OLYMPUS®

*Optional Module*

***SZ-VIA***

# INSTRUCTIONS

# LSGA
## EPI-ILLUMINATOR

This instruction manual is for the Olympus Epi-Illuminator. To ensure the safety, obtain optimum performance and to familiarize yourself fully with the use of this equipment, we recommend that you study this manual thoroughly before operating the system.
Retain this instruction manual in an easily accessible place near the work desk for future reference.

AX7751

# CONTENTS

# IMPORTANT

## ⚠ SAFETY PRECAUTIONS

1. The light irradiated from the illuminator should not be pointed to the direction higher than the horizontal direction. Otherwise, deterioration of heat radiation of the illuminator may result in malfunction.
2. The surface of the illuminator becomes very hot. Do not touch it except when adjusting the irradiation direction within less than about 5 minutes after ignition.
3. Before replacing the bulb, be always sure to set the main switch to "O" (OFF), unplug the power cord from the power outlet and wait until the illuminator and bulb have cooled down enough to prevent electric shock or burns.
4. Product lifetime of illumination devices is 8 years or 20,000 illumination hours, whichever occurs first, as a guideline. For details, see the inspection sheet on pages 12 and 13.

| Applicable bulb | 6V15WHAL (Philips 13528). Average life 500 hours. |
|---|---|

**Safety Symbol**

The following symbol is found on the illuminator. Study the meaning of the symbol and always use the equipment in the safest possible manner.

| Symbol | Explanation |
|---|---|
|  | Indicates that the surface becomes hot, and should not be touched with bare hands to avoid burning. |

**Warnings**

A warning sticker is placed at parts where special precaution is required when handling and using the illuminator. Always heed the warnings.

| | | |
|---|---|---|
| Warning sticker position | LSGA illuminator |  [Warning against high-temperature] |

Should the warning sticker become soiled or peeled off, etc., contact Olympus for replacement.

## 1 Maintenance and Storage

1. To clean the lenses and other glass components, simply blow dirty away using a commercially available blower and wipe gently using a piece of cleaning paper (or clean gauze).
   If a lens is stained with fingerprints or oil smudges, wipe it gauze slightly moistened with commercially available absolute alcohol.

▲**Since the absolute alcohol is highly flammable, it must be handled carefully.**
**Be sure to keep it away from open flames or potential sources of electrical sparks — for example, electrical equipment that is being switched on or off.**
**Also remember to always use it only in a well-ventilated room.**

2. Do not attempt to use organic solvents to clean the parts other than the glass components. To clean them, use a lint-free, soft cloth slightly moistened with a diluted neutral detergent.
3. Never attempt to disassemble any part of the system as this could result in malfunction or reduced performance.
4. Be careful not to leave fingerprints or similar stains on the surfaces of the bulb and mirror.

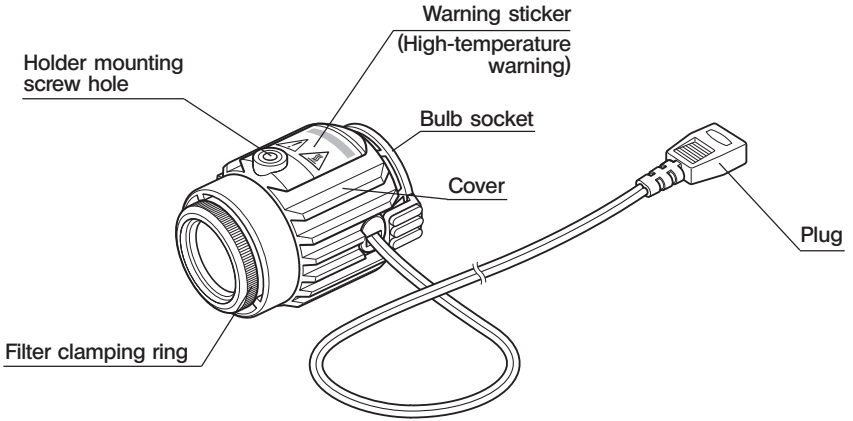
## 2 Caution

If the system is used in a manner not specified by this manual, the safety of the user may be imperiled. In addition, the equipment may also be damaged. Always use the equipment as outlined in this instruction manual.

