



INSTRUCTIONS

INDUSTRIAL VIDEOSCOPE

IPLEX MX II series



Contents

- Warning and Rating Plates..... 1**
 - 1. Rating plate A..... 1
 - 2. Rating plate B..... 1
 - 3. Warning plate 2
- Important Information – Please Read Before Use..... 3**
 - Intended use 3
 - Instruction manual 3
 - Combined ancillary equipment..... 3
 - Repair and modification 3
 - Signal words..... 4
 - Dangers, warnings and cautions..... 4
 - Handling of the battery 7
 - Product configurations of the IPLEX MX II series..... 9
- Chapter 1 Checking the package contents 10**
 - 1.1 Checking the package contents 10
 - IPLEX MX II series package contents 10
- Chapter 2 Instrument nomenclature and functions 11**
 - 2.1 System nomenclature 11
 - 2.2 Main unit nomenclature and functions 13
 - 2.3 Control unit nomenclature and functions 14
- Chapter 3 Preparation and inspection before observation 16**
 - 3.1 Transportation of the case..... 16
 - When using the handle 16
 - Taking the instrument out of the case 17

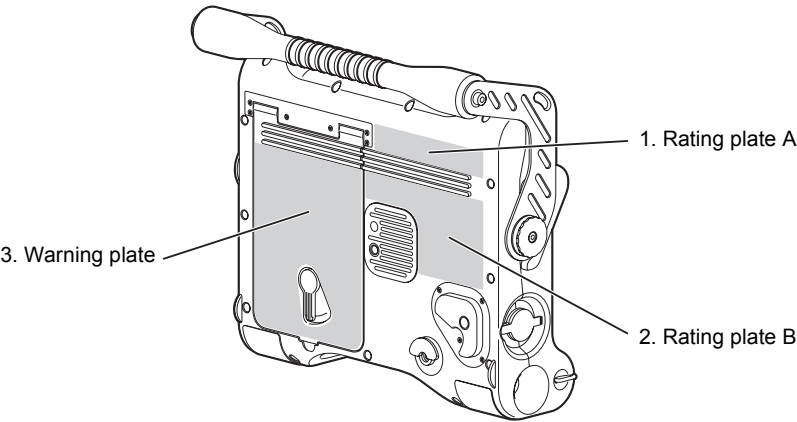
3.2	Setting up the main unit.....	19
	Using the handle	21
3.3	Preparing the power supply	22
	Supplying power from the battery	22
	Supplying power from the AC adapter	24
3.4	Inspecting the insertion tube.....	25
	Inspecting the external appearance of the insertion tube	25
	Inspecting the insertion tube distal end.....	25
3.5	Inspecting the side view mirror adapter (optional) (for IV8630M)	27
	Checking the side view mirror adapter and connection screws	27
	Attaching and detaching the side view mirror adapter	28
	Inspecting the parts of the side view mirror adapter	30
3.6	Inspecting the control unit and the universal cable	31
3.7	Inspecting the LCD monitor.....	32
	Inspecting the external appearance	32
3.8	Mounting of the control unit on the main unit	33
3.9	Attaching and detaching the strap.....	36
	Attaching the strap	36
	Removing the strap	39
Chapter 4	Basic operations	40
4.1	Turning on the power	40
	Turning the power on	40
	Checking the LCD monitor image	41
	Indicator display	41
	Display language setting	41
	Date and time settings	42
	Checking the illumination lighting.....	42
	White balance adjustment.....	42
	Checking the angulation functions	42
	Checking the angulation lock	43

4.2	Inserting the insertion tube	44
	Holding the control unit and insertion tube	44
	Inserting the insertion tube	45
	Angulation operation	46
4.3	Withdrawing the insertion tube	47
	Releasing the angulation lock	47
	Withdrawing the insertion tube	47
4.4	Adjusting the image	48
	Still image (freeze)	48
	Zoom	48
	Adjusting the brightness	49
	Monochrome boost	49
4.5	Recording the image	50
	Image recording preparation	50
	Recording a still image	52
4.6	Replaying the image	53
	Quick replay of most recent image	53
	Slide retrieval	53
4.7	Displaying a live image on an external monitor	54
Chapter 5	Menu operations and functions	55
5.1	Operating menu	55
	Menu operations	55
	Example of operations	55
5.2	Using the live screen/frozen screen	57
	Live screen/frozen screen menu display and functions	57
	Inputting the title	58
	Setting the date and time	60
	Language selection	62
5.3	Using the retrieve screen	63
	Retrieve screen menu display and functions	63
	Delete image	63

Chapter 6	Operations on a computer.....	65
6.1	Using recorded images on a computer	65
	Reading images with a computer	65
Chapter 7	Storage and maintenance.....	66
7.1	Remaining battery power	66
7.2	Replacing the battery	67
	Replacing the battery	67
7.3	Cleaning.....	69
	Cleaning the insertion tube	69
	Cleaning the LCD monitor.....	69
	Cleaning the main unit and control unit.....	70
7.4	Repacking the case	71
	Locking the case	73
7.5	Storage precautions	74
Chapter 8	Troubleshooting	75
8.1	Troubleshooting guide	76
	Error messages.....	76
	General troubles during operation.....	78
8.2	Returning the instrument for repair	80
Chapter 9	Specifications	81
9.1	Operating environment	81
9.2	Other specifications	82
	Carrying case specifications	86
	Side view mirror adapter specifications.....	87
	External application standard.....	88
Appendix.....	90	
	System chart.....	90

Warning and Rating Plates

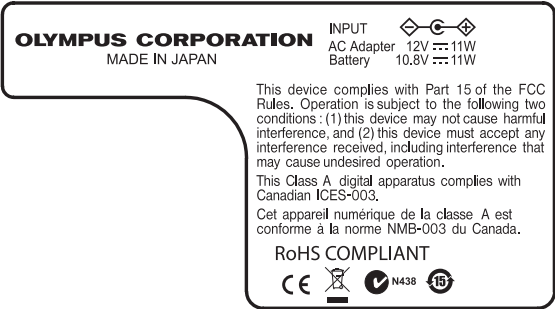
Safety-related labels and symbols are attached to the instrument at the locations shown below.
If labels or symbols are missing or illegible, please contact Olympus.



■ 1. Rating plate A



■ 2. Rating plate B



■ 3. Warning plate

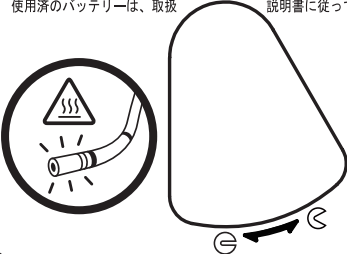
⚠ CAUTION

- READ THE INSTRUCTION MANUAL THOROUGHLY BEFORE USE.
- FOR THE OPERATING ENVIRONMENT, BE SURE TO OBSERVE THE WARNINGS AND CAUTIONS GIVEN IN THE INSTRUCTION MANUAL.
- NEVER OPERATE THE UNIT IN THE PRESENCE OF INFLAMMABLE GASES.
- NEVER USE BATTERY AND AC ADAPTER EXCEPT THAT DESIGNATED BY OLYMPUS.
- ALL REPAIRS SHOULD BE MADE BY AUTHORIZED OLYMPUS SERVICE PERSONNEL ONLY.
- RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTION.

⚠ 注意

- 取扱説明書を熟読の上、ご使用ください。
- 使用環境につきましては、取扱説明書に記載されている注意事項を守ってご使用ください。
- 可燃性雰囲気中では、使用しないでください。
- 当社指定以外のバッテリー及びACアダプターは、使用しないでください。
- 当社指定の修理員以外の修理は絶対に行わないでください。
- 不適切なタイプの電池に交換すると爆発の危険があります。

使用済のバッテリーは、取扱説明書に従って処理してください。



Important Information – Please Read Before Use

Intended use

This instrument has been designed to be used with IPLEX MX II series and ancillary equipment for observation and examination of the insides of a machinery, equipment or building that cannot be observed directly from the outside.

Do not use this instrument for any purpose other than its intended use, particularly for observation or examination of the inside of a human or animal body cavity.

Instruction manual

This instruction manual contains essential information on using this instrument safely and effectively.

Before use, thoroughly review this manual and the manuals of all equipment which will be used during the procedure and use the equipment as instructed. Keep this and all related instruction manuals in a safe, accessible location.

If you have any questions about any information in this manual, please contact Olympus.

Combined ancillary equipment

Refer to the “System chart” page 90 in the Appendix to confirm that this instrument is compatible with the ancillary equipment being used.

Using incompatible equipment can result in malfunction and/or equipment damage.



Repair and modification

This instrument does not contain any user serviceable parts. Do not disassemble, modify or attempt to repair. User injury and/or equipment damage can result.

Signal words

The following signal words are used throughout this manual.



DANGER

- Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



WARNING

- Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION

- Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices or potential equipment damage.



NOTE

- Indicates additional helpful information.
-

Dangers, warnings and cautions

Follow the dangers, warnings and cautions described below when handling this instrument. The information is to be supplemented by the dangers, warnings and cautions given in each chapter.



DANGER

- Never use this instrument in observation inside the human and animal cavity. The human body or animal may be injured.



WARNING

- Never use this instrument in a flammable atmosphere. Otherwise, an explosion or fire may result.
- Do not use the instrument in an environment filled with fine particles such as metal dust.
- With the exception of the insertion tubes, this instrument and its case are not designed to be waterproof. Except for the insertion tube, never use or store the instrument in any location where it might be submerged in water. An electric shock may result.
- Never use this instrument on a piece of electrical equipment being energized. Since the exterior finish of the insertion tube is electroconductive, an electric shock may occur if it is brought in contact with an active part.
- Always turn the LIGHT button (☼) OFF when the instrument is not in use. Otherwise the light emitted from the insertion tube may heat a nearby object and cause fire ignition.
- The distal end of the insertion tube may become hot due to the illumination light or the internal heating caused by electrical parts. Touching the distal end immediately after having turned off the light source may cause burn on your skin.

- Do not allow the light emitted from the insertion tube's distal end to enter your eye directly. Otherwise, an eye injury may result.
- Should any abnormality be detected during angulation operation, do not continue the angulation operation by force. Otherwise, the insertion tube or examination target may be damaged.
- Do not subject the LCD surface to impact or strong pressure. Doing so could shatter the LCD screen and cause personal injury.
- Do not rub the LCD with hard or sharp objects. This can crack or scratch the LCD panel.
- Do not allow a metallic object or a fluid such as water enter the battery compartment or the battery terminals. Should any foreign object enter the instrument, remove the battery and the AC adapter from the IPLEX MX II (main unit) and immediately contact Olympus.
- Do not touch the connectors directly by hand. Otherwise, a malfunction or electric shock may result.
- Do not allow metallic or foreign objects to enter the device through connectors or any other openings. Otherwise, a malfunction or electric shock may result.
- In case an irregularity such as smoke, abnormal odor or abnormal noise is detected, immediately stop using the equipment even when it looks operable, and do not turn it ON again.
- When transporting this equipment, turn off the power and remove the battery. It is extremely dangerous to transport this equipment while it is on, as this can lead to unexpected accidents.



CAUTION

- The image quality may be deteriorated in high temperature.
- Inserting the insertion tube into an observation object that is hotter than the operating temperature may damage the equipment.
- Do not insert the insertion tube in a machine that is running, as this may result in the insertion tube and/or machine damage. Also do not run the machine while the insertion tube is inserted in it.
- The minimum bending radius of the insertion tube is 20 mm for the 4.4 mm type and 30 mm for the 6 mm type. Bending at less than the minimum bending radius may result in damage to the insertion tube.
- Do not bring the insertion tube in contact with a liquid other than water, saline, machine oil and light oil. It may damage the instrument.
- Do not cover the instrument with a plastic bag or other object during use. If the inside of the instrument cannot be cooled, the instrument damage may result.
- Do not use this instrument where it is exposed to direct sunlight.
- The LCD monitor may not display data normally when the instrument is used in an environment where temperatures are below 0 °C. Use the instrument after using a heater to bring the area to room temperature.
- Bringing the instrument indoor from cold atmosphere subjecting it to sudden temperature change can cause condensation to form inside the instrument. Using the instrument while condensation is formed creates the risk of malfunction. Wait until the instrument reaches the same temperature as the room before using it.
- Never use the instrument in areas where strong radiation is present.

-
- Do not remove the USB Flash Drive while playing back or recording still images. Otherwise, the data recorded in the USB Flash Drive may be destroyed.
 - Take care not to have your feet caught by a cord including the power cord or insertion tube.
 - Do not pull the cable of the insertion tube, control unit or other equipment with a strong force. Otherwise, the insertion tube or cable may be damaged or the instrument may topple down or drop. Also, if the operator is using the shoulder strap, it may cause them to fall over.
 - Do not pull main unit while holding the insertion tube, control unit or other cables.
 - Do not operate the [ANGLE] joystick of the control unit with intensity while the angle lock is on, otherwise it may cause malfunction.
 - If the USB connector or other connectors become wet, wipe them dry.
Also, if any foreign matter gets into a connector, remove it.
 - Accidentally dropping the IPLEX MX II (main unit) while cables or other device is attached to a connector can damage the connector or the item that is attached to it.
 - Never connect any other USB device or USB cable to the USB connector except for the USB Flash Drive provided as standard or USB Flash Drive recommended by Olympus.
 - Make sure that the battery cover, video connector cap, and AC adapter connector cap are closed securely during storage or whenever connectors are not being used.
 - Do not open the battery cover, video connector cap, AC adapter connector cap with wet hands, or under damp or dusty environment.
 - Never subject the IPLEX MX II unit to strong impact.
 - The USB connector and the battery terminal on the main unit may get hot. Be careful to not touch them when inserting or removing USB Flash Drive or the battery.



NOTE

- The images recorded with instrument can be displayed on a computer, etc., but it is not possible to play back images recorded with an image recording device such as a digital camera or a computer on the IPLEX MX II series instrument.
 - Windows Media Player is either registered trademarks or trademarks of Microsoft Inc. in the U.S. and/or other countries.
-

Handling of the battery

Follow the dangers, warnings and cautions described below when handling the battery. Otherwise, battery fluid leak, excessive heat generation, smoke, battery burst, electric shock and/or burns may result.



DANGER

- In case of Li-ion operation, be sure to use the battery and battery charger designated for IPLEX MX II series.
- Before use, thoroughly review the instruction manuals for the battery and battery charger to fully understand the information contained in them, and observe their instructions during use.
- Do not install and use the battery by reversing the polarity. If the battery cannot be installed properly in the instrument, do not attempt to insert it by force.
- Do not allow connectors to become shorted.
- Do not attempt to apply solder directly on a terminal. Otherwise, a hazardous situation such as destruction of the terminal safety valve or scattering of battery fluid may result.
- Do not interconnect the electrodes of the battery through a metallic object or carry nor store the battery together with a metallic object.
- Do not connect the battery directly to a power outlet or the cigar lighter of an automobile.
- Do not throw the battery in fire or heat the battery. Doing so creates the risk of explosion.
- Penetration of battery fluid in an eye may result in loss of eyesight. Should this occur, rinse eyes thoroughly with clean water and immediately have a physician's treatment.
- Do not attempt to open or modify the battery. Doing so creates the risk of explosion or fire.
- Do not immerse the battery in fresh or sea water, nor moisten the battery.
- Do not recharge the battery near a fire or under direct sunlight. Doing so creates the risk of explosion or fire.
- Do not pierce the battery or subject it to strong impacts or load. Doing so creates the risk of explosion or fire.
- Never drop or throw the battery, or subject it to strong impact.
- Place the equipment in a stable location to remove the battery. If the equipment is unstable, the battery may fall out, which can lead to explosion and fire.



WARNING

- Do not use a battery that is not recommended for IPLEX MX II series.
- Do not attempt to recharge a battery that is not designated for IPLEX MX II series.
- If the battery charger cannot complete battery charging in the specified recharging time, stop trying to recharge the battery.
- Do not use a battery if it presents an irregularity such as fluid leak, discoloration, deformation or abnormal condition. Immediately request servicing.
- If the battery fluid attaches to your skin or clothes, immediately rinse with clean water such as tap water. Otherwise, a skin injury may result. Contact a physician for treatment if necessary.
- Do not deform the battery compartment or put a foreign object in it.
- Do not cover the battery charger and battery with clothes or cushion during recharging. Also avoid any situation in which the covering of the battery charger and battery by such objects is expectable.



CAUTION

- Do not soak the battery in or moisten it with water including rainwater and seawater.
- Do not leave the battery in a place subject to moisture, water leak or extremely high or low temperatures.
- Do not touch the battery terminals with a wet hand.
- Be sure to recharge the battery before using them for the first time after purchase or after they have not been used for a long period.
- When the battery is not to be used for a long period, be sure to remove them from the IPLEX MX II (main unit). Otherwise, battery fluid leak and heat build-up may result in a fire or injury.
- Do not use or leave the battery in a place with high temperature, for example under direct sunlight, in a closed automobile under the sun or in front of heating equipment.
- The battery is hot after long hours of operation of IPLEX MX II series. Do not take out the battery immediately after use, as this may result in burning your hand.
- Do not leave the battery in the reach of children.
- When replacing the battery, do not repeatedly remove and load the battery rapidly. Doing so may make it impossible to turn on power.



