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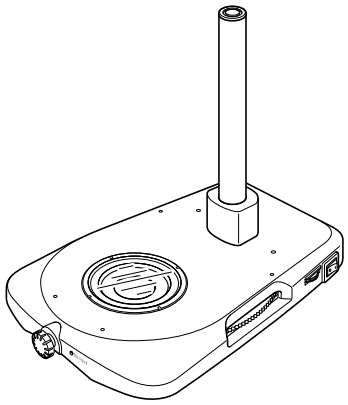


INSTRUCTIONS

SZX2-ILLT

LED TRANSMITTED LIGHT ILLUMINATOR STAND

This instruction manual is for the Olympus SZX2-ILLT Transmitted Light Illuminator Stand. To ensure the safety, obtain optimum performance and to familiarize yourself full with the use of this equipment, we recommend that you study this manual thoroughly before operating the microscope.
Retain this instruction manual in an easily accessible place near the work desk for future reference.

AX7503

CONTENTS

CE This device complies with the requirements of directive 98/79/EC concerning in vitro diagnostic medical devices. CE marking means the conformity to the directive.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC WARNING: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

IMPORTANT

This manual pertains only to the operation of the LED transmitted light illuminator stand. Please also read the instruction manuals for the SZX2 series microscope and other options to understand the comprehensive operating instructions of the microscope system.

⚠ SAFETY PRECAUTIONS

1. After the equipment has been used in an observation of a specimen that is accompanied with a potential of infection, clean the parts coming in contact with the specimen to prevent infection.
   - Moving the illuminator stand is accompanied with the risk of dropping the specimen. Be sure to remove the specimen before moving the illuminator stand.

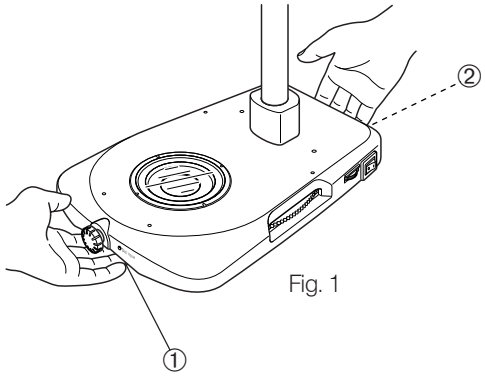


Fig. 1

   - In case the specimen is damaged by erroneous operation, promptly take the infection prevention measures.
   - The microscope may become unstable if its height is increased by the microscope and accessory mounted on the illuminator stand. In this case, take anti-toppling measures to prevent the specimen from being dropped when the microscope system topples down.
2. The LED (Light Emitting Diode) used in the LED illuminator is an LED product classified as follows.

CLASS 1 LED PRODUCT (IEC60825-1: 1993+A1: 1997+A2: 2001)

• Output Max:1mW • Dual Wave length:460nm and 530nm

   - If the LED light is too bright and glaring, use the optional SZX2-CCV or SZX-CCV antiglare plate (see page 10 for the attaching method).
3. Install the zoom microscope body so that the light axis is aligned correctly with the LED illumination light. Even when the transmitted light illumination is not used, the left-right pivot angle of the microscope body must be limited to 30°.
4. Always use the AC adapter and power cord provided by Olympus. If no power cord is provided, please select the power cord by referring to the section "PROPER SELECTION OF THE POWER SUPPLY CORD" at the end of this instruction manual. If the proper AC adapter and power cord are not used, Olympus can no longer warrant the electrical safety performance of the equipment.
5. Always ensure that the grounding terminal is properly grounded. If the equipment is not **grounded/earthed**, Olympus can no longer warrant the electrical safety performance of the equipment.
6. If water or a liquid is spilt on the stage surface of the illuminator stand, treat it quickly and promptly as described in "**2 Maintenance and Storage**" below.

Safety Symbols

The following symbols are found on the equipment. Study the meaning of the symbols and always use the equipment in the safest possible manner.

