1) and (2) slowly in sequence twice.





4. As you enter the "Service Mode", [S] will be displayed on the top right, and the button to go to the next page appears.

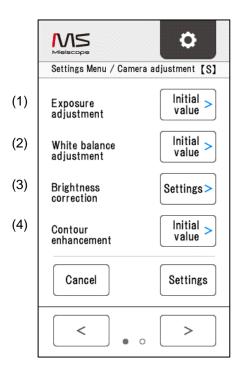
- 5. As you move to the next page, the following items will be displayed.
 - Camera Adjustment [S]
 - Error description [S]
 - Language
 - Temperature inside the Camera

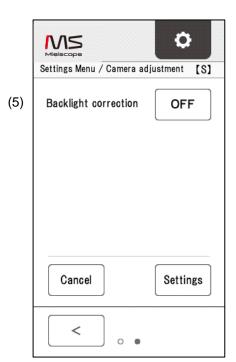
11.2 Camera Adjustment

Select "Camera Adjustment [S]" in the "Service Mode" to configure the advanced settings of the camera.

♠ CAUTION

Except for special cases, do not change the settings of Camera Adjustment.
 Changing the settings of Camera Adjustment can greatly affect imaging quality.





11.3 Exposure adjustment

You can set the gain (sensitivity) and shutter speed (exposure) of a camera.

- Note: When you changed the setting of the Exposure adjustment from the initial settings, flicker may appear.
- ➤ Initial settings (Shutter speed: 1/30, gain: 0 dB)
- > Auto
- > Manual

You can separately set the shutter speed and the gain.

- Shutter speed (1/10 to 1/250)
 You can set the exposure time of a camera. The shorter the exposure time, the darker the screen, resulting in the appearance of flicker, such as light flicker.
- Gain (0 dB to 36 dB)
 You can adjust the sensitivity of a camera. The higher the gain, the brighter the screen.
 However, this means that it can be easily affected by noise.

11.4 White balance adjustment

You can correct the color of a camera image.

- ➤ Initial setting (Auto)
- > Auto
- > ATW
- > Indoor environment
- > Outdoor environment
- > 1 push white balance
- > Manual

The following settings can be set separately.

R gain (0 to 255)

You can adjust the red gain.

B gain (0 to 255)

You can adjust the blue gain.

Color correction (60% to 200%)

You can set the saturation of color.

Hue (-14 to +14)

You can adjust color temperature.

11.5 Brighteness correction (ON/OFF)

Brightness correction makes the dark part of a camera image brighter to allow you to see an image clearly.

- Brightness (0 to 6), initial setting: 3
- Lightness (Lower, Low, Middle, High), initial setting: Middle
- Contrast (Low, Middle, High), initial setting: Middle

11.6 Contour enhancement

This function enhances the contour of a subject.

- Initial setting (Auto)
- Auto
- Manual

Contour enhancement level (0 to 15)

Increasing the contour enhancement level may enhance noise.

11.7 Backlight correction (ON/OFF)

Perform backlight enhancement when the background of a subject is too bright. This makes easier for you to see the subject.

Initial setting: OFF

11.8 How to Set

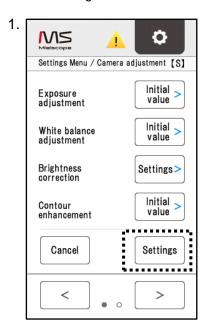
- 1. Press Settings.
- 2. Depress YES on the Setting / Memory screen to save settings.
- 3. The Setting Complete screen appears after the settings are saved. When the Setting Complete screen appears, turn the power of the camera head OFF. Then, turn the power ON again to confirm that the camera settings are saved.

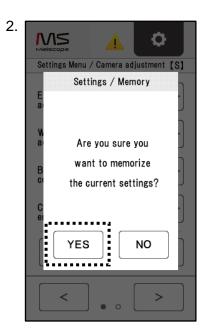
Note: If you move from the Camera Adjustment page without saving the settings or turn the power OFF while saving the settings, the camera settings are not saved.

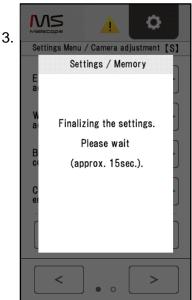
Additional Info: To cancel the contents of change in settings, press "Cancel" to cancel them and

return to the previously saved settings.

Additional Info: To make all settings of the Camera Adjustment to the initial values, initialize the settings.

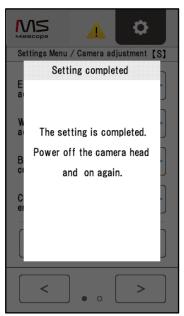








4.



11.9 Error Information

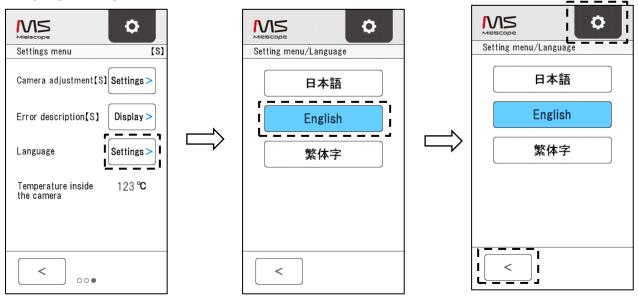
If any error occurs to the device, the error will be recorded.