NOTE

- Use the battery correctly, as incorrect use may result in fluid leak, excessive heat generation and/or damage. When replacing the battery, install them correctly by observing the insertion direction.
 - In general, the battery performance drops as the ambient temperature drops. Note that the battery performance degraded due to low temperatures recovers when the temperature rises to a normal level.
 - Contamination of battery electrodes with sweat or oil will cause contact failures. When the battery is dirty, wipe it clean with a dry cloth before use.
 - The continuous operating time of the IPLEX MX II series time with a fully charged battery condition is approx. 120 min. (fully-charged new battery). When long hours of battery-powered operation are expected, it is recommended to prepare charged batteries as spares.
 - The battery is designated as a recyclable product. When discontinuing the use of the battery, be sure to have it recycled in compliance with your local regulations.
 - Recommended temperature range for Li-ion battery operation.
Discharge (when using the instrument): 0°C to 40°C
Recharging : 0°C to 40°C
Storage : -20°C to +50°C
Using the battery under a temperature outside the above temperature range will result in degradation of the performance and service life. When storing the battery, be sure to remove it from the IPLEX MX II (main unit).
 - The battery is a consumable item.
 - The battery cannot be charged using the equipment. For information on charging the battery, refer to the manual that came with the battery charger.
-

Product configurations of the IPLEX MX II series

The IPLEX MX II series includes a main unit, control unit, and an insertion tube as shown in the table below.

The simplified specifications of the insertion tubes are shown below.

For detailed specifications of the individual models, see “Chapter 9 Specifications” (page 81).

IPLEX MX II series model names	Max. insertion tube outer diameter	Insertion tube length
IV8415M	φ 4.4 mm	1.5 m
IV8430M		3 m
IV8630M	φ 6.0 mm	

Refer to the “System chart” in the Appendix for the IPLEX MX II and optional equipment configurations.

Chapter 1 Checking the package contents

1.1 Checking the package contents

Match all items in the package with the components shown on “IPLEX MX II series package contents” below. If any item is damaged, a component is missing or you have any questions, do not use the instrument, but immediately contact Olympus.

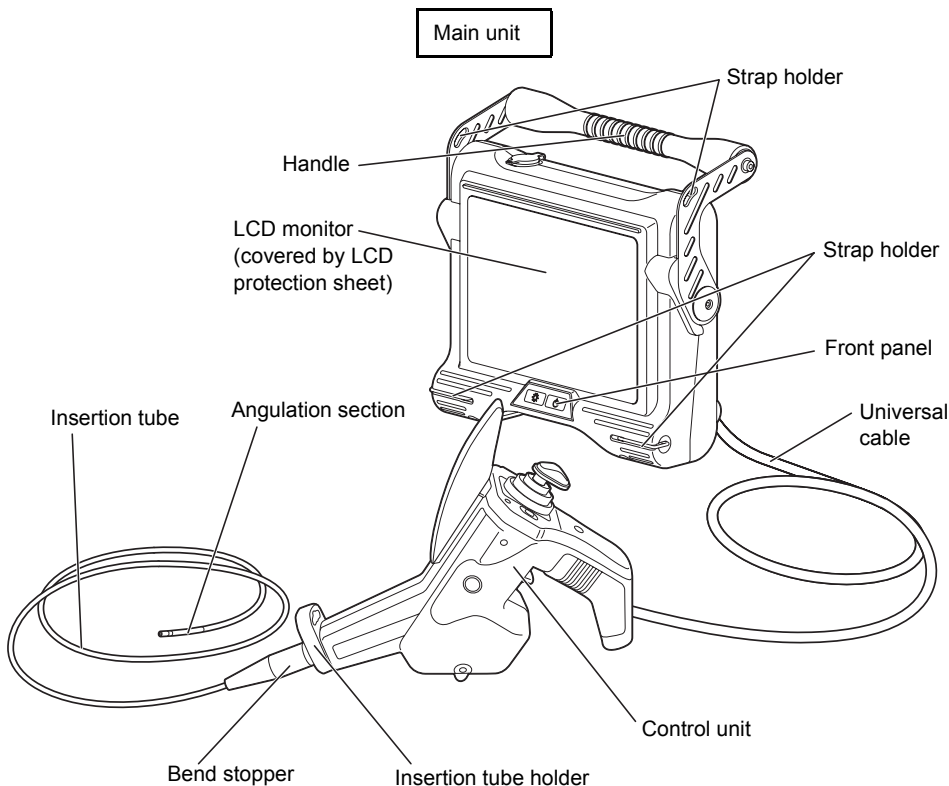
■ IPLEX MX II series package contents

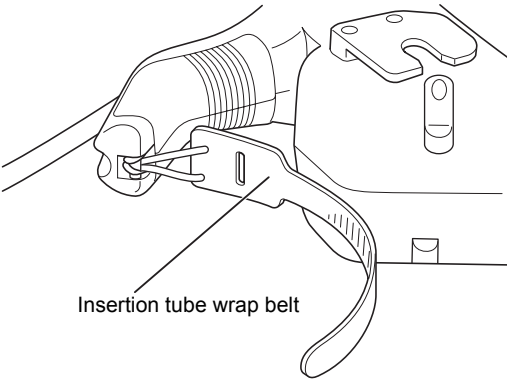
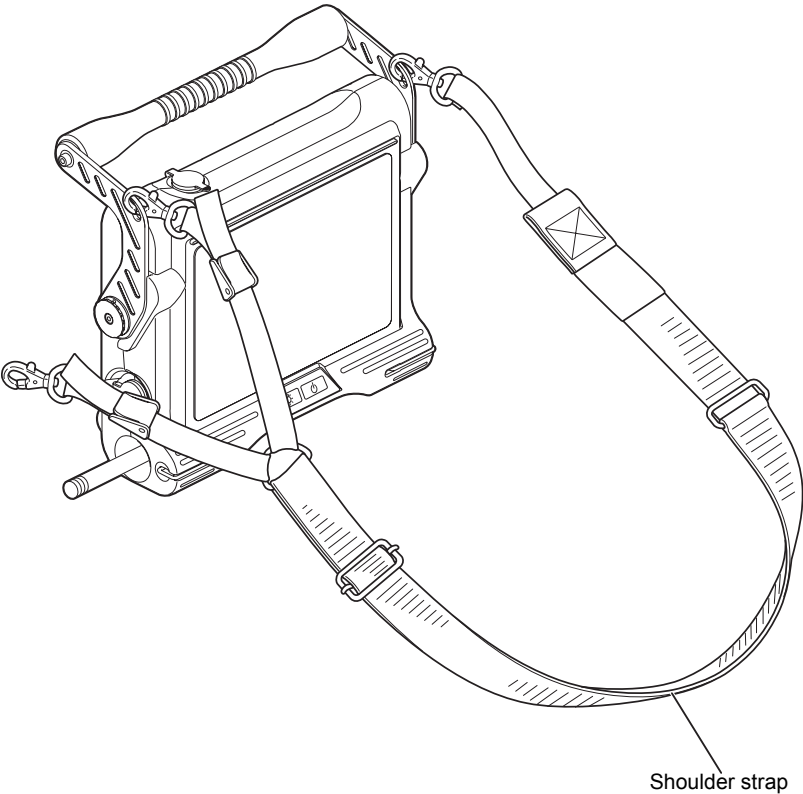
Name		Count
IPLEX MX II (main unit)		1
USB Flash Drive		1
AC adapter		1
AC power cord		1 *
IPLEX MX II Utility Disc (IPLEX VIEWER PLUS)		1
Shoulder strap		1
Lens cleaning kit (cleaning fluid, cotton swab)		1
Insertion tube holder		1
Insertion tube wrap belt		1
LCD protection sheet (Stuck to the LCD monitor)		1
Instruction Manual	IPLEX MX II series (This booklet)	1
	IPLEX MX II Operation manual	1
	AC adapter	1
	IPLEX MX II utility disc	1
	Software license agreement	1
	LCD protection sheet	1
Carrying case		1

* For a PAL configuration set, 2 power cables, each with a different plug type, are provided.

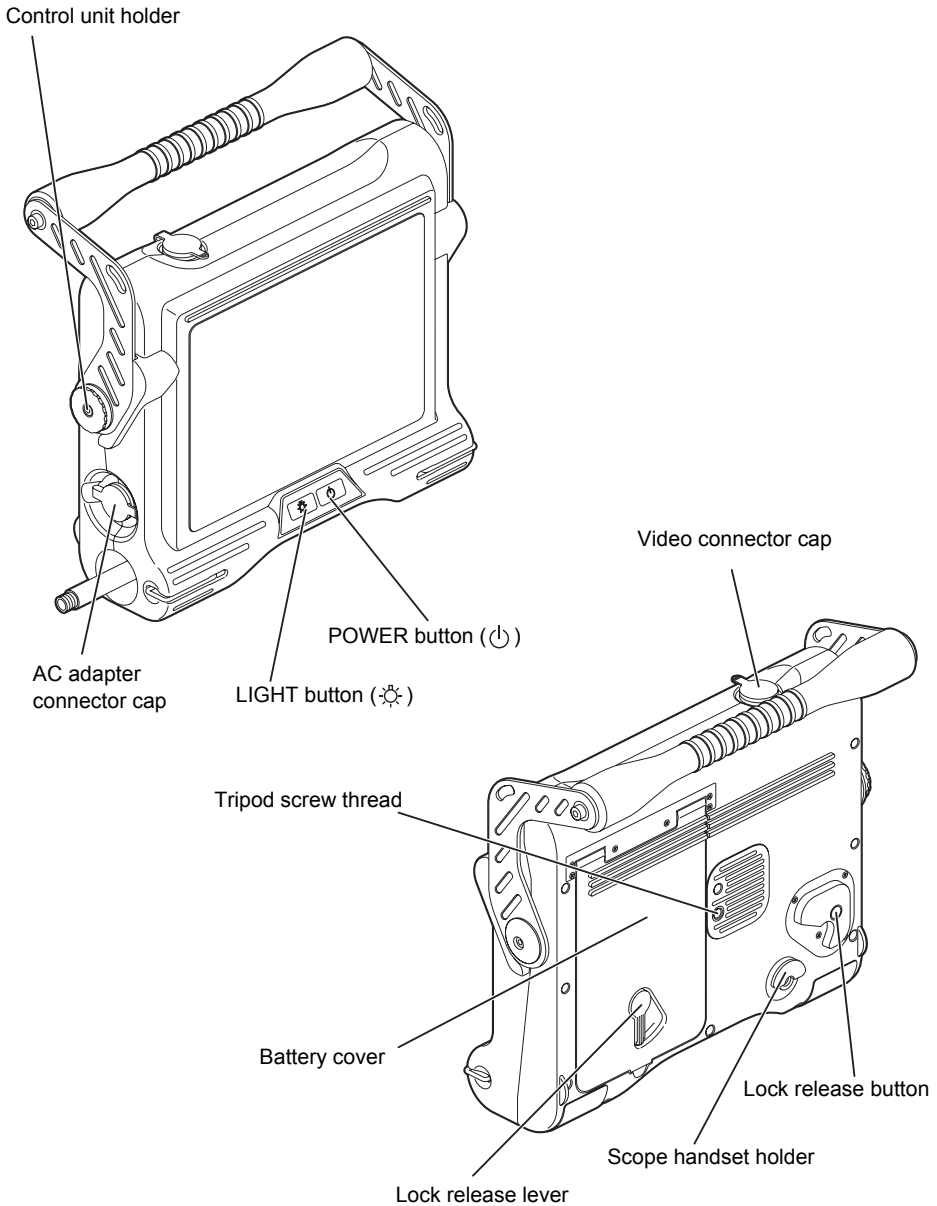
Chapter 2 Instrument nomenclature and functions

2.1 System nomenclature

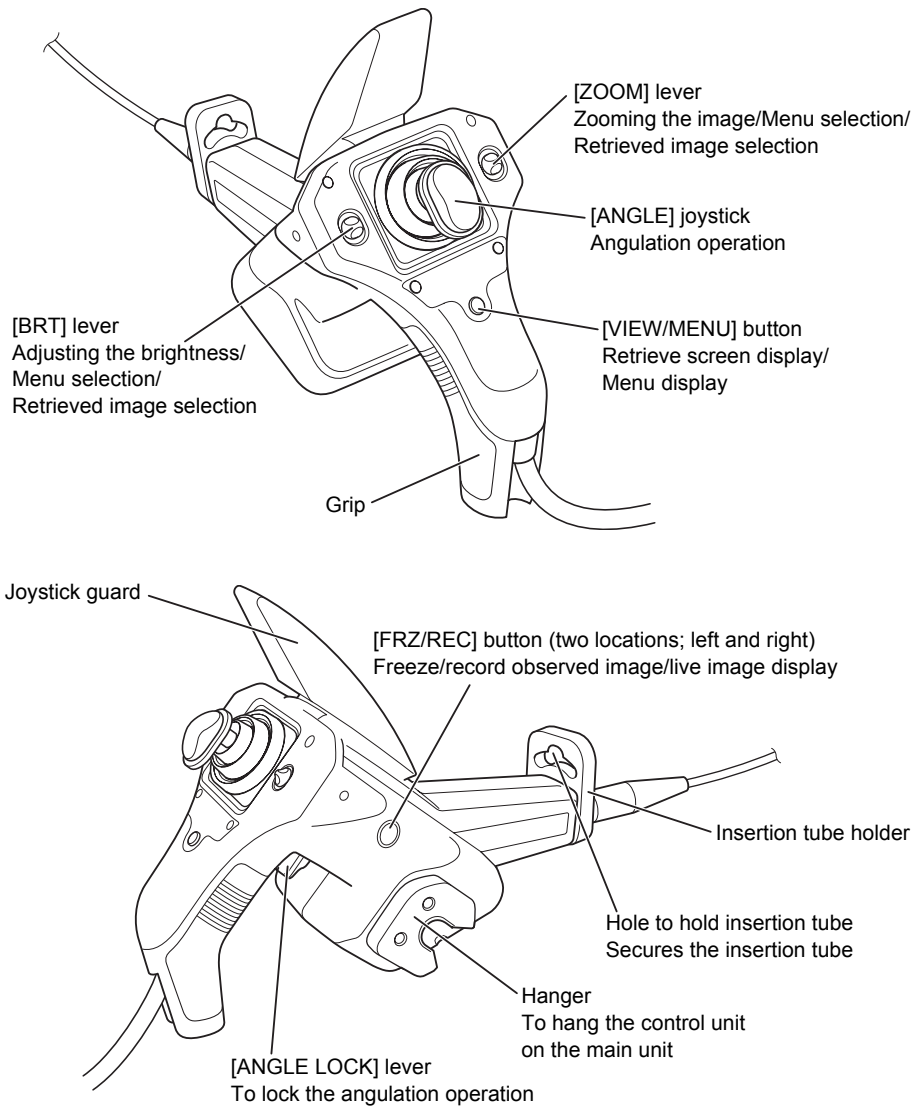


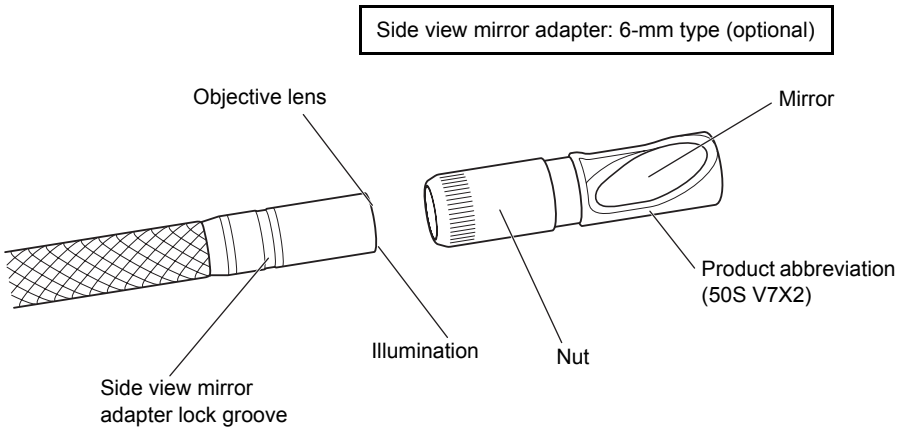


2.2 Main unit nomenclature and functions



2.3 Control unit nomenclature and functions





NOTE

- The insertion tube can temporarily be fixed on the control unit by inserting it into the insertion tube holder hole.
 - The insertion tube holder can be rotated or removed.
-

Chapter 3 Preparation and inspection before observation



CAUTION

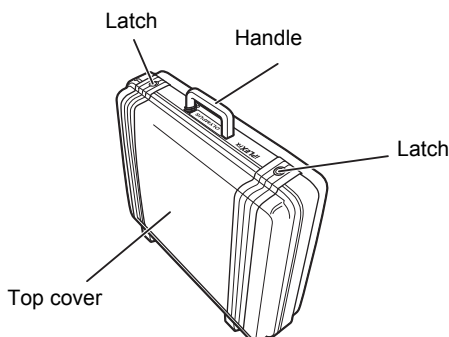
- Be sure to finish the preparation and inspection work described below before use. If any irregularity is suspected, do not use the instrument but see “Chapter 8 Troubleshooting” (page 75) to solve the problem. If irregularity is still suspected, contact Olympus. Damage or irregularity may compromise the correct functioning of the instrument and may result in more severe damage to the examined subject.
- Inspections are not only required before use, but should be conducted periodically.