Symbol	Explanation
⚠	Before use, carefully read the instruction manual. Improper use could result in personal injury to the user and/or damage to the equipment.
◒	Stands for oblique brightfield observation.
I	Indicates that the main switch is ON.
O	Indicates that the main switch is OFF.

1 Getting Ready

1. The LED transmitted light illuminator stand is a precision instrument. Handle it with care and avoid subjecting it to sudden or severe impact.
2. Do not use the equipment where it is subjected to direct sunlight, high temperature and humidity, or vibration. (For the operating environment, see Chapter 3, "SPECIFICATIONS" on page 8.)
3. The LED transmitted light illuminator stand can be used with the following microscope bodies.
   • SZX2 series.
4. Install the LED transmitted light illuminator stand on a desktop surface that is as level as less than 5° from the horizontal plane, and the mounted load should be less than 7 kilograms.
5. This equipment is not provided with the ESD (Electro Static Discharge) compatibility.
6. Light intensity does not change linearly with respect to the rotation of the light intensity control dial.
7. The color tone varies depending on the individual characteristics of the LED.
8. Do not apply an excessive force beyond the stopper mechanism of each control. Otherwise, the control may be damaged.

2 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 use organic solvents to clean non-optical components. If smudges are difficult to clean, wipe them with a soft cloth slightly moistened with a diluted neutral detergent.
3. The stage surface is provided with a simplified waterproof construction. If water is spilt on it, promptly set the main switch to "O" (OFF), unplug the power cord and wipe with a dry cloth. Also remove the stage glass and wipe the window lens and the surroundings with a piece of soft gauze, etc.

⚠ If water penetrates inside the equipment, contact Olympus to have the electrical safety checked.

4. Do not disassemble any part of the equipment as this could result in malfunction or reduced performance.

3 Caution

If the equipment 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).