11.10 When an Error Occurred

Reference: "10.2 Error Codes" on page 61

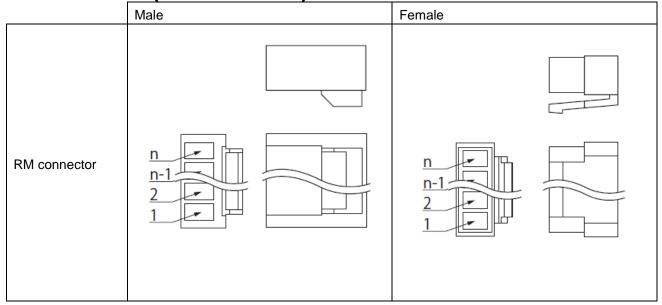
11.11 Language

- 1. Press "Settings" on "Language" in the "Service Mode"
- 2. Press the "Language" button to change the display language.
- 3. After setting the language, press the "Setting Menu" button or the Back button to exit from the "Language setting" screen.

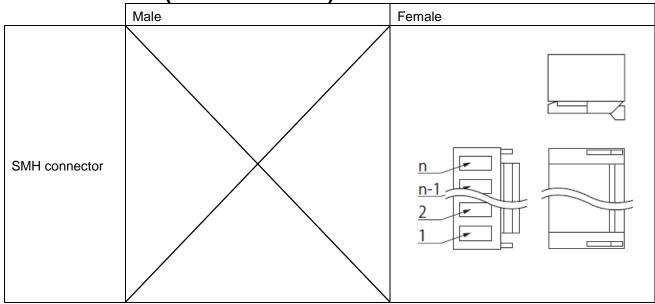


12. Shapes of Connectors

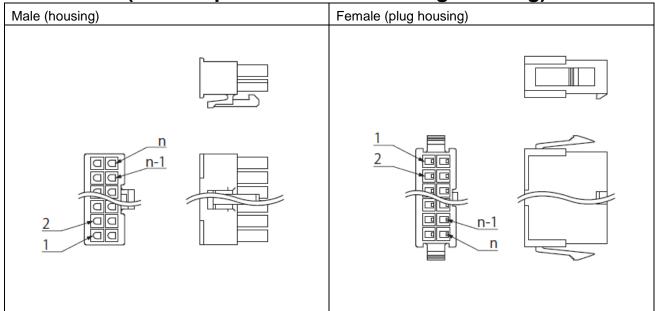
12.1 JAM RM (RM connector)



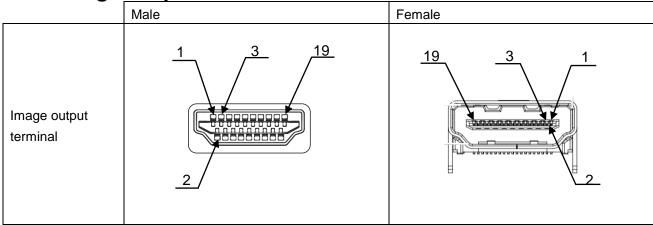
12.2 JAM SMH (SMH connector)



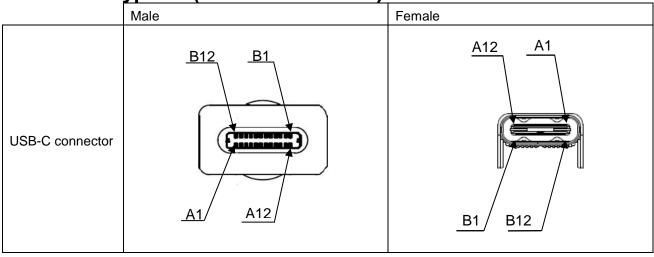
12.3 Molex (4.2 mm-pitch New Mini-Fit Plug Housing)



12.4 Image Output Terminal



12.5 USB Type-C (USB-C connector)



MEMO

When the device is purchased, be sure to fill the contact information.

Contac	et information
Name of the Dealer :	Tel No. :
	Fax No. :
Mielscope Ir	nstallation Manual
Published by: THE YOSH	nber. 2023 - The 1st edition HIDA DENTAL MFG. CO., LTD. DM01-INS-ENG-001
Name of Manufacturer:	
1-3-6 Kotol	ENTAL MFG. CO., LTD. bashi, Sumida-ku, kyo, Japan
Tel: +8 ⁻	1-3-3631-2165 1-3-3631-2685
Name of Importer:	/ II - N Lorenza NA/ - Lor
8 Westchester Plazza, 9 PHN: 9	g (dba) Image Works Suite 112, Elmsford, NY 10523 914-592-6100 914-592-6148
Additional Contact Information (wh	nere appropriate):