3.1 Transportation of the case



CAUTION

- Before transporting the case, inspect the exterior parts handles and latch of the case for irregularities such as damage and loosening.
- Use only the designated case. Failure to do so may cause damage or malfunction of the insertion tube and/or main unit.



■ When using the handle

1

Ensure that the latch is closed firmly before lifting the case.

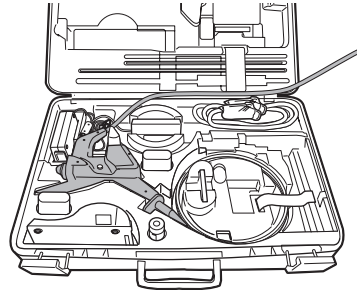
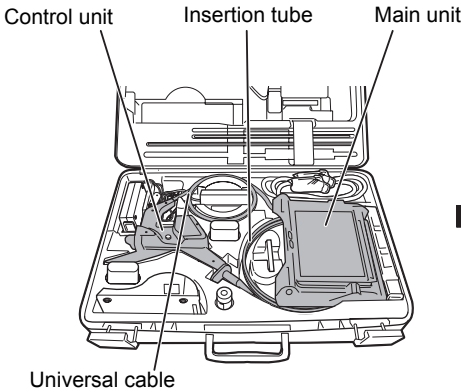


CAUTION

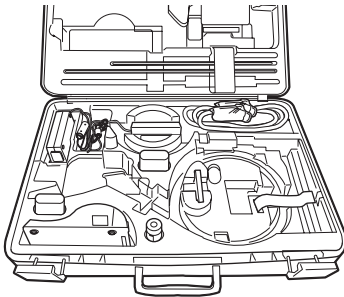
- Never move the equipment around by the insertion tube or cables.
- If the latch is not completely closed, the top cover may open accidentally when the case is lifted.
- Do not kick the case or move it with your feet.

■ Taking the instrument out of the case

Remove the equipment in the order of: Main unit → Insertion tube → Control unit.



Remove the main unit.



Remove the control unit and insertion tube.



WARNING

- Fully open the top cover when removing the main unit from the case. If the cover is not fully open, it can close unexpectedly and pinch your hand or cables.
- Never use the main unit while it is accommodated inside the case. If the top cover of the case is left open, it may close unexpectedly and pinch your hand or a cable.



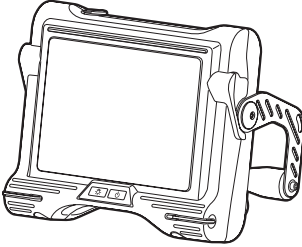
CAUTION

- Place the case on a level surface so it is stable.
 - To open the top cover of the case, release the latch on the front of the case.
 - Do not pull the insertion tube with excessive force when taking it out of the cushioned slot. Otherwise, the insertion tube may be damaged.
 - When taking the control unit or main unit out of the case, never hold them by the insertion tube or universal cable. It may damage the instrument.
 - Check if the insertion tube, battery cover, video connector cap and adapter connector cap are kept clean. Wipe off with a clean, soft cloth if dirt or a foreign substance is attached.
 - Check the insertion tube, battery cover, video connector cap and adapter connector cap if cuts or gaps are not available.
-

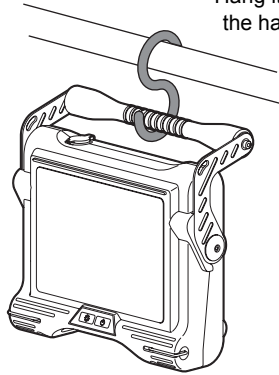
3.2 Setting up the main unit

- 1 The main unit can be used in any one of the three setup configurations shown below.

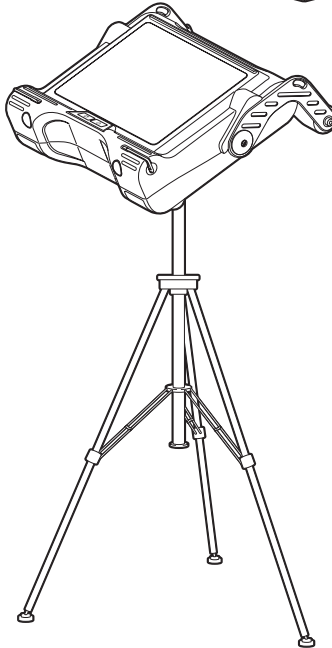
Use the handle
as a stand



Hang it from
the handle



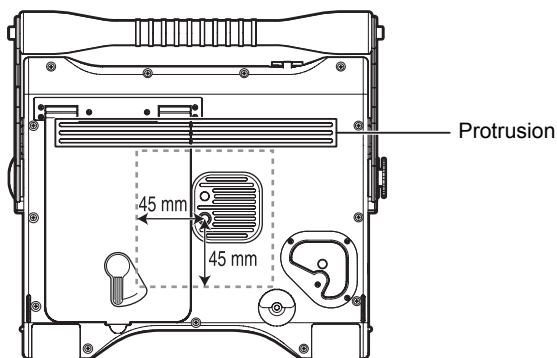
Put it on a tripod





CAUTION

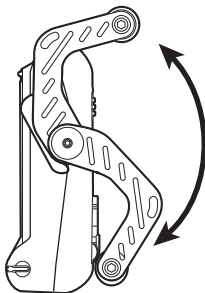
- Place the main unit on a level surface so it is stable. The main unit can tip over if it is not stable.
- Do not place the main unit in overhead location. Doing so may result in the main unit falling and being damaged.
- When suspending the base unit while using it, hook the handle someplace that can support its weight and where there is no danger of it falling.
- When mounting the tripod to the main unit, install it so the tripod platform does not run up on the protrusion on the rear of the main unit. Affixing the tripod with the platform installed at an angle can cause the main unit to fall off. You can use a platform with a size that is less than 45 mm from the center of the tripod screw.



- Setup the tripod on level ground. Setting the tripod up on a slope or uneven ground is dangerous because it may fall over.
 - Be careful not to accidentally move the lock release lever on the battery cover and open it when handling the main unit.
-

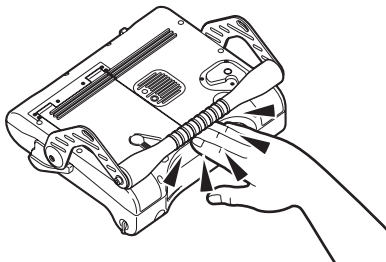
■ Using the handle

The handle can be lowered from its storage position and freely adjusted within the range shown in the illustration below. When using the handle as a stand, you can adjust the angle for easy viewing.



CAUTION

- Take care not to pinch your hand or other objects when moving the handle.



3.3 Preparing the power supply



WARNING

- Do not bend, pull, twist, crush or apply excessive force to the power cord of the AC adapter. Otherwise, a break in the power cord wires may cause a fire or electric shock.
- Ensure that the power cord is normal before connecting it. Using a power cord with irregularities may result in an electric shock.
- Be careful not to injury yourself when replacing the battery.

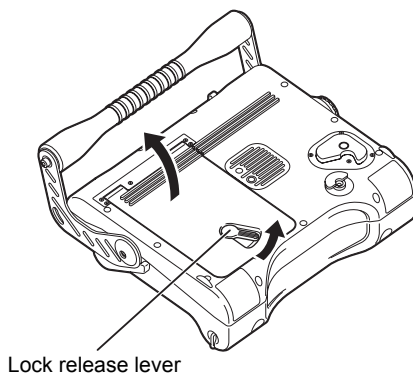


CAUTION

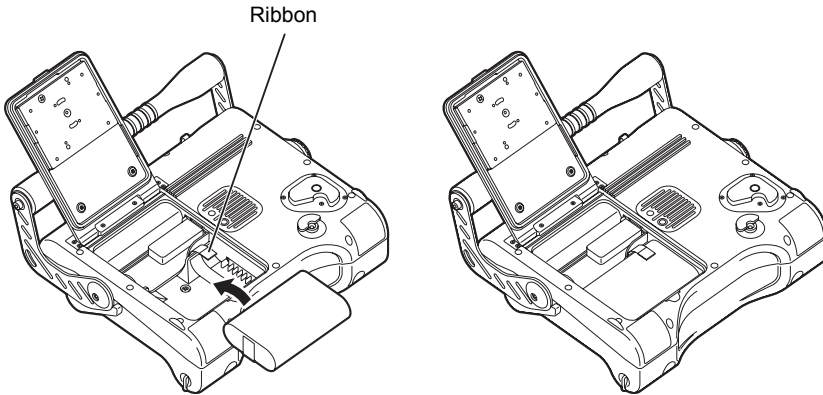
- Be careful not to accidentally drop the battery during replacement.
- Before using the battery, read the dangers, warnings and cautions in “Handling of the battery” under “Important Information – Please Read Before Use” on (page 7).
- The battery indicator flashes when a battery is continuously used under low-voltage conditions. In such case immediately turn off the power of the main unit or connect the AC adapter. If continuously used without any action the power will be automatically turned off which may cause malfunction.
- Do not remove AC adapter or battery while the system is running. It may cause malfunction.

■ Supplying power from the battery

- 1** Check to make sure that main unit power is turned off.
- 2** Return the handle to its storage position.
- 3** Move the lock release lever on the battery cover as shown in the figure below to open the battery cover.

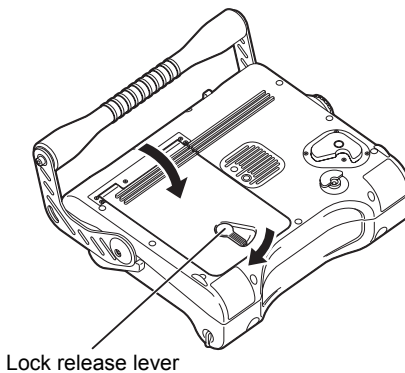


- 4** Insert the battery so that the ribbon passes under it. This is so you can pull the ribbon to remove the battery.

**CAUTION**

- When loading the battery, check to make sure the main unit's battery contacts and the battery terminals are positioned correctly.
- Never try to force the battery if it does not slide in easily. Check to make sure that the battery is positioned correctly and that there is no problem with its terminals. Trying to force the battery in may cause malfunction.

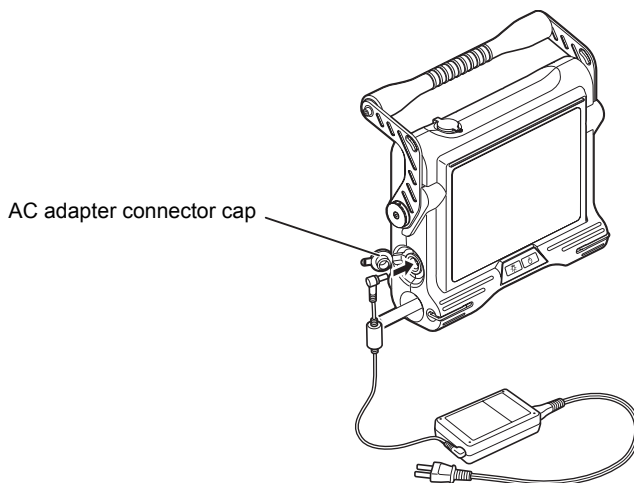
- 5** Close the battery cover and move the lock release lever on the battery cover as shown in the figure below to lock it.

**NOTE**

- If you are having trouble locking the battery cover, press on the cover while moving the lock release lever.

■ Supplying power from the AC adapter

- 1** Open the AC adapter connector cap.
- 2** Connect the AC adapter to the AC adapter connector on the main unit.



- 3** Ensure that the AC power cord is connected securely to the AC inlet of the AC power adapter.
- 4** Plug the AC power cord securely into a power outlet.



WARNING

- Inspect the power cord before use and check for any signs of damage. Using a power cord with irregularities may result in an electric shock.
- Uses AC power code appropriate for the standard AC power in the country that uses it.
- Never use an AC adapter other than the designated AC adapter. Otherwise, malfunction of the instrument or unexpected damage may result.
- The AC adapter is not water resistant. Never use it in the rain or in any location where it can become wet. Water creates the risk of electric shock.



NOTE

- For information about how to connect the AC adapter, see the AC adapter's instruction manual.
-

3.4 Inspecting the insertion tube



CAUTION

- Be sure to hold the insertion tube by a position on the rear of the angulation section. Otherwise, the angulation section may be damaged.
-

■ Inspecting the external appearance of the insertion tube

- 1** Check visually that the external finish of the complete length of the insertion tube and universal cable are free of irregularities such as deformation.
- 2** Check that the external covering material of the insertion tube, other than the angulation section, is not loose.



CAUTION

- If the insertion tube is deformed, you may not be able to withdraw it from the observation object.
 - If the external material of the insertion tube is cut, take care against injury during inspection.
-

■ Inspecting the insertion tube distal end

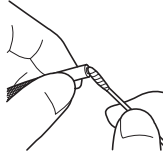


WARNING

- The distal end of the insertion tube may become hot due to the illumination light or the internal heating caused by electrical parts. Touching the distal end immediately after having turned off light source may cause burn on your skin.
-

- 1** Make sure that power is turned off.
- 2** If the side view mirror adapter is attached to the insertion tube, turn the nut counter-clockwise to detach the side view mirror adapter from the insertion tube (see “Attaching and detaching the side view mirror adapter” (page 28)).

- 3** Check that there is no dirt or water on the insertion tube distal end. If dust or water is present, wipe them clean with a soft piece of gauze or a cotton swab, grasping at hard part of distal end. The best results may be obtained using the lens cleaning fluid provided in the lens cleaning kit.



- 4** Check that the distal end of the insertion tube is not deformed or loose.



CAUTION

- Never use the distal end of the insertion tube if any part is loose. Otherwise, the loose part may fall into the inspection object.
 - The angulation section is composed of precision parts. Do not pull the distal end of the insertion tube, do not grasp/bend with a strong force. Otherwise, the parts in the angulation section may be damaged.
-

3.5 Inspecting the side view mirror adapter (optional) (for IV8630M)



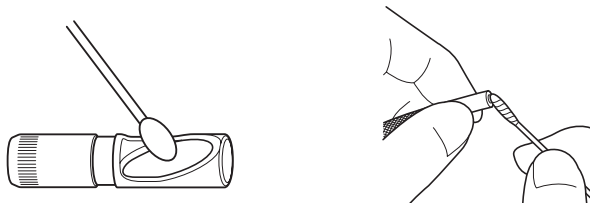
WARNING

- The distal end of the insertion tube may become hot due to the illumination light or the internal heating caused by electrical parts. Do not forget to turn off the light source before attaching or detaching the side view mirror adapter. Touching the distal end immediately after having turned off light source may cause burn on your skin.

■ Checking the side view mirror adapter and connection screws

1

Inspect the mirror surface of the side-view mirror adapter for contamination. If it is stained, wipe the stain completely away using the provided lens cleaning kit. When wiping the mirror surface without removing the adapter from the insertion tube, hold the combination by the rigid section of the insertion tube.



CAUTION

- The mirror surface of the side-view mirror adapter may be damaged if it is wiped dry. When removing the stain from the mirror surface, be sure to use the lens cleaning kit provided with the insertion tube. Also remember that the mirror surface may be damaged if a liquid other than water or the lens cleaning fluid is attached on the mirror surface.
- The mirror surface of the side-view mirror adapter may be damaged during removal of metallic powder, sand or mud attached on it. If the mirror surface is contaminated with these objects, remove the side-view mirror adapter from the insertion tube and wash the objects away under running water.
- If the mirror surface of the side-view mirror adapter is still stained after it has been wiped using the lens cleaning kit provided with the insertion tube, do not attempt to force remove the stain but contact Olympus.

- 2** Check the bores connection diameters of the side of the insertion tube distal end, side view mirror adapter lock groove and side view mirror adapter, and that their screws are not deformed or have foreign objects attached to them.

■ Attaching and detaching the side view mirror adapter



CAUTION

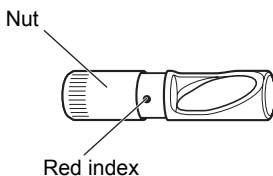
- If the side view mirror adapter cannot be attached or detached because its nut will not turn, stop using the equipment and contact Olympus.
- The side view mirror adapter is a precision instrument using glass mirrors in the optics. Be careful not to drop it or apply a strong impact to it.
- The mirror surface of the side viewing mirror adapter is an optical component. It is susceptible to stains and scratches.
- Do not attempt to insert the insertion tube into the side view mirror adapter by force. Otherwise, it would become impossible to withdraw the insertion tube later.