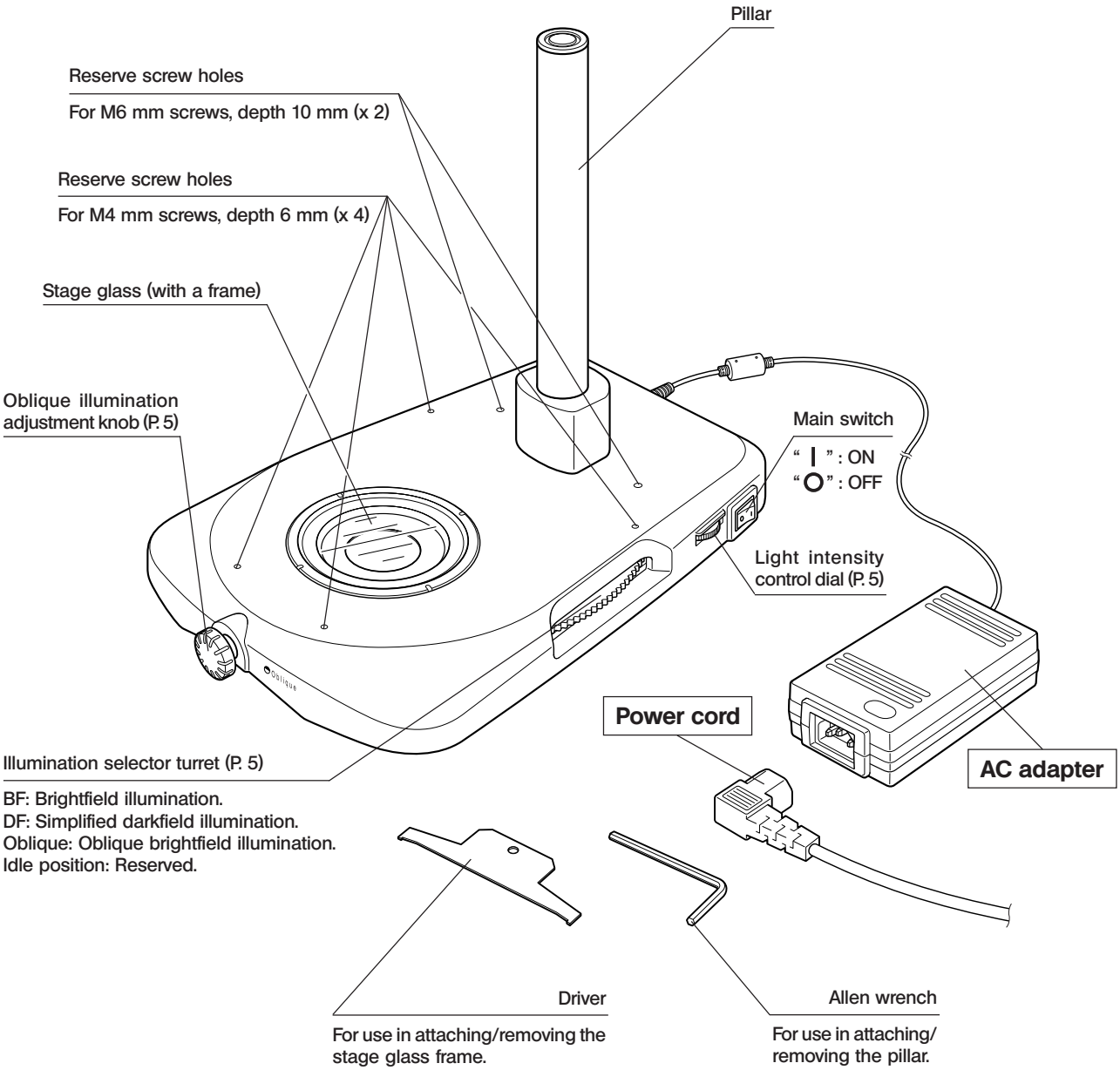
4 Intended use

This instrument has been designed to be used to observe magnified images of specimens in routine and research applications.

Do not use this instrument for any purpose other than its intended use.

1 NOMENCLATURE

◎If you have not yet assembled the illuminator stand, see Chapter 4, "ASSEMBLY" (pages 9 to 10) first.



2 OPERATION

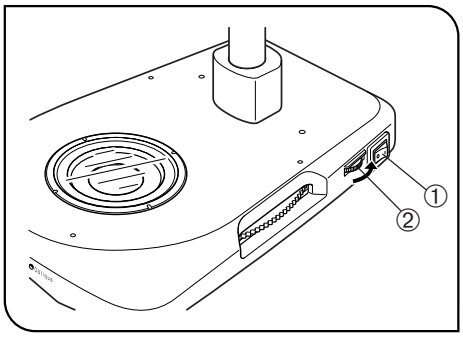


Fig. 2

1 Setting the Main Switch and Adjusting the Light Intensity (Fig. 2)

1. Press the "|" (ON) segment of the main switch ① to turn on the LED illuminator.
2. Rotate the light intensity control dial ② in the direction of the arrow to increase the brightness.

◎The color temperature of the LED illumination is constant even when the light intensity is varied. It is therefore not required to attenuate the light using ND filters.

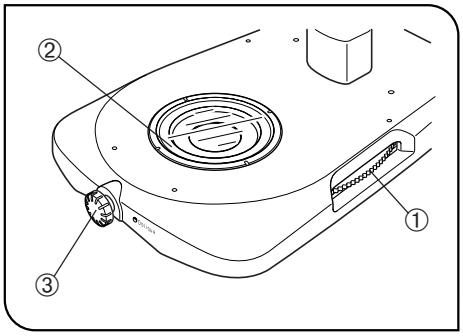


Fig. 3

2 Select the Illumination Method (Fig. 3)

1. Rotate the illumination selector turret ① (the turret is also provided on the left side) into a click position to select the illumination method.
2. The selected illumination method can be confirmed with the indication ② on the illumination cassette that can be seen through the stage glass.

Indications on illumination cassettes	Illumination method
BF	Brightfield illumination
DF	Simplified darkfield illumination
Oblique	Oblique brightfield illumination
– (Idle position)	Reserved

◎The BF and DF cassettes that have been mounted at the factory before shipment can be moved to any position. (See page 7 for the position change method.)