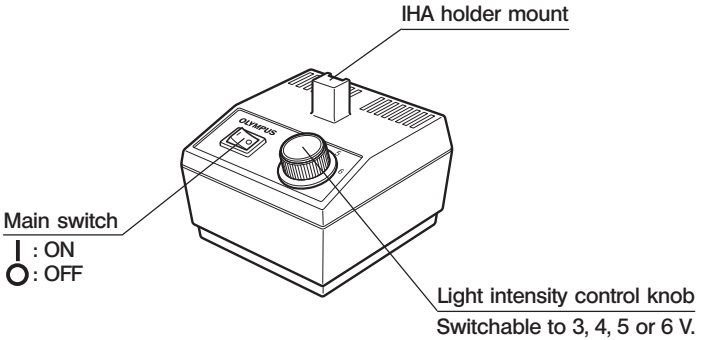
The following symbols are used to set off text in this instruction manual.
▲: Indicates that failure to follow the instructions in the warning could result in bodily harm to the user and/or damage to equipment (including objects in the vicinity of the equipment).
★: Indicates that failure to follow the instructions could result in damage to equipment.
◎: Indicates commentary (for ease of operation and maintenance).

# 1 NOMENCLATURE

**Illuminator LSGA**

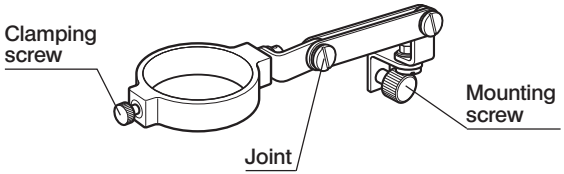



**Power Supply TL3**



## Holders

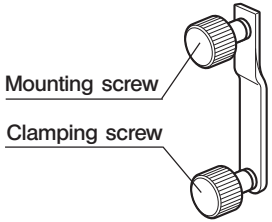
### IHA




[Mounting position]

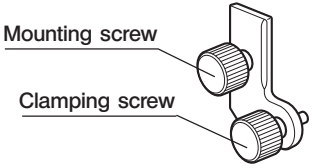
- Standard Stand SZ2-ST
- System Mounting Focusing Arm SZ2-STB1/STB3/STS
- Power Supply TL3

### IHD




- System Mounting Focusing Arm SZ2-STB1/STS

### IHE




- Standard Stand SZ2-ST

# 2 ASSEMBLY

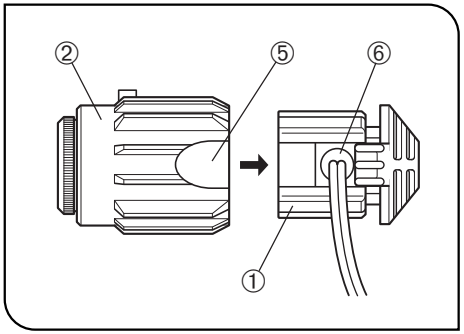



Fig. 1

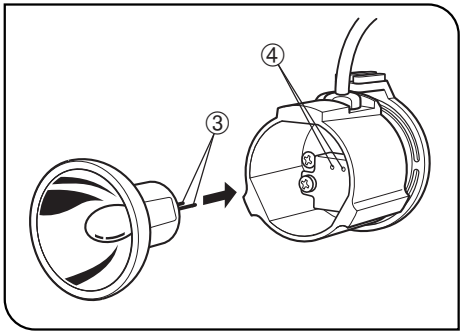



Fig. 2

## 1 Mounting the Bulb (Figs. 1 & 2)

Applicable bulb : 6V15WHAL (Philips 13528)

1. Pull out the bulb socket ① from the cover ②.

**★Pull the bulb socket straight without turning.**

2. Fit the pins ③ of the bulb with the pinholes ④ on the bulb socket and insert the bulb all the way.

**CAUTION** **Insert gently, as the bulb may be damaged if its is twisted with an excessive force.**

3. Align the cord ⑥ of the bulb socket with the large notch ⑤ on the cover, and insert the bulb socket gently until it clicks into position.