NOTE

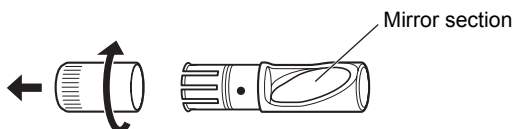
- If the side view mirror adapter cannot be clamped completely by tightening the nut, the threads may be contaminated. Apply the provided cleaning fluid on the inner side of the nut of the side view mirror adapter and turn the nut. This will clean the threads and makes it possible to clamp the side view mirror adapter completely.
 - If the threads are extremely dirty or the claw inside the side view mirror adapter is contaminated, remove the nut from the side view mirror adapter and clean it.
-

- 1** When inserting the insertion tube's distal end into the side view mirror adapter, set the nut so that the red index is visible entirely.

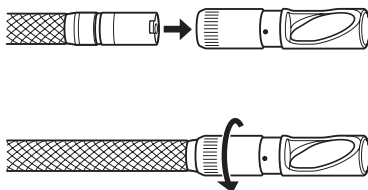


**CAUTION**

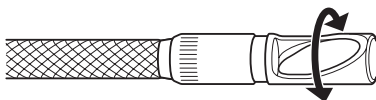
- Do not use the side view mirror adapter with the green index. They cannot be attached correctly.
- If the red index is not completely visible, you cannot insert the distal end of the insertion tube into or remove it from the side view mirror adapter.
- The nut will fall off the mirror if it is loosened any further after the red index is completely visible (see below). If the nut comes off, it may be lost or the claws may be damaged. Do not remove the nut except to clean the inside of the side view mirror adapter.



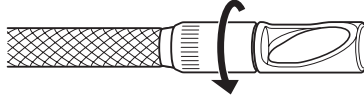
- 2** Slowly insert the insertion tube distal end into the side view mirror adapter and push in till the claw inside the side view mirror adapter is engaged with the claw on the insertion tube distal end (this determines the rotation direction). If the side view mirror adapter cannot be inserted, rotate it so that its mirror turns and ensure that it is fit properly. Turn the screw clockwise until it becomes loose and confirm that the red index gets hidden.



- 3** Rotate the side view mirror adapter while lightly pushing it, and confirm that the rotation is stopped by engagement of the claw inside the side view mirror adapter in the mirror adapter lock groove on the insertion tube distal end.



- 4** Lightly push the side view mirror adapter clockwise onto the insertion tube so that the second threaded section is engaged. Tighten the nut all the way until it is stopped. Make sure that the side view mirror adapter is securely attached.



- 5** To detach the side view mirror adapter, reverse the attaching procedure.

■ Inspecting the parts of the side view mirror adapter

Check that the parts of the side view mirror adapter are not loosened.

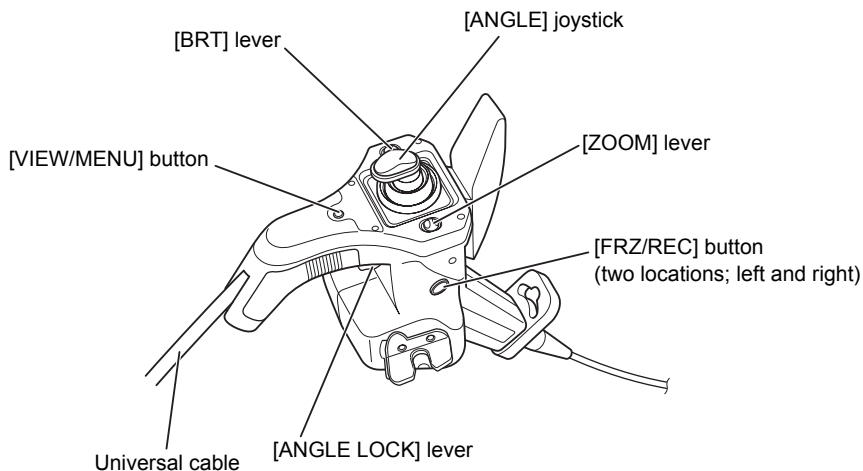


CAUTION

- Never use it if any parts are loose. Otherwise, the loose part may fall into the inspection object.
-

3.6 Inspecting the control unit and the universal cable

- 1** Check for irregularities such as damage or deformation to the external material, buttons, joysticks, and levers.
- 2** Ensure that the universal cable is free of irregularities such as cuts and buckling.



3.7 Inspecting the LCD monitor

■ Inspecting the external appearance

- 1** Check that the LCD monitor is free of irregularities such as cracks on the screen.

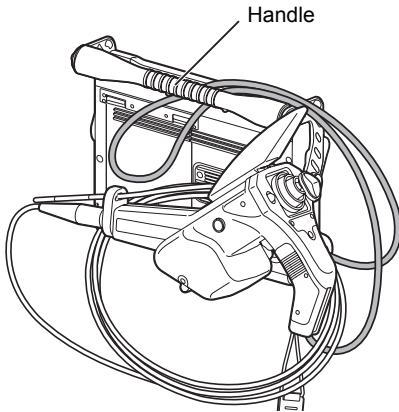


NOTE

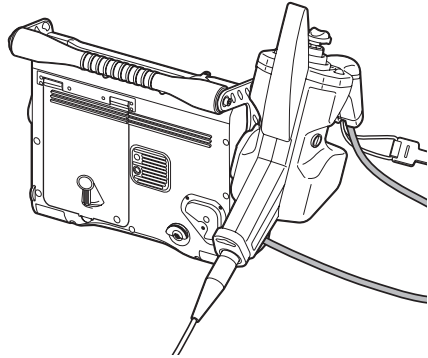
- The LCD panel is fabricated based on precision technologies. The LCD panel may contain pixels that do not light (visible as black dots) or light permanently (visible as bright dots), but this is not a defect or malfunction of the product.
 - To clean the LCD monitor if it is dirty or has fingerprints on it, see “Cleaning the LCD monitor” (page 69).
-

3.8 Mounting of the control unit on the main unit

The control unit can be attached to the main unit as desired. It can be attached to the main unit for carrying and left attached to the main unit during observation.

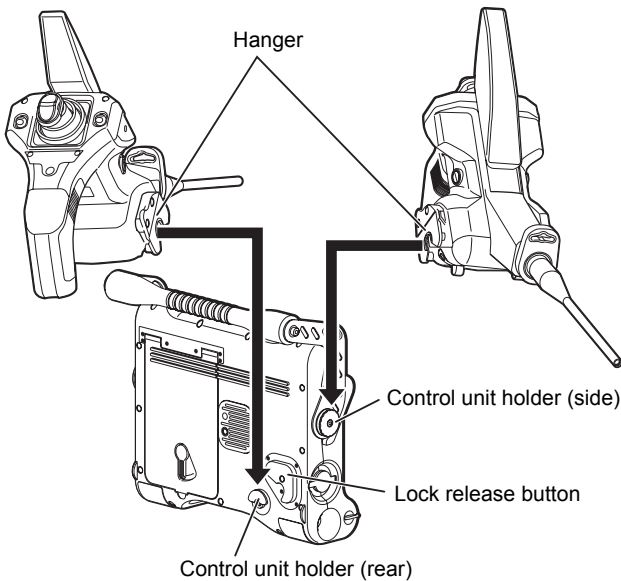


Back attachment: For transport

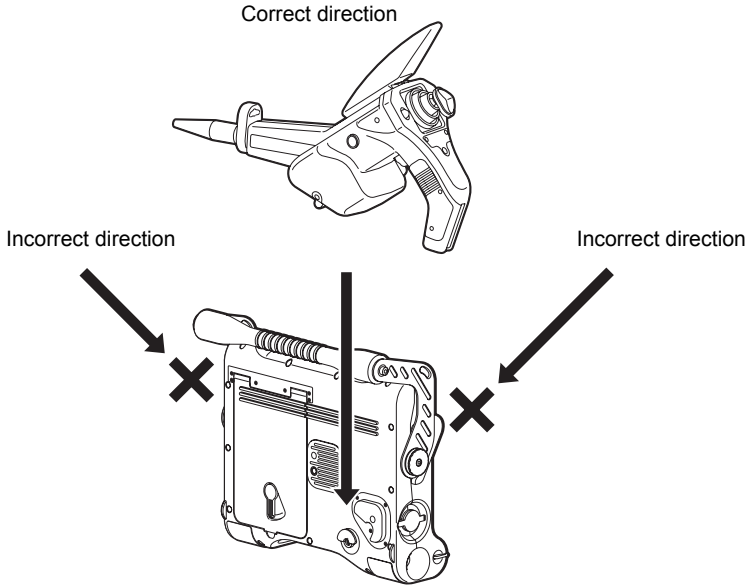


Side attachment: For observation

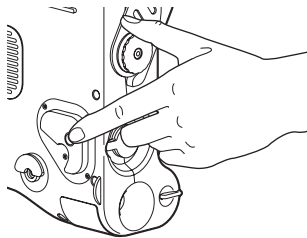
- 1** Insert the hanger on the side of the control unit straight into the control unit holder on the side or the back of the main unit. The hanger may not fit correctly at an angle into the control unit holder, be sure to put it straight into the control unit holder.



- 2** When attaching the control unit to the back of the main unit, check that it is positioned as shown in the figure below before attachment. Then, check that the control unit is firmly attached. Attaching it with excessive force in the wrong direction can cause the control unit to fall off and cause an accident. This also may damage the main unit.



- 3** Push in the hanger until you feel a click. If it is not inserted completely it may come off too easily.
- 4** When detaching the control unit from the main unit, pull the control unit straight upward from the main unit. When the control unit is affixed to the back of the main unit, hold down the center of the lock release button as you pull upwards.





CAUTION

- Hold the handle of the main unit when transporting the main unit with the control unit affixed to the back. The main unit may fall or the excessive force to the main unit may damage connections if you lift it by the control unit.
 - Take care not to tilt or swing the main unit when carrying it with the control unit attached. Doing so can cause the control unit to fall off and cause unforeseen accidents or personal injury.
 - When transporting it with the control unit and main unit affixed to each other, take care so the universal cable and insertion tube do not come into direct contact with the ground. A dangling universal cable or insertion tube can become entangled with your feet causing you to fall, which may cause personal injury, damage to this equipment, and malfunction.
 - When putting down the main unit while the control unit is attached to it, always place it on its side or base. Otherwise, the control unit and/or insertion tube may be damaged.
 - Do not use excessive force or twist the control unit when it is attached to the main unit. Doing so may damage the hanger.
-

3.9 Attaching and detaching the strap

When you want to hang the IPLEX MX II (main unit) from your shoulder, attach the shoulder strap. Be careful not to use a shoulder strap other than those designated by Olympus and supplied with the IPLEX MX II unit.



WARNING

- Never attempt to carry an object other than the IPLEX MX II (main unit) using the shoulder strap. Otherwise, the strap may be damaged and cause the IPLEX MX II (main unit) to drop.
- Be sure to check that the shoulder strap is free of irregularities such as frayed fibers and damaged metal parts before use.
- Do not use the shoulder strap in a manner that is subjected to an excessive load by, for example, swinging the IPLEX MX II (main unit) or placing a heavy object on the instrument.
- When using the shoulder strap, be careful not to hit the IPLEX MX II (main unit) against other objects.
- When using the shoulder strap, be careful not to bring it in direct contact with your skin. Otherwise, there will be a risk of low-temperature burns on your skin due to the heat of the instrument may result.

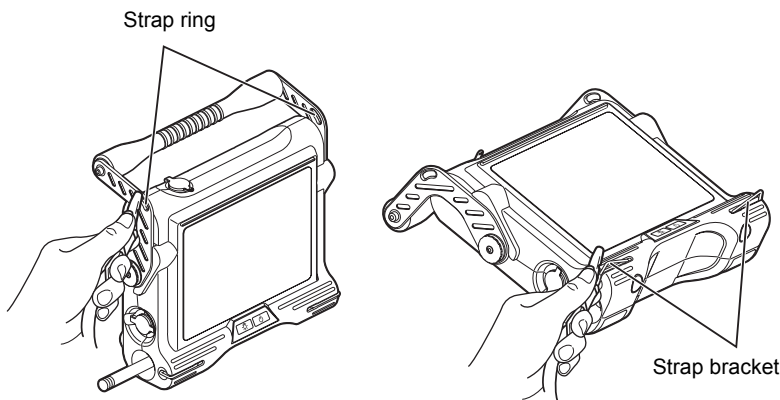


CAUTION

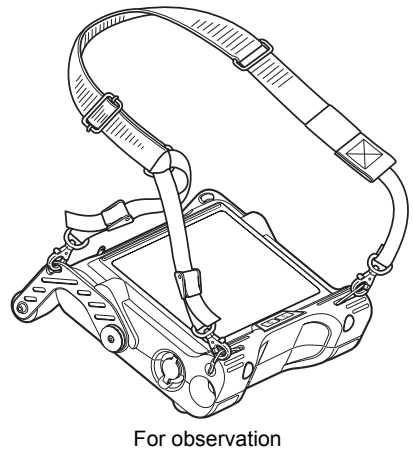
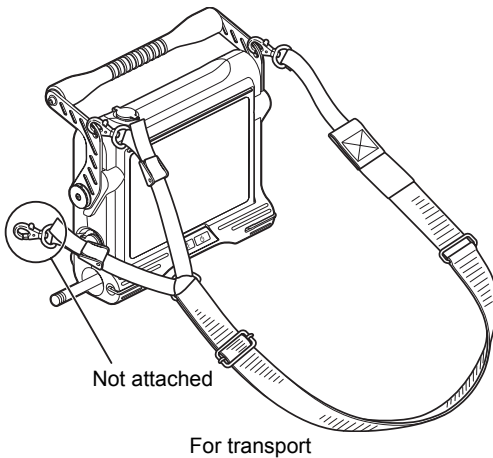
- Be careful to not drop the IPLEX MX II (main unit) when attaching or removing the shoulder strap.
- Do not put the main unit into the carrying case with the shoulder strap attached. Doing so may damage the LCD monitor or the shoulder strap.
- Do not store the IPLEX MX II (main unit) by hanging it from something. Otherwise, the strap may be damaged.
- Check to make sure that the shoulder strap hooks are fixed securely to the main unit. If they are not, the main unit can drop when picked by the shoulder strap.

■ Attaching the strap

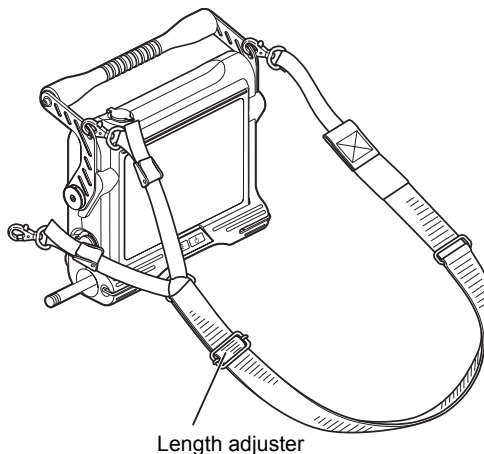
- 1 While pressing the shoulder strap hook lever, attach the hook to a main unit strap ring or the strap bracket.**



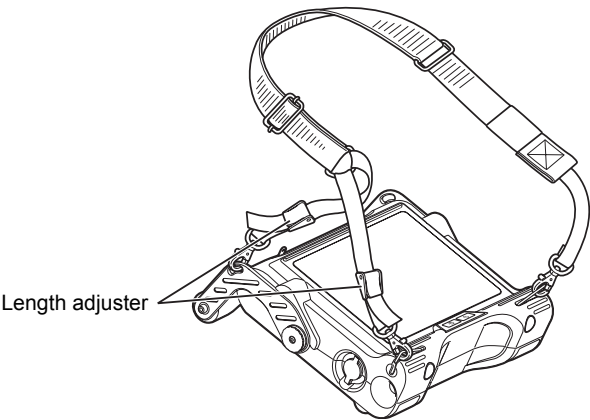
Two strap rings are provided for attaching the strap when transporting the main unit. Attach the strap to the two strap brackets and to one of the strap rings to do observations. During observation, attach the shoulder strap so that the side with the two connections is on the left side of the main unit, as shown in the figure below. The two connections can also be attached to the right side of the main unit. However, this will be unbalanced and operation may be difficult when the control unit is attached to the side of the main unit.



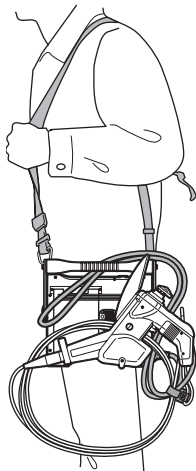
2 Adjust the length of the shoulder strap using its length adjuster.



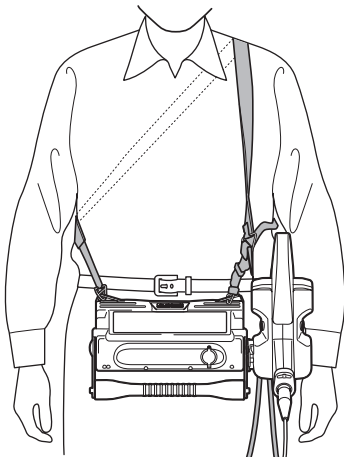
- 3** Use the length adjusters shown below to adjust the angle for easy viewing during observations.