◎The idle position is suitable for observation of high-contrast specimens such as dyed ones.

3. When the oblique illumination is used, the oblique effect can be adjusted by rotating the oblique illumination adjustment knob ③ on the front with the thick of your thumb.

3 Applicable Objectives for Available Illumination Methods

Microscope Body	Objective	Illumination System (○:Zoom observation possible in all magnifications. ≥●●X:Zoom observation possible at ●●X or more)			
		Idle	BF (Brightfield)	Oblique	DF (Darkfield)
SZX16	SDFPLFL0.3X	≥1.25X	≥1.25X	≥2X	≥2X
	SDFPLAPO0.5XPF	≥0.8X	≥0.8X	≥1.25X	≥1.25X
	SDFPLAPO0.8X	○	○	≥0.8X	≥1X
	SDFPLAPO1XPF	○	○	○	○
	SDFPLAPO1.6XPF (*2)	≥ 1.6X	≥ 1.6X	≥ 1.6X	≥ 1.6X (*1)
	SDFPLAPO2XPFC (*2)	≥2X	≥2X	≥2.5X (*1)	≥2X
SZX16 + RFA16	SDFPLFL0.3X	≥1.25X	≥1.25X	≥2X	≥2X
	SDFPLAPO0.5XPF	≥0.8X	≥0.8X	≥1.6X	≥1.25X
	SDFPLAPO0.8X	○	○	≥0.8X	≥1X
	SDFPLAPO1XPF	○	○	○	○
	SDFPLAPO1.6XPF	≥1.6X	≥1.6X	≥1.6X	≥1.6X (*1)
	SDFPLAPO2XPFC (*2)	≥2.5X	≥2.5X	≥2.5X	≥2.5X (*1)
SZX10	DFPL0.5X-4	≥0.8X	≥0.8X	≥1.25X	≥1.25X
	DFPL0.75X-4	○	○	≥0.8X	≥1X
	DFPLAPO1X-4	○	○	○	○
	SZX-ACH1X	○	○	○	○
	DFPLAPO1.25X	○	○	○	○
	SZX-ACH1.25X	○	○	○	○
	DFPL1.5X-4	○	○	○	○
	DFPL2X-4 (*2)	○	○	○	○

The SDFPLAPO1.6X and SDFPLAPO2XPFC have thin tips for facilitating work. As a result, the two extremities of the visual field (right end of the right-eye field and left end of the left-eye field) are cut off at low zoom magnifications.

(*1): Combination of the SDFPLAPO1.6XPF/SDFPLAPO2XPFC and darkfield illumination:
Flare may be observed on the two extremities of the visual field (right end of the right-eye field and left end of the left-eye field) with certain specimens. If this happens, the flare can be eliminated and the contrast can be improved by stopping down the aperture iris diaphragm of the zoom microscope body.

(*2): Combination of a high-power objective and transmitted light observation
The lower part of the field of view may look obscured under darkfield illumination. This may be less noticeable in the BF and idle positions.

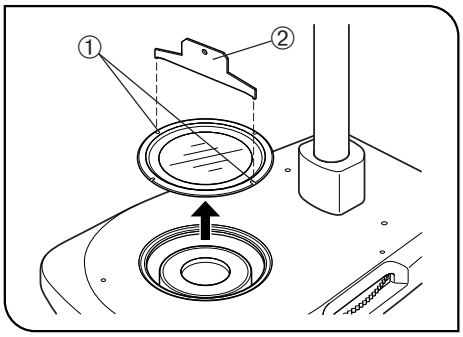


Fig. 4

4 Changing the Illumination Cassette Positions (Figs. 4 & 5)

1. Insert the driver ② into the groove ① on the frame of the stage glass and turn the frame counterclockwise to remove it.
2. Lift the "BF" and "DF" illumination cassettes by lifting them. Leave the "Oblique" cassette in position.