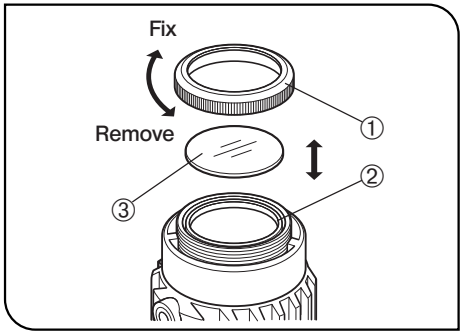



Fig. 3

## 2 Attaching/Removing the Filter (Fig. 3)

Place the illuminator in the upward position, remove the filter clamping ring ① (by turning it counterclockwise), place the filter ③ on the filter holder ②, attach the filter clamping ring and clamp it (by turning it clockwise).

◎Use a filter with a diameter of 32.5 mm. The available filter types include the following:

- green filter 32.5G533; • yellow filter 32.5Y48;
- color temperature adjustment filters 32.5LB-45/LB-100/LB-200;
- heat absorbing filter 32.5B-76.

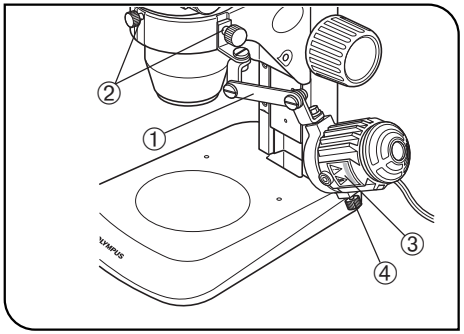



Fig. 4

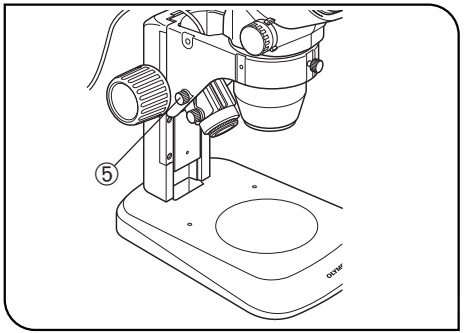



Fig. 5

## 3 Attaching the Holder

**▲Lay out the lamp cable so that it is oriented toward the lateral or downward direction without touching the illuminator body.**

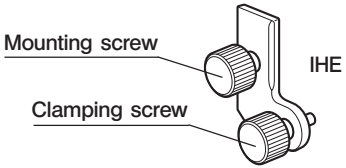
**Attaching on Standard Stand SZ2-ST**

A. Attaching the IHA holder (Fig. 4)

1. Attach the IHA holder ① onto the holder-mounting hole ② (one of the three mounting holes) on the standard stand and clamp with the mounting screw.
2. Fit the LSGA illuminator ③ into the IHA holder and tighten the clamping screw ④.

B. Attaching the IHE holder (Figs. 5 & 6)

1. Attach the IHE holder onto the LSGA illuminator temporarily by inserting the clamping screw of the IHE into the holder mounting screw hole of the LSGA and tightening it temporarily.




2. Remove the mounting screw ⑤ from the IHE temporarily.
3. Attach the combination of the IHE holder and LSGA illuminator to the inner side of the mounting hole on the left side of the standard stand, and clamp them together by inserting and tightening the mounting screw ⑤.

◎If the LSGA illuminator comes in the way of observation because the specimen is large or the heat of the illumination affects the specimen, the LSGA illuminator can be attached on the top of the standard stand as described in steps 4 and 5 on next page.

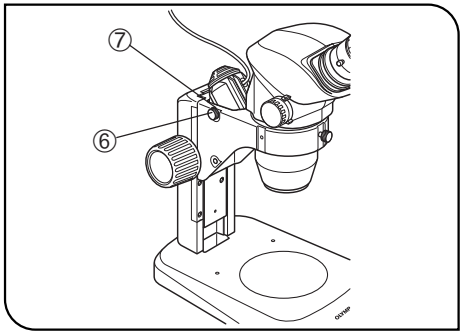



Fig. 6

4. Remove the clamping screw ⑥ and washer ⑦ from the IHE holder.
◎As other parts are not used, retain them carefully so as not to lose them.
5. Using only the clamping screw and washer, attach the LSGA illuminator onto the top of the standard stand as shown in Fig. 6.
6. Notes on the illumination range:
- The illumination range requirement is satisfied all over the entire zoom range provided that no auxiliary objective is used.
- If the illuminator is attached to the top of the standard stand and a 1.5X or 2X auxiliary objective is used, the illumination range requirement cannot be satisfied.