- 4** Use the shoulder strap to hang the IPLEX MX II (main unit) from your shoulder.

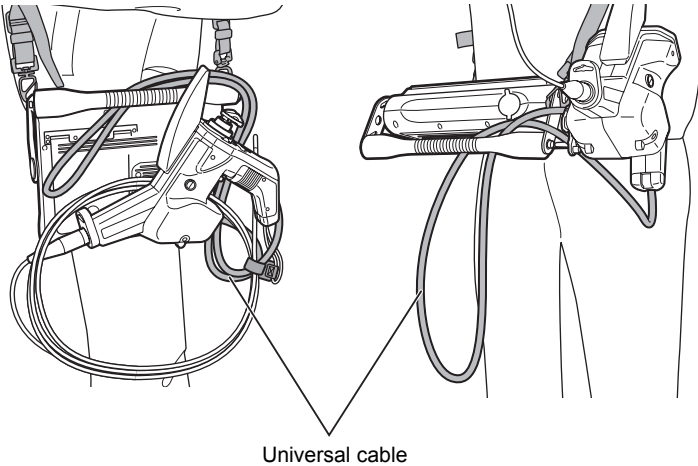


For transport

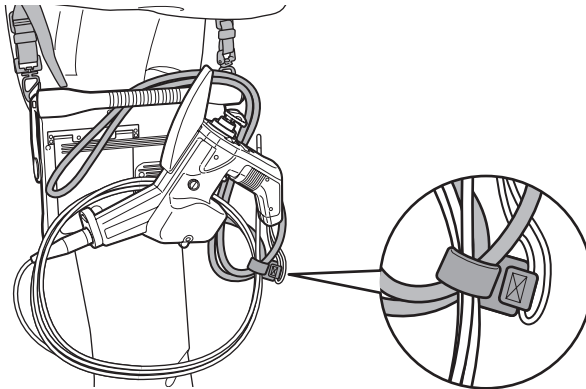


For observation

- 5** While walking with the control unit attached to the main unit (back, left side), insert the slack of the universal cable between the handle and the main unit. If the universal cable is dangling while you are walking, you may trip on it or have an accident.



- 6** You can use the insertion tube wrap belt on the control unit to secure the insertion tube.



■ Removing the strap

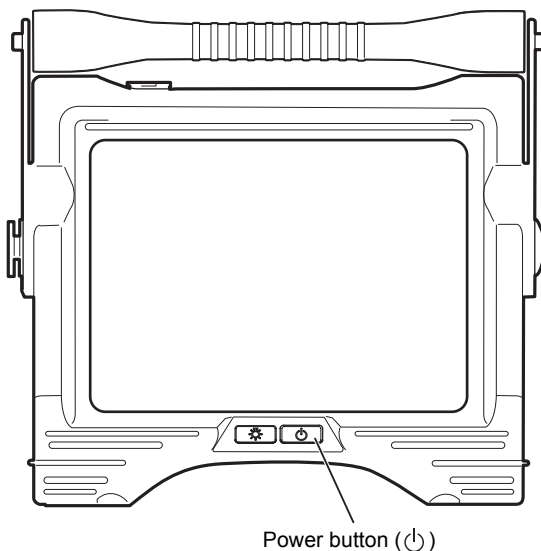
To remove the strap, press the hook lever of the shoulder strap as you unhook the strap from the main unit strap ring or strap bracket.

Chapter 4 Basic operations

4.1 Turning on the power

■ Turning the power on

- 1 Hold down the main unit's power button (⏻) for at least two seconds and confirm that the power turns on.



Turning off the power

Press and hold the power button (⏻) on the main unit for 2 seconds.



NOTE

- The power turns off about 3 seconds after pressing the power button (⏻).

■ Checking the LCD monitor image

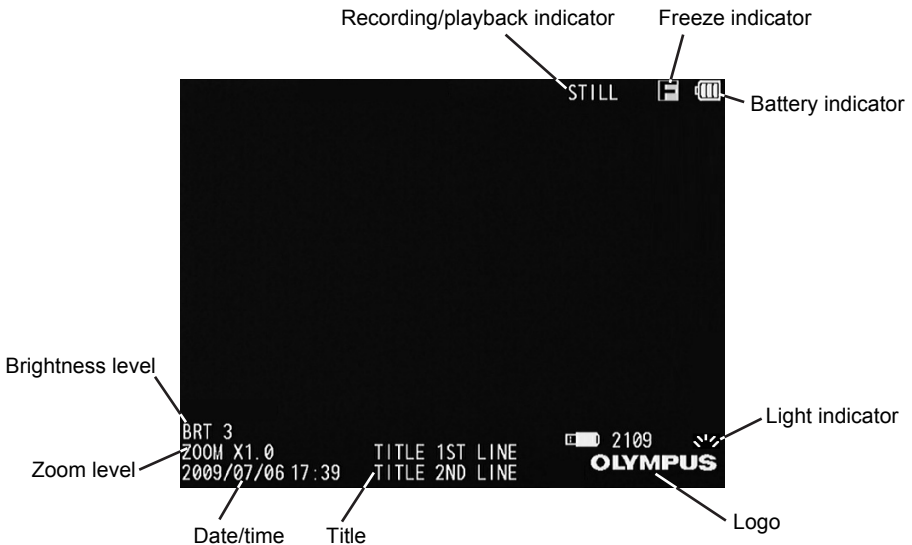
- 1** Ensure that the LCD monitor displays the observation image.
- 2** Make sure there are no dark patches or dirt in the image. If you find any irregularities, go back to “3.4 Inspecting the insertion tube” (page 25) to check it again.



NOTE

- The screen displays and menu operations are enabled approximately 40 seconds after the power button (⏻) is pressed.
- When the language setting is changed, the time taken until the screen display functions, such as menu selection, may be longer than before. This is not a malfunction.
- The displayed title is the title that was entered on the Live screen the last time the system was used.

■ Indicator display



■ Display language setting

Select the language to be used for menus and other display text before using the system for the first time. For more information, see “Language selection” (page 62).

■ Date and time settings

Set the current date and time before using the system for the first time. For more information, see “Setting the date and time” (page 60).

■ Checking the illumination lighting



WARNING

- The Illumination emitted from the insertion tube distal end may heat and ignite a nearby object. Be sure to set the illumination light turn off the LIGHT button (☼) on the front panel of the main unit when not using the instrument.
 - Do not allow the light emitted from the insertion tube's distal end enter your eye directly. Otherwise, an eye injury may result.
-

- 1 Confirm that the light indicator is shown on the screen. If it is not, press the LIGHT button (☼) on the front panel to make it appear.**
- 2 Verify the light is emitted from the insertion tube to ensure that the light source is turned on.**

■ White balance adjustment

Adjust the white balance of the insertion tube as required by following the procedure described in “Live screen/frozen screen menu display and functions” in “WHITE BALANCE” (page 57).

■ Checking the angulation functions

- 1 Straighten the insertion tube.**
- 2 Manipulate the [ANGLE] joystick slowly and ensure that the angulation section moves smoothly.**



CAUTION

- Repair is required if the joystick shaft is bent or if the knob is detached. Contact Olympus.



NOTE

- The angulation movement is interlocked with the angle and direction of the [ANGLE] joystick movements.
-

■ Checking the angulation lock

1 Pull the [ANGLE LOCK] lever up until it clicks. Confirm that angulation remains locked even when you remove your finger from the [ANGLE] joystick.

2 Pull the [ANGLE LOCK] lever up until it clicks again to confirm the angle lock is released.

Every time the [ANGLE LOCK] lever is pulled up and clicks, it changes from locked to unlocked and vice versa.



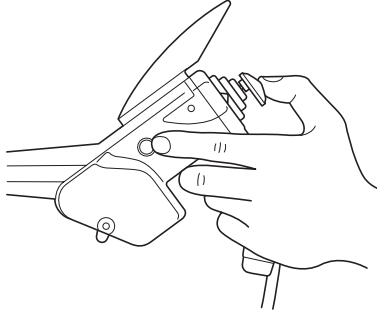
CAUTION

- Do not use the [ANGLE] joystick while the angle lock is on. Otherwise it may cause an overload malfunction.
 - A red mark is visible on the side of the [ANGLE LOCK] lever when the angle lock is on. If the articulation feels restricted or heavy to operate, check whether the angle lock is on or not.
-

4.2 Inserting the insertion tube

■ Holding the control unit and insertion tube

- 1** In general, the [ANGLE] joystick of the control unit is manipulated with the thumb of the hand holding the grip of the control unit.



- 2** Other buttons are also to be manipulated with the fingers of the hand holding the grip of the control unit.
- 3** Hold the insertion tube with the other hand to which the control unit is being held.

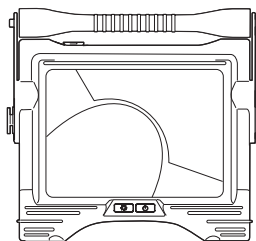
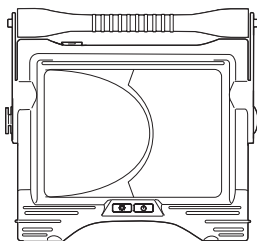
■ Inserting the insertion tube

While observing the monitor screen, carefully check the insertion direction as you slowly insert the insertion tube into the object being observed. Perform the angulation operation as required during insertion. Be careful not to apply excessive pushing force, twisting or tension to the insertion tube.



WARNING

- Be sure to turn the illumination light on during insertion into the object being examined.
- If, after the side view mirror adapter is attached to the IV8630M, the overall observation image is oriented to the left or right as shown in the figure below, or the image rotates or fluctuates while the insertion tube is moved, the side view mirror may be about to be detached from the insertion tube distal end. As continuing the use may cause the side view mirror adapter to drop from the insertion tube, immediately stop using the insertion tube, withdraw it gently and reattach the side view mirror adapter securely as described in the attaching procedure.



- Read and understand the contents of “Important Information – Please Read Before Use” (page 3) before using the insertion tube. In case of any questions, contact Olympus.



CAUTION

- Using the system under any conditions other than those specified in “Operating Environment” in “Chapter 9 Specifications” (page 81) in the instruction manual may cause unexpected accidents that may damage the insertion tube.
- The amount of screen noise may increase under high ambient temperatures.
- If any irregularities are found with the insertion tube operation or other things during the insertion tube insertion, do not insert the insertion tube any further. If this happens, (release the angulation lock if it is locked) remove your finger from the [ANGLE] joystick, return the angulation section to center position and slowly remove the insertion tube.

■ Angulation operation

- 1** The insertion tube should be angulated as required for guidance or observation. See “Checking the angulation functions” (page 42) for details about angulation operation.



NOTE

- Increasing the insertion tube looping amount (bending amount) decreases the maximum angulation angle limit of the angulation section. Keep the insertion tube as straight as possible to get the best operation from the instrument.
 - Angulation tends to be difficult to achieve under low temperatures.
 - Do not withdraw the insertion tube while its angulation is locked or while your finger is on the [ANGLE] joystick. Doing so can damage the insertion tube and/or object being observed.
 - Should any abnormality be detected during an angulation operation, do not try and force the angulation operation to continue. Doing so can damage the insertion tube or object being observed.
-

4.3 Withdrawing the insertion tube



WARNING

- The distal end of the insertion tube becomes hot just after use in high-temperature atmospheres. Do not touch it directly to avoid burns.

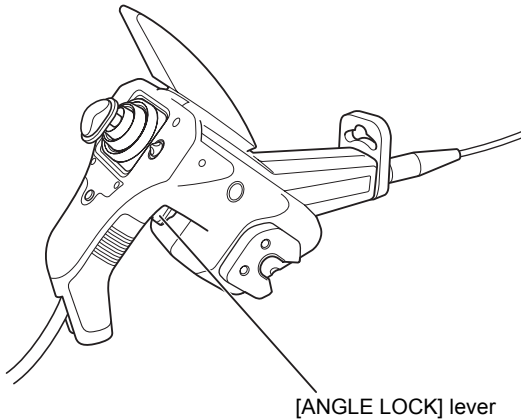


CAUTION

- Do not withdraw the insertion tube while its angulation is locked or while your finger is placed on the [ANGLE] joystick. Otherwise, the insertion tube and/or observation target may be damaged.
- If the insertion tube is caught by something during withdrawal, turn the control unit gently while continuing the withdrawal. Do not use excessive force to avoid damaging the insertion tube or the object you are inspecting.

■ Releasing the angulation lock

If the angle lock is on, pull up the [ANGLE LOCK] lever until it clicks to release it. (Every time the [ANGLE LOCK] lever is pulled up and clicks, it changes from locked to unlocked and vice versa.)



■ Withdrawing the insertion tube

Remove your finger from the [ANGLE] joystick and carefully observe as you withdraw the insertion tube.

4.4 Adjusting the image

■ Still image (freeze)



CAUTION

- Do not insert and withdraw the insertion tube when the image is frozen.
-

- 1** Press the [FRZ/REC] button on the side of the control unit to freeze the observed image. The LCD monitor displays the freeze indicator (**F**) on the top right of the screen.



NOTE

- If the [FRZ/REC] button is held depressed for more than 2 seconds, image recording will be initiated.
-

- 2** When the observation image is frozen, press the [FRZ/REC] button again to return to a live image.
- 3** When an image containing quick action is frozen, the frozen image may be blurred.

■ Zoom

- 1** While a live image is displayed, tilt the control unit [ZOOM] lever toward [T] to zoom (magnify) the observation image three steps. The zoom level will be displayed for about 3 seconds on the monitor screen. While the zoomed image is displayed, the LCD monitor displays “ZOOM” to indicate that image zooming is activated.
- 2** To return to the original image size, tilt the [ZOOM] lever toward [W].



NOTE

- Images are zoomed in by means of “digital zooming”. As a result, the image may become slightly coarse when the zooming ratio is increased.
-

■ Adjusting the brightness

While the live image is displayed, tilt the [BRT] lever on the control unit toward [▲] to brighten the overall image or toward [▼] to darken it. When the image brightness is adjusted, the LCD monitor displays the level indicator for about 3 seconds.

Use the [BRT] lever when you want to change the overall brightness of the image.

■ Monochrome boost

While a live image is displayed, you can switch to high-sensitivity image display by pressing the [BRT] lever towards [▲] until [BRT] (brightness) reaches its maximum setting (Level 8). The live image becomes monochrome during the gain boost display. This function is effective when it is required to observe the image under high brightness than the standard, for example when the subject is very dark. Note that the image noise may increase under certain observation conditions.



NOTE

- The live image is displayed in monochrome when the monochrome boost function is activated.
-

4.5 Recording the image

■ Image recording preparation

The USB Flash Drive should always be formatted on the main unit. See “Live screen/frozen screen menu display and functions” (page 57) for the operating procedure.



CAUTION

- If the USB Flash Drive is removed during image recording, the data in the recording media may be destroyed. Never attempt to remove the USB Flash Drive while recording images.

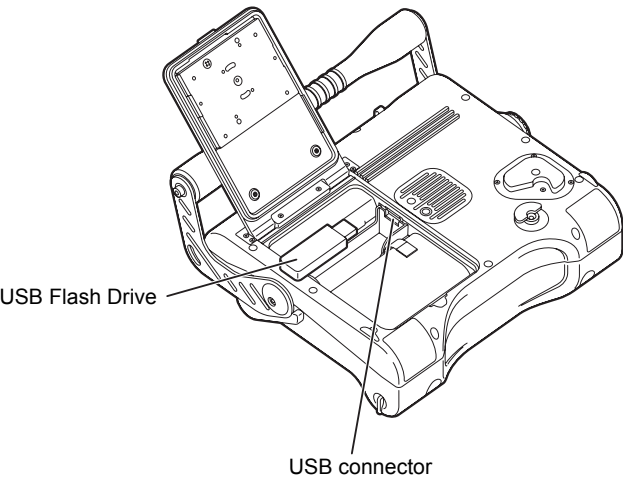
The following table shows the size of a single image and the approximate numbers of images recordable on the USB Flash Drive.

1 GB USB Flash Drive capacity estimate

Recording format	Size of a single image	Images per 1 GB memory
Still image	Approx. 300 KB	Approx. 3400 images

1 Insert a USB Flash Drive

Connect the USB Flash Drive provided as standard to the main unit’s USB connector.

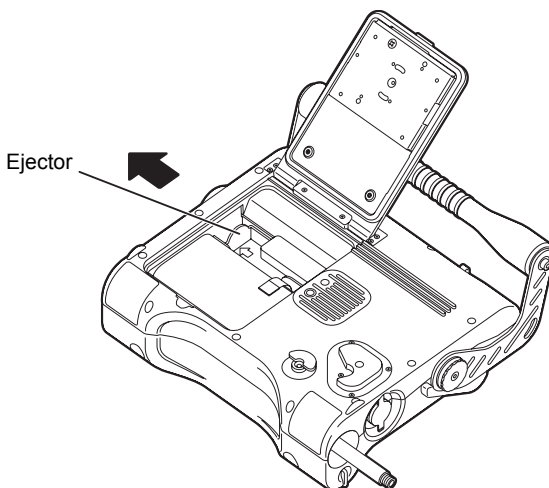


**CAUTION**

- If the USB connector is wet, wait until it is thoroughly dry before connecting the USB Flash Drive.
- If there is foreign matter inside the USB connector, remove all of it before connecting the USB Flash Drive.
- Never connect any other USB device to the USB connector except for the USB Flash Drive provided as standard or USB Flash Drive recommended by Olympus.

**NOTE**

- To remove the USB Flash Drive, slide the ejector in the direction indicated by the arrow and then pull out the card.



2 Setup of the image recording format

To record the date, time, title, logo, and other on-screen information onto the image being recorded, press the control unit [VIEW/MENU] button for at least 2 seconds (long push) while a live screen is displayed to display the menu. Select "ON" for the "PRINT SCREEN ON/OFF" setting (page 57).

**NOTE**

- Recording a still image while "ON" is selected for the "Print Screen ON/OFF" setting records only still images on which the date, time, title logo, and other on-screen information is recorded. Replaying a still image that has the date, title, and other information recorded on it may result in overlapping of some text. This is not a malfunction.

3 Note on the filenames

- a. A file named IV0?????.*** is created in the USB Flash Drive when an image is recorded.
- b. The “?????” indicates a 5 digit serial number in the file name “IV0?????”. The file number is a number between 00001 and 99999. When an image is recorded, the filename is assigned a file number one larger than the file with the largest file number already in the USB Flash Drive. For example, assuming that a USB Flash Drive includes image files with file numbers IV000001 and IV000003, recording an image creates a file named IV000004.
- c. “***” is the filename extension. Performing the image recording operation creates an image file with the filename extension .JPG.

■ Recording a still image



NOTE

- Still images can be recorded to the USB Flash Drive provided as standard or USB Flash Drive recommended by Olympus.

Press the [FRZ/REC] button (briefly) on the control unit to freeze the image. While the frozen image is displayed, press the [FRZ/REC] button again for at least two seconds to record the still image in the USB Flash Drive. The screen shows “STILL” during recording of a still image, the screen goes black for a moment and then the frozen image is displayed.



Number of images
that can be recorded

4.6 Replaying the image

■ Quick replay of most recent image

Press the [VIEW/MENU] button in the live screen to display the most recently recorded image in full screen (the retrieve screen).

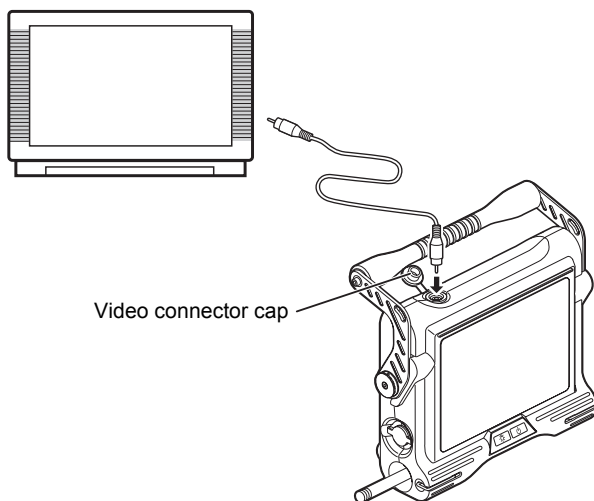
■ Slide retrieval

- During the retrieval of a still image, the retrieved image can be switched with the [BRT] lever or the [ZOOM] lever.
- Use the [BRT] lever towards [▲] or the [ZOOM] lever towards [T] to scroll images in order of their file names. The images scroll in a loop from the first to the last and then the first is displayed again.
- Use the [BRT] lever towards [▼] or the [ZOOM] lever towards [W] to scroll images in reverse order of their file names. The images scroll in a loop from the last to the first and then the last is displayed again.

4.7 Displaying a live image on an external monitor

The video output connector of the main unit enables connection of a commercially available video cable with RCA pin plug for output of images to a monitor. Only live images can be output.

Open the video connector cap to connect a video cable with RCA pin plug to the main unit.



CAUTION

- Recorded images cannot be output through the video output connector. Menus and other information cannot be output to the monitor.
-

Chapter 5 Menu operations and functions

Press the [VIEW/MENU] button on the control unit for at least 2 seconds (long push) opens a menu on screen, where various functions can be set and used.

5.1 Operating menu

■ Menu operations

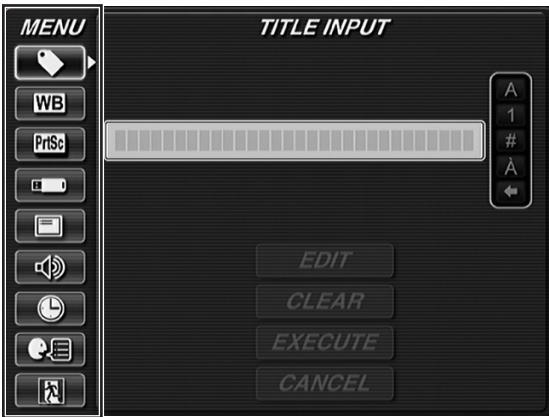
- 1 Press the [VIEW/MENU] button for at least 2 seconds (long push) to display the menu screen.
- 2 Use the [BRT] lever or the [ZOOM] lever to select the menu to open.
- 3 Press the [VIEW/MENU] button to execute the selected menu function.
- 4 Select the  icon and press the [VIEW/MENU] button, to return to the previous screen.

Press the [FRZ/REC] button while the menu is displayed to return to the observation screen.

■ Example of operations

The following description on the setting takes the “BEEP ON/OFF” menu as an example.

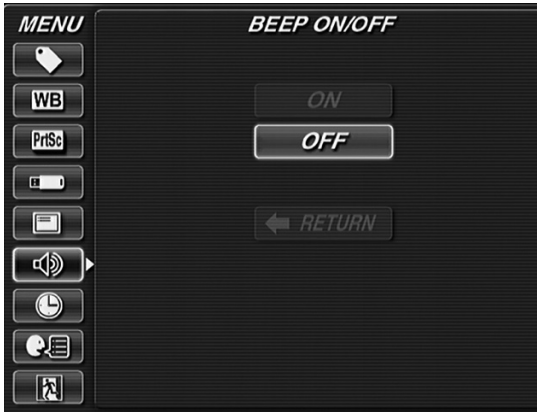
- 1 Press the [VIEW/MENU] button for at least 2 seconds (long push) to display the menu screen.



Menu

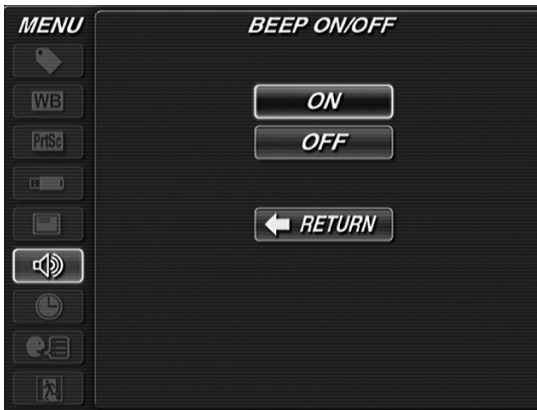
- 2** Use the [BRT] lever or the [ZOOM] lever to select , then press the [VIEW/MENU] button.

The “BEEP ON/OFF” window is displayed.



- 3** Use the [BRT] lever or the [ZOOM] lever to select “ON”, then press the [VIEW/MENU] button.

Now the operation is complete. You can return to the menu screen and perform other menu settings.



- 4** To terminate the menu setting operation, select  in the menu screen and press the [VIEW/MENU] button.

The menu screen will disappear and the observation screen will appear.

5.2 Using the live screen/frozen screen

■ Live screen/frozen screen menu display and functions

The menu on the live screen/frozen screen can be used for the following settings.

Menu	Description of function	Initial status
TITLE INPUT 	Title input operation. See "Inputting the title" (page 58) for details about operations.	—
WHITE BALANCE 	Sets the white balance characteristics of the system. Capture an image of a white object, such as a piece of paper. Select "EXECUTE" to set the white balance. White balance cannot be selected while the image is frozen.	—
PRINT SCREEN ON/OFF 	Sets whether the graphic display such as date, time, title and logo display on the image are recorded together with the still image.	OFF
MEDIA FORMAT 	Formats a USB Flash Drive.	—
DATE/TIME/LOGO 	Sets the display at the bottom line on the screen. Displays date, time and title. ALL : Displays date, time, title, OLYMPUS logo, zoom level, and brightness level. DATE/TIME/LOGO : Displays date, time, title, and OLYMPUS logo. DATE/TIME : Displays date, time and title. OFF : Nothing is displayed.	DATE/TIME/LOGO
BEEP ON/OFF 	Specifies whether beep tones sound from the built-in speakers. ON : Beep tones sound. OFF : Beep tones do not sound.	ON
DATE TIME 	Set the date and time. See "Setting the date and time" (page 60) for details about operations.	—
LANGUAGE 	Switches the menu display language. Select from available languages. See "Language selection" (page 62) for details about operations.	ENGLISH
EXIT 	Returns to the previous screen from the menu screen.	—

■ Inputting the title

A title can be displayed in the live screen/frozen screen. The displayed title can be recorded together with the image.

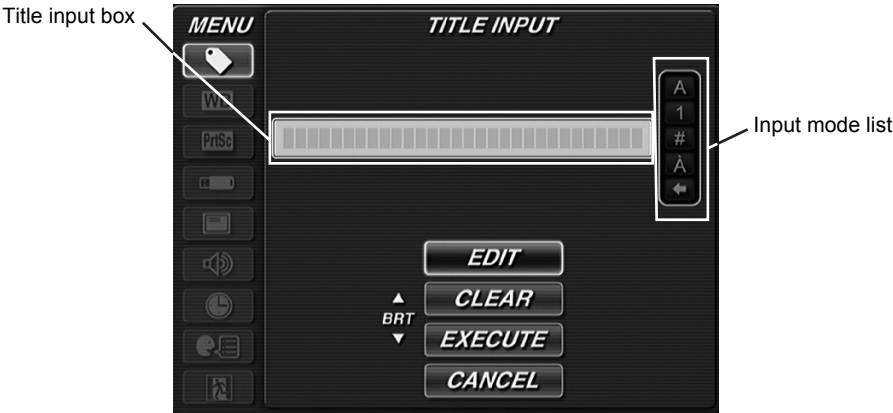


NOTE

- You can input up to 30 characters for titles.
- You can input the alphabet, Western European letters (with umlauts and other diacritic marks), numbers, and symbols.
- If the language is set to Japanese, you can input single-byte katakana.

Displaying the title input window

- 1** Press the [VIEW/MENU] button for at least 2 seconds (long push) to display the menu screen.
- 2** Use the [BRT] lever or the [ZOOM] lever to select , then press the [VIEW/MENU] button.
- 3** Select “EDIT” and press the [VIEW/MENU] button.
The title input window is displayed.
The currently set title is displayed in the title input box.



Title input operations

1 Select an input mode. Use the [ZOOM] lever to select “A”, “1”, “#”, “À”, “ア”, or “←” from the list of input modes on the right side of the screen, and then press the [VIEW/MENU] button.

- “A” : Use to input letters in the alphabet.
- “1” : Use to input numbers.
- “#” : Use to input symbols.
- “À” : Use to input special letters from European languages ((letters with umlauts, etc.) if the language is not set to Japanese).
- “ア” : Use to input single-byte katakana (only if the language setting is Japanese).
- “←” : Use to move the position of the cursor, and finish text input from any position.

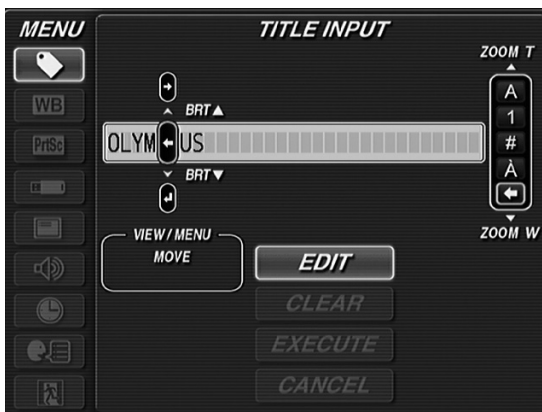
2 Use the [BRT] lever to select a letter to input and then press the [VIEW/MENU] button.

The letter is set and the cursor moves to the next position.

If a letter is not selected, “Space” is displayed.

3 Edit the work if necessary.

- To edit text, select “←” from the input mode on the right side of the screen and then select either “←” or “→” and press the [VIEW/MENU] button.
- The position of the cursor moves each time the [VIEW/MENU] button is pressed.
- When the cursor reaches the position you want to edit, select an input mode from the list on the right side of the screen and input the text you want.



4 Repeat steps 1 through 3 to complete inputting a title.

If the title you are inputting is less than the maximum (30 letters), you can exit text input as follows.

- Select “Space” and press the [VIEW/MENU] button continuously to input spaces to the end of the title field.
- Select “←” from the input mode on the right side of the screen and then select “↵” and press the [VIEW/MENU] button.

Deleting all text

- 1 After inputting text, select “CLEAR” and press the [VIEW/MENU] button.

Setting the completed title

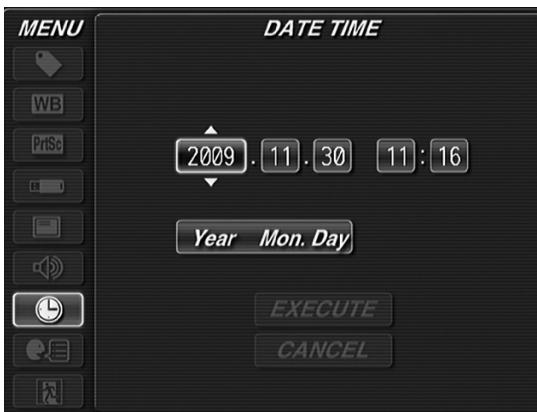
- 1 After inputting the title, select “EXECUTE” and press the [VIEW/MENU] button.

The title input window closes and the input title is shown in the title display area.

■ Setting the date and time

- 1 Press the [VIEW/MENU] button for at least 2 seconds (long push) to display the menu screen.
- 2 Use the [BRT] lever or the [ZOOM] lever to select , then press the [VIEW/MENU] button.

The “DATE TIME” window is displayed.



- 3** Use the [BRT] lever or the [ZOOM] lever to select numbers to set the “Year”, and then press the [VIEW/MENU] button.

After “Year” is set, the input field changes to “Mon.”.

Do the same operation to set “Mon.”, “Day”, “Hour”, and “Min.”.

- 4** To change the date format, select the minutes digits and then press the [VIEW/MENU] button to select “Year Mon. Day”.



- 5** Use the [BRT] lever or the [ZOOM] lever to select a date format and then press the [VIEW/MENU] button.
- 6** Select “EXECUTE” and press the [VIEW/MENU] button.

■ Language selection

Sets the menu display language.
You can select from available languages.

- 1** Press the [VIEW/MENU] button for at least 2 seconds (long push) to display the menu screen.
- 2** Use the [BRT] lever or the [ZOOM] lever to select , then press the [VIEW/MENU] button.
The “LANGUAGE” window is displayed.



- 3** Use the [BRT] lever or the [ZOOM] lever to select a language and press the [VIEW/MENU] button.

The menu screen closes and “IN PROCESS” is displayed. The menus are displayed in the selected language when “IN PROCESS” disappears.

5.3 Using the retrieve screen

■ Retrieve screen menu display and functions

The menu displayed on the thumbnail/retrieve screen can be used for the following settings.

Menu	Description of function	Initial status
DELETE ALL 	All the images recorded in the “100IV7R1” folder on the USB Flash Drive are deleted. See “Delete image” (page 63) for details about operations.	—
DELETE 	Deleting images playing back in the retrieve screen. See “Delete image” (page 63) for details about operations.	—

■ Delete image

The images recorded in the “100IV7R1” folder on the USB Flash Drive can be deleted.



CAUTION

- If the USB Flash Drive is removed during the image deletion process, the data in the USB Flash Drive may be destroyed. Never attempt to remove the USB Flash Drive while deleting images.

Deleting all images in the retrieve screen

- 1 Press the [VIEW/MENU] button for at least 2 seconds (long push) while a still image is displayed to display the menu screen.**

- 2 Select  and press the [VIEW/MENU] button.

The “DELETE ALL” window is displayed.



- 3 Select “EXECUTE” and press the [VIEW/MENU] button to delete all images recorded in the “100IV7R1” folder on the USB Flash Drive.

Deleting images playing back in the retrieve screen

- 1 Press the [VIEW/MENU] button for at least 2 seconds (long push) while a still image is displayed to display the menu screen.

- 2 Select  and press the [VIEW/MENU] button.

The “DELETE” window is displayed.



- 3 Select “EXECUTE” and press the [VIEW/MENU] button to delete the retrieved image.

Chapter 6 Operations on a computer

6.1 Using recorded images on a computer

You can use bundled IPLEX VIEWER PLUS to access images recorded with IPLEX MX II on a computer.