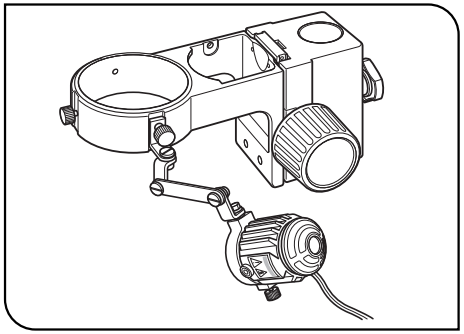


Fig. 7

**Attaching on System Mounting Focusing Arm SZ2-STB1/STB3/STS**

**CAUTION** **With the SZ2-STB3, only the IHA holder can be used.**

A. Attaching the IHA holder (Fig. 7)

Attach in the same way as attaching on the SZ2-ST.

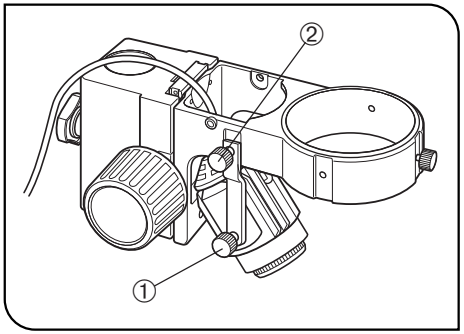



Fig. 8

B. Attaching the IHE holder (Fig. 8)

1. Insert the clamping screw ① of the IHD holder into the holder mounting screw hole of the LSGA and tightening it temporarily.
2. Attach the combination of the IHD holder and LSGA illuminator to the left side of the arm, and clamp them together by inserting and tightening the mounting screw ②.

C. Attaching on top of the arm

Attach using the clamping screw and spring washer, in the same way as attaching on the SZ2-ST.

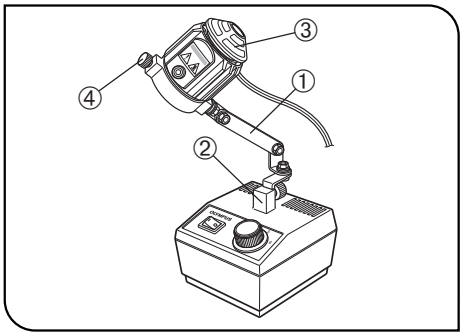



Fig. 9

**Attaching on Power Supply TL3**

A. Attaching the IHA holder (Fig. 9)

1. Attach the IHA holder ① on the IHD holder mount ② of the TL3 power supply and clamp using the mounting screw.
2. Insert the LSGA illuminator ③ into the IHA holder and tighten the clamping screw ④.

# 3 OPERATION

1. Insert the lamp cable plug of the LSGA illuminator into the connector on the rear of the TL3 power supply, and insert its power cord plug into the wall outlet.
2. Set the main switch of the TL3 to " **I** " (ON) and adjust the brightness with the light intensity control knob.
3. Adjust the illumination angle as follows.

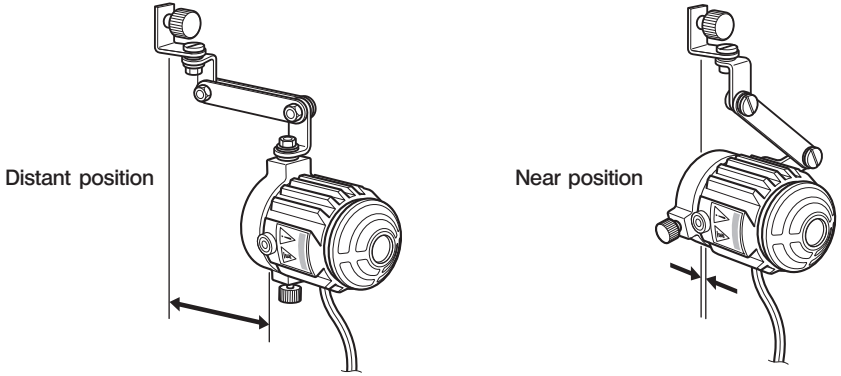
- The surface of the illuminator becomes very hot during use. Do not touch it except when adjusting the irradiation direction within less than about 5 minutes after ignition.
- When the irradiation direction needs to be adjusted while the illuminator is on, do not adjust it immediately to prevent burns. Instead, turn it off temporarily, wait until it has cooled down (in about 10 minutes), turn it on again and immediately proceed to the adjustment.