Use a computer to read directly from the USB Flash Drive where the images you want to read are recorded.

■ Reading images with a computer

For details about how to open IPLEX MX II images with IPLEX VIEWER PLUS, see the IPLEX VIEWER PLUS instruction manual.



CAUTION

- Connect only USB Flash Drive to the main unit's USB connector. Do not connect any other USB device or use a USB cable to connect to a computer. Doing so may cause malfunction.
-

Chapter 7 Storage and maintenance

7.1 Remaining battery power

When operating IPLEX MX II with the battery, the LCD monitor displays the remaining battery power on the top right of the screen. A guideline to remaining battery capacity is shown as follows.

(1)		Remaining battery power about 50%.
(2)		Remaining battery power about 25% to 50%.
(3)		Remaining battery power about 5% to 25%.
(4)		Remaining battery power about 2% to 5%.
(5)		Remaining battery power about 1% to 2%. This indicator flashes. Replace with a battery that has been charged.



CAUTION

- Do not record or delete images and do not format USB Flash Drive if warning number (4) shown above is displayed. If the power runs out during these operations the data could be corrupted.
- If a warning message mentioned above (5) is displayed due to the lowering of battery power voltage, immediately turn off the power of the main unit or connect the AC adapter. If continuously used without any action the power will be automatically turned off which may cause malfunction.



NOTE

- The remaining battery power can also be checked on the [POWER INDICATOR] of the battery itself. (However, the remaining battery power shown on the LCD monitor is different.) For details, refer to the instruction manual of your battery.
- The remaining battery power is not displayed during the AC adapter-powered operation.
- When long hours of battery-powered operation are expected or when using the instrument in cold weather, it is recommended to prepare charged batteries as spares.
- When the battery operation time becomes extremely short, it is recommended to replace the battery with a new battery.
- The main unit is not provided with charging capability. To charge the battery, use the optional external battery charger.
- The battery cannot be charged using the equipment. For information on charging the battery, refer to the manual that came with the battery charger.

7.2 Replacing the battery



DANGER

- Before opening the battery cover, press the power button (⏻) to turn off the power. Not doing so may cause an electric shock.



WARNING

- Be careful not to injure yourself when replacing the battery.
- Never use a battery other than the one designated by Olympus. Otherwise, failure of the instrument may not only lead to a malfunction but also a fire.
- Be careful not to leave any foreign objects in the battery compartment when replacing the battery. Otherwise, a fire or malfunction may result.

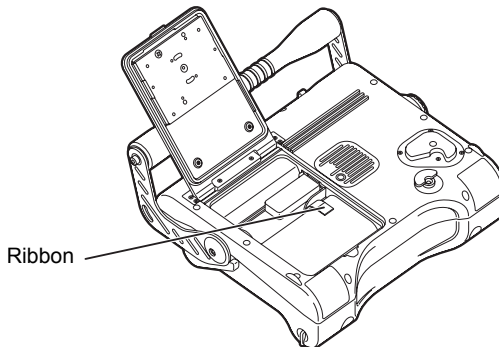


CAUTION

- Be careful not to accidentally drop the battery during replacement.

■ Replacing the battery

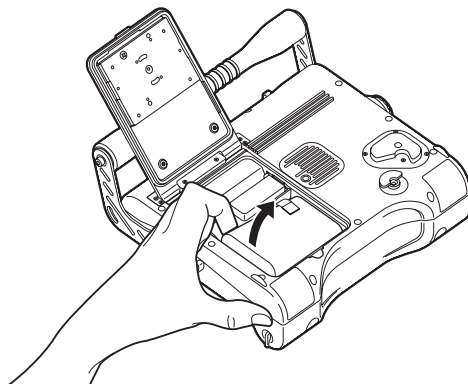
- 1** Press the power button (⏻) on the main unit to turn off the power.
- 2** Slide the battery cover lock release lever and open the battery cover.
- 3** Pull the ribbon and the battery will come out.





NOTE

- If you are having trouble removing the battery, hook it with your finger to remove it.



-
- 4** See “Supplying power from the battery” (page 22) for information about putting in a new battery.

7.3 Cleaning

■ Cleaning the insertion tube

**CAUTION**

- Clean the insertion tube immediately after withdrawing the insertion tube. If you leave it uncleaned, the equipment may be stained or corroded.
- Do not use a hard cloth or hard brush for cleaning the insertion tube. Otherwise, the insertion tube may be damaged.

- 1** Use a clean, soft cloth to wipe any dirt or other foreign object off of the insertion tube.
- 2** If a liquid such as wastewater or machine oil is attached to the insertion tube, first wipe it with a soft cloth or cotton, and wash well using a neutral detergent solution and pieces of gauze. Then wipe it with a piece of soft gauze moistened with clean water, wipe off the moisture well and dry.
- 3** Inspect and clean the distal end of the insertion tube according to “3.4 Inspecting the insertion tube” (page 25).

■ Cleaning the LCD monitor

If the LCD monitor is dirty or has fingerprints on it, wipe it with a soft cloth dampened with clean water. Then, lightly wipe it with a clean dry cloth.

**CAUTION**

- Never use a chemically treated cloth or strong detergent, such as benzine or alcohol. Doing so may damage the surface of the LCD monitor.
- Do not use a cloth that is hard, dirty, or has foreign matter on it. Doing so may damage the surface of the LCD monitor.

■ Cleaning the main unit and control unit

If the main unit is dirty, wipe it with a soft cloth dampened with clean water. Then, lightly wipe it with a clean dry cloth. Also thoroughly wipe all dirt, water, and other foreign matter from the interior of the battery cover, video connector cap, AC adapter connector cap, and the locations where the insertion tube connects to the main unit.

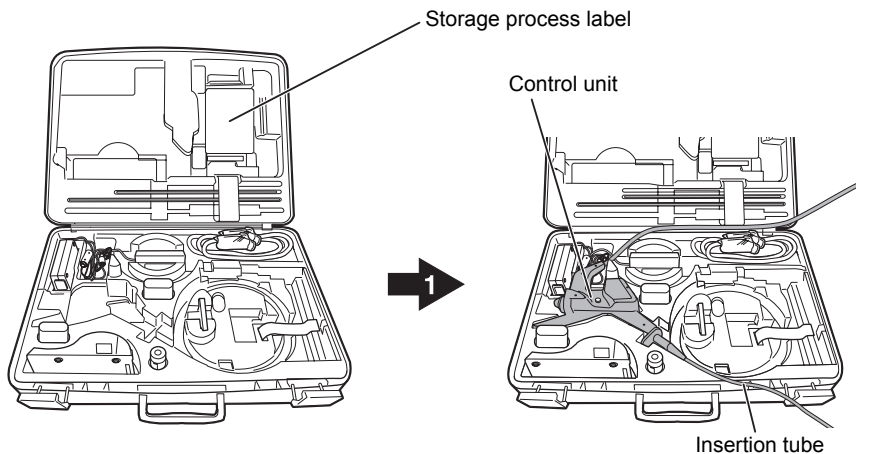


CAUTION

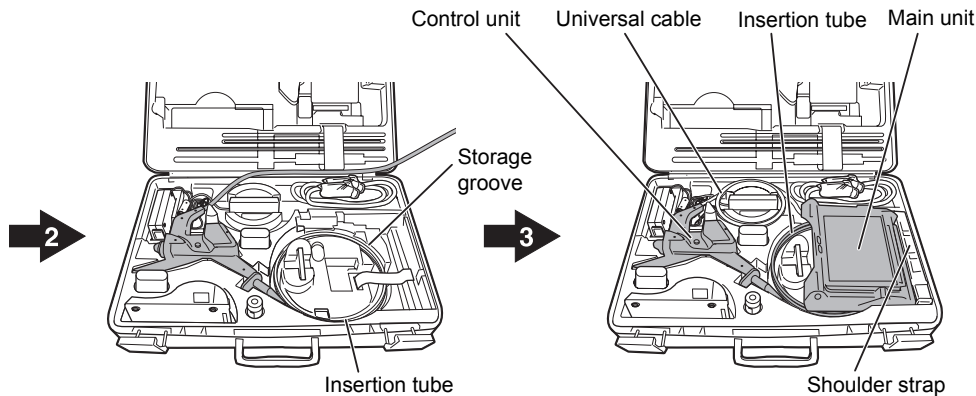
- Do not clean the equipment under running water. Otherwise, the equipment may be damaged.
-

7.4 Repacking the case

Repack the equipment in the order of: **Control unit** → **Insertion tube** → **Main unit**.



Stow the control unit first.

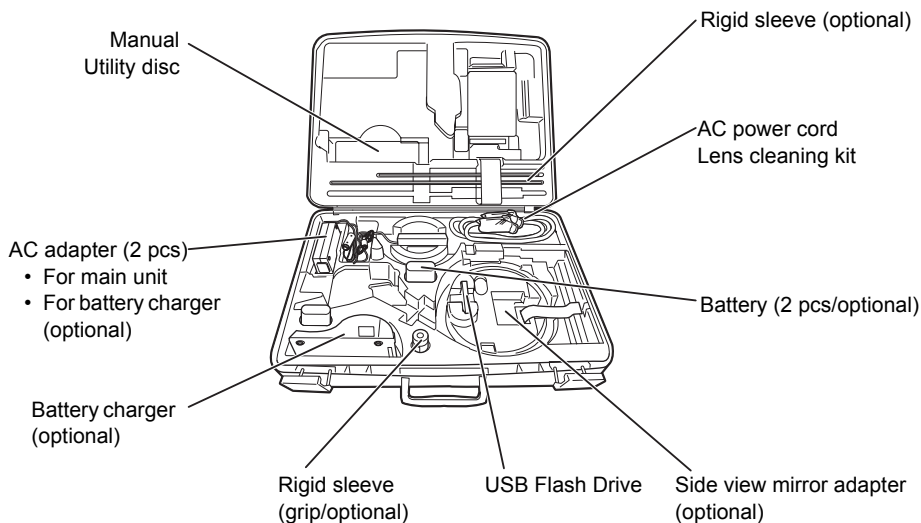


Wind the insertion tube into the storage groove.

Stow the main unit on top of the insertion tube.

Next, wind and stow the universal cable.
Last, stow the shoulder strap.

Stow accessories as illustrated below.



WARNING

- Before storing the main unit in the case, be sure to remove the battery and turn the main unit off. Otherwise, the equipment may overheat and cause a fire.



CAUTION

- Stow the control unit, insertion tube, and main unit in the correct order. If they are not stored in the correct order, the insertion tube may be damaged.
- Let the distal end of the insertion tube cool before stowing it in the case.
- Do not apply excessive force when stowing the insertion tube into the cushioned slot. Otherwise, the insertion tube may be damaged.
- Make sure to remove twist from the insertion tube when storing it.
- Make sure that the case's latch is locked properly. If it is locked improperly, the top cover may open during transport.
- When closing the top cover, be careful that your hand, the strap, insertion tube or cables are not pinched.
- When returning the main unit to its case, open the case in a stable place before repacking the equipment.
- Use only the designated case. Otherwise, the insertion tube unit and/or main unit may be damaged or malfunction.



NOTE

- Refer to the storage process label on the inside of the top cover of the carrying case for the storage procedure.

■ Locking the case

The top cover of the case may open if the case is hit while being moved. Use the provided key to lock the case during transport.



CAUTION

- Lock the case at both of the two locations.
-

7.5 Storage precautions

Store the equipment under normal room temperature and humidity conditions.



DANGER

- Do not bend, stretch, twist or crush cables with excessive force. Otherwise, a break in a cable may result in a fire or electric shock hazard.



CAUTION

- Do not store the equipment in a place subject to high temperature, high humidity, excessive dust or fine particles, direct sunlight or radioactive emissions. Doing so could damage the equipment.
- The performance of some kind of electric parts will be deteriorated by the gas including the halide contained in the insecticide, the herbicide, and the gas extinguishant, etc. Do not store the equipment in a place subject to the gas including halide. Doing so could damage the equipment.
- Do not handle the equipment roughly or hit it against other objects when storing it. Doing so may cause a malfunction.

-
- 1 Press the power button (⏻) to turn off the power and remove the battery and the AC adapter from the main unit.**
 - 2 Store the equipment on a level surface in a clean, dry and stable place.**

Chapter 8 Troubleshooting



DANGER

- Never use the instrument if there is any abnormality. Otherwise, the instrument may malfunction and the user may also be injured fatally, critically or seriously.
-

Inspect the equipment as described in “Chapter 3 Preparation and inspection before observation”, do not use the equipment if there are any obvious malfunctions. Contact Olympus for repairs. Should the slightest irregularity be suspected, do not use the instrument and see “8.1 Troubleshooting guide” (page 76). If the problem cannot be resolved by the described remedial action, stop using the instrument and send it to Olympus for repair.

Olympus does not repair disposable accessory parts. In the case of malfunction, contact Olympus to purchase a replacement.

8.1 Troubleshooting guide

■ Error messages

Problem	Display	Possible cause	Remedy
Image cannot be recorded or retrieved.	NO RECORDING MEDIA.	The USB Flash Drive is not inserted.	Insert a USB Flash Drive to use and restart operation.
	RECORDING MEDIA FULL.	The USB Flash Drive is full.	Delete unneeded data to free up space or replace with new USB Flash Drive.
	THIS IMAGE CANNOT BE RETRIEVED.	The image has not been recorded with the IPLEX MX II.	Only images recorded with the IPLEX MX II can be retrieved.
	RECORDING MEDIA ERROR. PLEASE FORMAT THE RECORDING MEDIA.	The format of the USB Flash Drive is not recognized.	Format the USB Flash Drive with the IPLEX MX II.
An error message appears when a USB Flash Drive is connected.	OVER CURRENT (USB). PLEASE TURN OFF THE POWER.	The USB Flash Drive being used is not recommended for this system.	Stop inspection and turn the instrument off, then on again. Use a recommended USB Flash Drive.
		A USB device other than a USB Flash Drive is connected.	Disconnect all USB devices except the USB Flash Drive.
Message displayed when using battery.	LOW BATTERY. PLEASE CONNECT THE AC ADAPTER OR TURN OFF THE POWER.	The battery voltage dropped.	Stop the following and quickly replace the battery or plug in the AC adapter: • Recording • Copying • Deleting images • Formatting USB Flash Drive
The image cannot be adjusted.	IMAGER ERROR. PLEASE TURN OFF THE POWER.	Self-check function triggers during use and displays a message.	Stop inspection and turn the instrument off, then on again.

Problem	Display	Possible cause	Remedy
Self-check triggers during use and displays a message (and an alarm sounds).	HIGH TEMPERATURE (MAIN UNIT). PLEASE TURN OFF THE POWER.	The message prompts you to stop operations because the inside of the main unit was too hot and triggered the self-check function.	Terminate inspection, allow the instrument to cool down, and then turn power back on again.
The angulation operation is extremely heavy.	OVERCURRENT (ARTICULATION MOTOR). PLEASE TURN OFF THE POWER.	The insertion tube is overloaded and the self-check function was triggered to prompt termination of inspection.	Extend the insertion tube as much as possible to reduce the loop amount, and turn power back on without operating the [ANGLE] joystick.

■ General troubles during operation

Problem	Possible cause	Remedy
The illumination does not light.	The LIGHT button (☀) is not on.	Turn on the LIGHT button (☀).
	The LEDs on the distal end of the insertion tube are inoperable.	Return the unit to Olympus for repair investigation.
The illumination is dim.	The distal end of the insertion tube is dirty.	Wipe with a clean piece of gauze or a cotton swab.
	Extended use under high ambient temperatures causes decreased light emissions.	Return the unit to Olympus for repair investigation.
The side view mirror adapter cannot be attached to the insertion tube. (for IV86)	Foreign object in the distal end of the insertion tube (closer to the tip than the side view mirror adapter lock groove) or inside the side view mirror adapter.	Wipe them with a clean piece of gauze or cotton swab.
	The side view mirror adapter in use is not a designated optical adapter for this system.	Use a designated side view mirror adapter.
	You are not using the proper installation procedure.	Redo it correctly (See “Attaching and detaching the side view mirror adapter” (page 28).)
The side view mirror adapter cannot be removed from the insertion tube.	The nut of the optical adapter is rotated in the wrong direction.	Redo it correctly (See “Attaching and detaching the side view mirror adapter” (page 28).)
The system cannot be turned on.	The AC adapter or the battery is not connected.	Connect the AC adapter or the battery correctly. (See “3.3 Preparing the power supply” (page 22).)
	The [POWER] button is not set to on.	Set the power button (⏻) of the main unit to on.
	A non-designated AC adapter or battery is connected.	Use the designated AC adapter or battery.
The system cannot be turned off.	The main unit is damaged.	Remove the AC adapter or the battery from the main unit to turn off the power.