**⚠ CAUTION**

**1. If the LSGA approaches the specimen surface too closely, the specimen temperature would rise.**
**2. When the IHE or IHD holder is used and the specimen has a mirror surface, the field of view will be very dazzling when your eyes are moved even slightly away from the eyepieces. In this case, use the IHA holder and illuminate the light from the frontal or lateral direction.**

# 4 VERTICAL REFLECTED LIGHT ILLUMINATOR SZ-VIA

1. Screw in the SZ-VIA vertical reflected light illuminator into the tip of an applicable stereo microscope.
2. Bend the joint of the IHA holder according to whether the LSGA is to be positioned at the distant position (used for reducing illumination irregularities) or near position (used for obtaining brighter illumination).




3. Attach the IHA holder on the standard stand and then attach the LSGA.
4. Turn the SZ-VIA to align it with the illumination light axis of the LSGA and start observation.

**▲When aligning the optical axis, perform adjustment while the illuminator is not hot within about 5 minutes after ignition.**

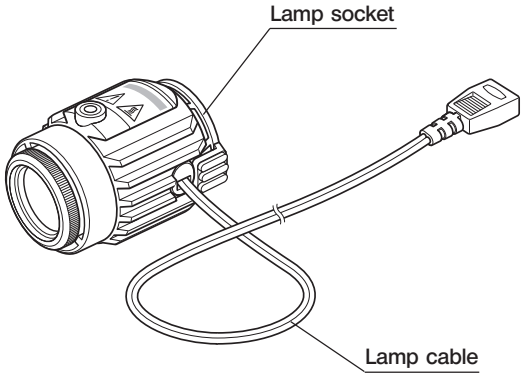
The observation image may be degraded due to the structure of the vertical reflected light illuminator. In this case, the image may sometimes be improved by turning the SZ-VIA slightly (5° to 10°).

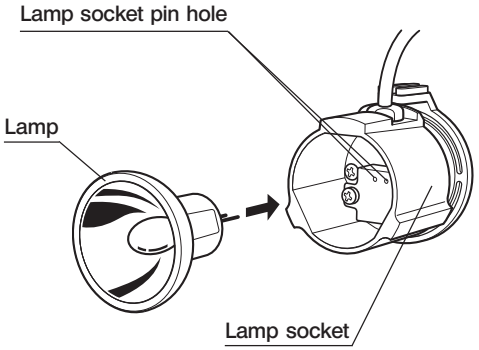
Note for cleaning

- To clean the mirror inside the SZ-VIA, use a blower or soft brush to remove the dust away. Do not attempt to clean it by using a piece of gauze or absolute alcohol.

# 5 PREVENTIVE INSPECTION SHEET FOR ILLUMINATION DEVICES

- Study the instruction manual as well before inspection.
- We recommend performing “Preventive Inspections” periodically (every time you replace lamps and at least once every 6 months).
- The table below identifies the check items to be observed. Put **(X)** if not applicable or **(√)** if applicable.
- If there are any check marks **(√)** noted, **immediately stop use of the product,** and seek service or replacement for the illumination device(s) for prevention.
- If you detect an abnormality other than that listed on next page with your illumination device or other Olympus product, request inspection from your Olympus distributor. If you have any questions, please contact your Olympus distributor.



| Check items | Check results(Date) | | | |
|---|---|---|---|---|
| | / | / | / | / |
| 1. More than 8 years have passed since original purchase or exceeds 20,000 hours of use. | | | | |
| 2. Lamp does not light sometimes even though the power is on. | | | | |
| 3. Light flickers when you move a lamp cable or illumination devices. | | | | |
| 4. Lamp cable unit is unusually hot to the touch. | | | | |
| 5. Burning or smoke odor. | | | | |
| 6. Light still flickers after new lamp replacement. | | | | |
| 7. Signs of deformation, backlash, or looseness, etc. when you assemble/disassemble the illumination device. (I.e. It is hard to connect/disconnect the lamp socket during lamp replacement.) | | | | |
| 8. The lamp socket pin holes have become discolored or tarnished on the right or left side. | | | | |
| 9. Illumination device/ housing has become deformed, cracked or tarnished in any way. | | | | |
| 10. Lamp cables or wiring parts have become deformed, cracked or tarnished in any way. | | | | |

◎ If the spaces are not enough for check, copy this sheet.

## *MEMO*

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