Problem	Possible cause	Remedy
The image is not sharp.	The object lens on the scope distal end is dirty.	Wipe it with a clean piece of gauze or cotton swab.
	The side view mirror adapter is attached improperly.	Attach the side view mirror adapter properly.
	The external monitor is adjusted incorrectly.	Correctly adjust the external monitor.
The image brightness is not optimum.	The automatic brightness control is set erroneously.	Perform the [BRT] lever operation to configure the proper setting.
	The object lens on the insertion tube distal end is dirty or the illumination is dirty.	Wipe them with a clean piece of gauze or cotton swab.
	The external monitor is adjusted incorrectly.	Correctly adjust the external monitor.
Color reproduction is poor.	The white balance is set improperly.	Re-adjust the white balance.
The image is noisy.	The automatic brightness control is set erroneously.	Perform the [BRT] lever operation to configure the proper setting.
Angulation cannot be returned to its original attitude.	The angulation lock is set.	Pull the [ANGLE LOCK] lever up until it clicks to release the angle lock.
Operation load for articulation is getting heavier.	Angle lock function may effect.	Pull the [ANGLE LOCK] lever up until it clicks to release the angle lock.
Control unit is emitting loud noise or vibrating violently.	The insertion tube is overloaded.	Remove your finger from the [ANGLE] joystick and then extend the insertion tube as much as possible to reduce the loop amount.
The beep can not be heard.	"BEEP ON/OFF" is set to "OFF".	Set "BEEP ON/OFF" to "ON".

8.2 Returning the instrument for repair



WARNING

- Olympus is not liable for any injury or damage which occurs as a result of repairs attempted by non-Olympus personnel.



CAUTION

- Olympus will not repair an instrument contaminated by noxious substances.
-

Before returning the instrument for repair, contact Olympus. Include a detailed description of the malfunction and the conditions under which it occurs when returning the instrument.

Malfunctions that occur during the warranty period are done at no charge according to the warranty agreement. Be sure to attach the warranty agreement when returning the instrument for repairs. Repair will be charged if the warranty agreement is not attached. The freight fees are paid by the user even if repairs are done free of charge.

Chapter 9 Specifications

9.1 Operating environment

Operating temperatures	Insertion tube	In air : -25 to 80°C In water: 10 to 30°C
	Other parts than above	In air : -10 to 40°C (Battery-powered operation) 0 to 40°C (AC adapter-powered operation)
Operating atmospheric pressure	Insertion tube	In air : 1013 hPa Under water: 1013 to 1317 hPa
	Other parts than above	In air : 1013 hPa
Operating environment humidity	All parts	15 to 90% (Relative humidity)
Liquid resistance	Insertion tube	No trouble when exposed to machine oil, light oil or 5% saline solution.
	Other parts than above	
Waterproofing	Insertion tube	Waterproof construction.
	Other parts than above	Not waterproof or rainproof construction.



CAUTION

- Meeting operating environment specifications does not constitute any guarantee against damage to or malfunction of this equipment.

9.2 Other specifications

Optical system	Field of view	IV84 series: 100° IV86 series: 120°
	Direction of view	Direct viewing
	Depth of field	IV84 series: 12 to 50 mm (Fixed) IV86 series: 18 to 1000 mm (Fixed)
	Illumination	LED illumination system
Distal end	Outer diameter	IV84 series: ϕ 4.4 mm IV86 series: ϕ 6.0 mm
	Distal end rigid section length	IV84 series: 14.85 mm IV86 series: 21.34 mm
	Angulation	IV84 series: 120° IV86 series: 120° * Each direction (the insertion tube is straight).
Flexible section	Flexibility	TF tube with flexibility gradually increasing toward the distal end.
	Outer diameter	IV84 series: ϕ 4.4 mm IV86 series: ϕ 6.0 mm
Total length		IV8415M: 1.5 m IV8430M: 3 m IV8630M: 3 m

Control unit	Angulation	Power assisted angulation.
	Function of buttons	ZOOM (T/W) lever <In the live screen> 3-step zoom magnification switching <In the retrieve screen> Switches the retrieved image. <In the menu screen> Used for menu selections.
		BRT (▲/▼) lever <In the live screen> Brightness changes in UP/DOWN format. <In the retrieve screen> Switches the retrieved image. <In the menu screen> Used for menu selections.
		ANGLE joystick Used to control the angulation.
		VIEW/MENU button <In the live screen> Short push displays most recent image on retrieve screen. Long push displays the menu screen. <In the menu screen> Used for menu selections.
		FRZ/REC button <In the live screen> Freezing function and recording function done by one button. Short push opens freeze screen. Long push activates recording function. <In the menu screen> Returns to the live screen from the menu screen.
		ANGLE LOCK lever Mechanically locks and maintains angulation.
	Dimensions	230 (W) x 100 (D) x 200 (H) mm (without insertion tube and cable)
	Weight	Approx. 500 g (without insertion tube and universal cable)
Total weight of all components		IV8415M, IV8430M : 2.5 kg (with battery) IV8630M : 2.6 kg (with battery)

Setup configuration		Three setup configurations are supported. • Using the handle as a stand for the main unit • Suspending the main unit from the handle • Mounting the main unit on a tripod
Portability		Can be fitted to body with a shoulder strap.
Holding of control unit		Provided with a hook for locking of the control unit.
LCD panel		TFT full color liquid crystal display panel module. Transparent panel
		6.5 inch image size
		Anti-reflective type
Function of buttons		Power button (⏻) : Turns power ON/OFF LIGHT button (💡) : Short push turns illumination ON/OFF.
Scope screen		Full screen
Bright adjustment		8 steps each (step 8 is the monochrome boost mode).
Freeze frame (still image display)		Automatically selects frame freeze when there is little motion in the screen or field freeze when there is a lot of motion in the screen.
Zoom		Three steps digital zoom
White balance		White balance can be readjusted by selecting white balance in the menu. It is a simple operation adjusted by capturing an image of a white object.
Input/Output connector	Video signal outputs	One video signal output (For external devices) Composite (VBS) video output (for live image) One RCA jack output
	USB connector	A connector, USB 2.0 compatible

Power supply	Battery	Specified battery can be inserted and removed from the battery slot. Only the specified battery is permitted: Specified battery (Lithium Ion) Model name: Manufactured by INSPIRED ENERGY NC2040OL24 Nominal voltage: 10.8 V Battery powered operating time: 120 minutes or longer (based on a new battery) For details, refer to the instruction manual of your battery.
	AC adapter	Designated AC adapter can be connected to AC adapter connector. Rated input voltage : 100 V to 240 V Supply frequency : 50/60 Hz Output voltage : 12 V For details, refer to the instruction manual of AC adapter.
Operating voltage range		7.5 to 12.6 V (Battery-powered operation) 11.4 to 12.6 V (AC adapter-powered operation)
Power consumption		MAX 11 W
Dimensions		239 (W) x 99 (D) x 215 (H) mm
Still image recording	Resolution	NTSC : H640 x V480 (Pixel) PAL : H768 x V576 (Pixel)
	Recording format	Files are stored as compressed JPEG format (Exif 2 compliant).
	Character superimpose	The date, time, title and OLYMPUS logo displayed on the screen can be superimposed on the image.
Still image retrieval	Restrictions	Images recorded on IPLEX MX II can be retrieved.
Retrieved image display		Images recorded on USB Flash Drive provided as standard or USB Flash Drive recommended by Olympus can be displayed. In full screen mode, press the [VIEW/MENU] button on the control unit to display the most recently recorded image. Use the [BRT] lever or the [ZOOM] lever to switch to the retrieve screen display.
Image file operations	Title input	Images can be titled with the menu operation on the control unit. Titles can be up to 30 single-byte alphanumeric or kana characters.
	Delete	Images recorded on the USB Flash Drive can be deleted.

Beep tone setting	Beep tone output can be turned on or off by menu operation.
-------------------	---

■ Carrying case specifications

Equipment stored in carrying case	Insertion tube, Control unit, Main unit	Stowed in storage space.
	Other items	• Shoulder strap x1 • Battery x 2 • Battery charger x1 • AC adapter (including power cables) x2 • Instruction manual • Lens cleaning kit • Utility disc • USB Flash Drive • Rigid sleeve • Side view mirror adapter • Side view rigid sleeve
Dimensions weight	Dimensions	600 (W) x 133 (D) x 426.5 (H) mm 23.62 (W) x 5.16 (D) x 16.79 (H) inch
	Weight	Approximately 3.0 kg (7.7 kg with all accessories stowed)

■ Side view mirror adapter specifications

The following specifications represent the performance of the side view mirror adapter (optional) when it is attached to the insertion tube. The side view mirror adapter can be attached to the IV8630M.

		AT50S-IV76X2
Adapter model name		50S V7X2
Optical system	Field of view *1	50°
	Direction of view *2	Side
	Depth of field *3	5 to 1000 mm
Distal end	Outer diameter *4	φ 7.4 mm
	Distal end rigid section length *5	35.8 mm
External view	Index	Red (adapter with green index cannot be used)



CAUTION

- Clean and dry the side view mirror adapter immediately after it has been immersed in water. Otherwise, the adapter may corrode, swell and becomes unable to be removed from the insertion tube.



NOTE

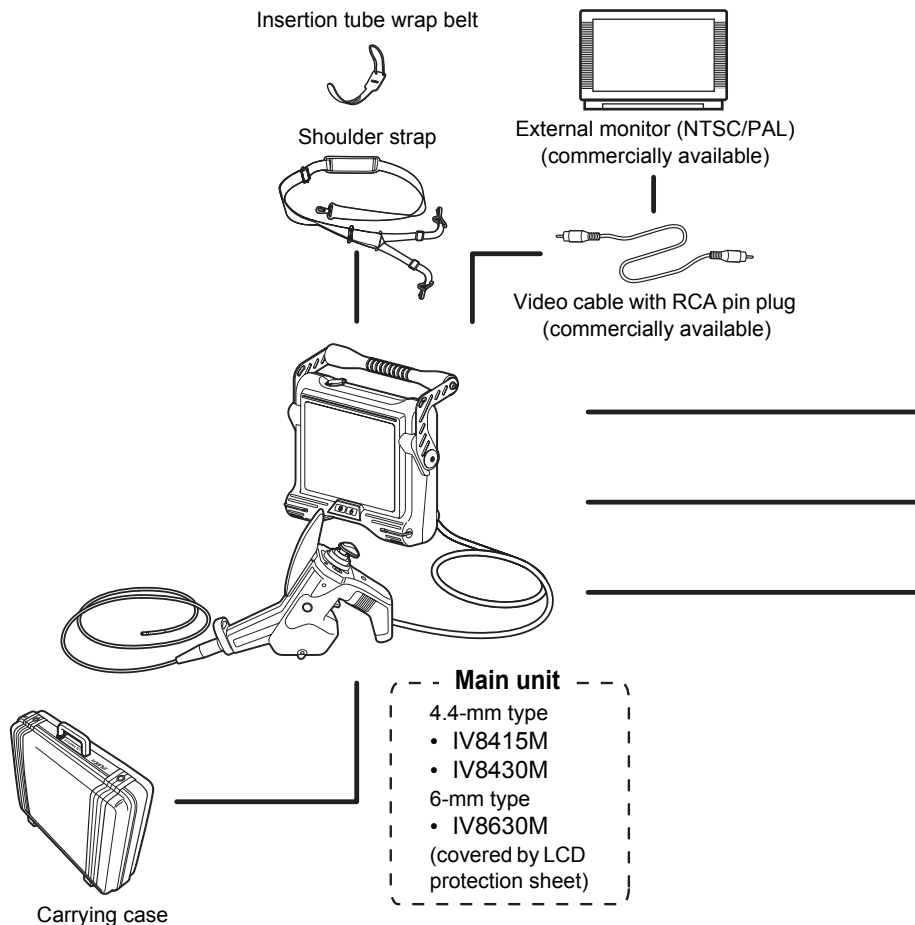
- *1 • The image becomes reversed.
 - Due to the way the mirror is made, it may reflect a whitish image in some cases. However, the mirror is not damaged or dirty. In such cases, move it closer to the object to prevent the whitish image.
- *2 Images other than the mirror image are visible when the adapter is mounted on the insertion tube.
- *3 Indicates the range within which the image can be viewed clearly.
- *4 The adapter can be inserted into a φ 7.4 mm hole when it is mounted on the insertion tube.
- *5 Indicates the length of the rigid portion at the insertion tube's distal end when the adapter is mounted.

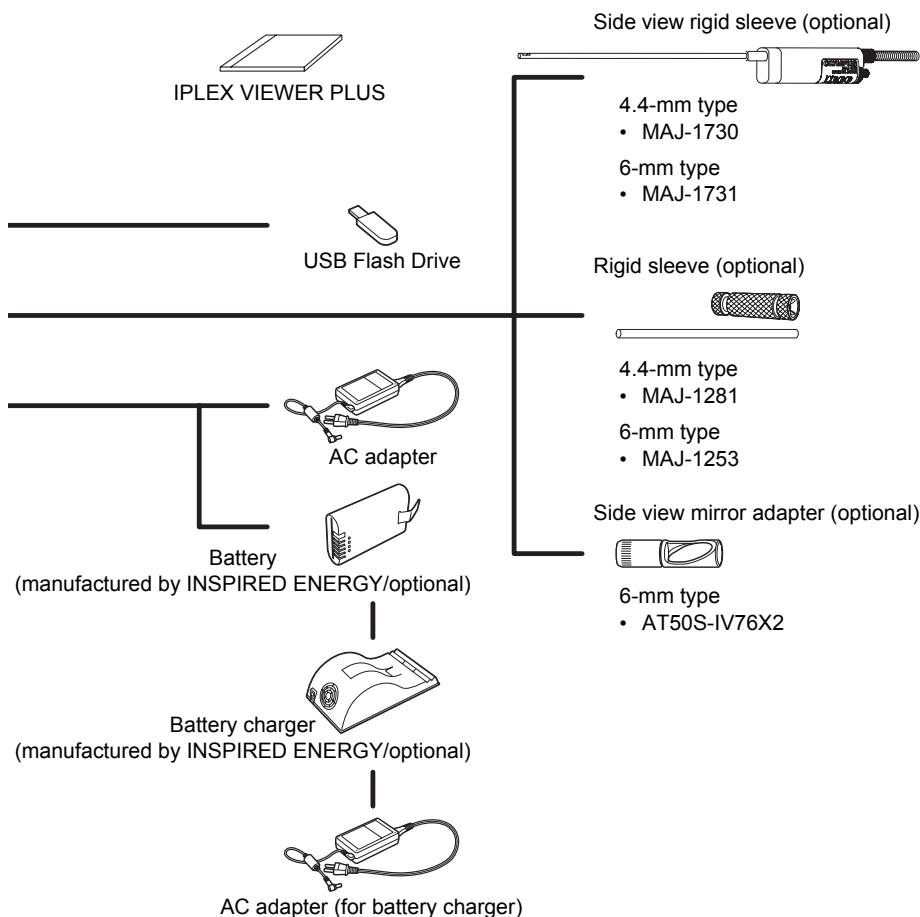
■ External application standard

Low Voltage Directive and EMC Directive 	This device complies with the requirements of Directive 2006/95/EC concerning electrical equipment designed for use within certain voltage limits. This device complies with the requirements of Directive 2004/108/EC concerning electromagnetic compatibility when used in combination with devices bearing CE marking either on the products or in its instructions.
FCC and IC Information	This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. This Class A digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.
WEEE Directive 	In accordance with European Directive 2002/96/EC on Waste Electrical and Electronic Equipment, this symbol indicates that the product must not be disposed of as unsorted municipal waste, but should be collected separately. Refer to your local Olympus distributor for return and/or collection systems available in your country.
RoHS Directive	RoHS compliance model
Chinese RoHS Directive 	This mark indicates the environmental protection use period applicable to electronic information products sold in China in accordance with the “Management Methods for Controlling Pollution by Electronic Information Products” of February 28, 2006 and the “Requirements Concerning Pollution Control Markings for Electronic Information Products.” (Caution) During the environmental protection use period harmful substances will not be emitted when used under proper conditions. However, it does not guarantee functional performance of the product during the said period.

Appendix

System chart







OLYMPUS CORPORATION

Shinjuku Monolith, 3-1 Nishi-Shinjuku 2-chome, Shinjuku-ku, Tokyo 163-0914, Japan
Telephone: (81)3-6901-4038

OLYMPUS EUROPA HOLDING GMBH

Wendenstrasse 14-18, 20097 Hamburg, Germany
Telephone: (49)40-23-77-30

OLYMPUS NDT INC.

48 Woerd Ave Waltham, MA 02453, U.S.A.
Telephone: (1)781-419-3900

KEYMED (MEDICAL & INDUSTRIAL EQUIPMENT) LTD.

KeyMed House, Stock Road, Southend-on-Sea, Essex SS2 5QH, U.K.
Telephone: (44)0-1702 616333

OLYMPUS SINGAPORE PTE LTD.

491B, River Valley Road #12-01/04, Valley Point Office Tower, Singapore 248373
Telephone: (65)6834-0010

OLYMPUS MOSCOW LIMITED LIABILITY COMPANY

House 27, Bld.8, Electrozavodskaya Str Moscow, 107023 Russian Federation
Telephone: (7)495-956-6691

OLYMPUS AUSTRALIA PTY. LTD.

31 Gilby Road, Mount Waverley, VIC., 3149, Australia
Telephone: (61)130-013-2992