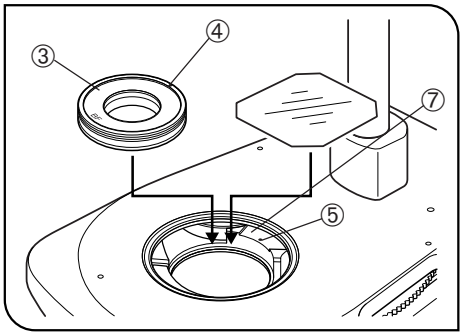


Fig. 5

3. Gently push the BF (or DF) illumination cassette ③ into the desired position by aligning the red index ④ with the index ⑤ on the turret.
4. Place the stage glass in the original position and clamp securely using the driver ②.

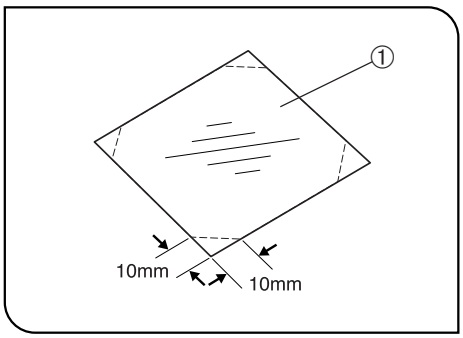


Fig. 6

5 Attaching the Sheet Films (Fig. 6)

◎Commercially available ND and CC sheet films (75 x 75 mm) can be attached on the illumination selector turret.
Up to two sheet films, each with thickness of 0.1 mm, can be attached.

1. Cut the four corners of each sheet film ① using a pair of scissors.
2. Remove the stage glass as described in step 1 of "**4 Changing the Illumination Cassette Positions.**"
3. Place the sheet film(s) on the desired illumination cassette by inserting the rear side of each sheet film into the guide ⑦ on the turret. (Fig.5)
4. Place the stage glass in the original position.

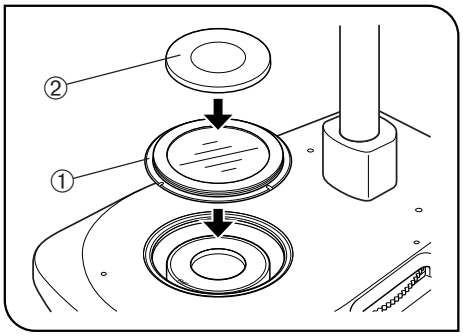


Fig. 7

6 Attaching the Stage Plate (Fig. 7)

◎The stage plate (the SP-FL fluorescence center plate or the SZ2-SPBW/SP-BW2 monochrome plate) can be used in reflected fluorescent light observation, etc.

1. Remove the stage glass using the driver using the procedure as described in step 1 of "**4 Changing the Illumination Cassette Positions.**"
2. Place the stage glass ① upside down on the stage.
3. Place the stage plate ② on the stage glass that is placed upside down.

★**This installation deprives the simplified waterproof function from the illuminator stand. If water is spilt on the stage, always be sure to wipe it immediately.**

3 SPECIFICATIONS

Item	Specifications
Applicable microscopes	SZX2 series: SZX16, SZX10.
Applicable focusing assemblies	SZX2 series: SZX2-FOFH, SZX2-FOF, SZX2-FO. ★**When using a SZX series, always use the SZX-R drop prevention ring to prevent the objective from hitting the specimen (stage glass).**
Transmitted light illumination	White LED illumination. Average life 12800 hours*. With 4-position illumination cassette turret (BF/DF/Oblique/-). Light intensity adjustment possible using a continuously variable dial.
Dimensions & weight	Base section dimensions: 267(W) x 369(D) x 41(H) mm, 3.7 kg
Input rating	1.5 V DC, 1 A (AC adapter: 100-240 V AC, 1.1 A, 50-60 Hz)
Operating environment	• Indoor use. • Altitude: Max. 2,000 m. • Ambient temperature: 5°C to 40°C. (41°F to 104°F) • Maximum relative humidity 80% for temperatures up to 31°C (88°F), decreasing linearly through 70% (at 34°C), 60% (at 37°C) to 50% (at 40°C). • Supply voltage fluctuation: ±10%. • Pollution degree: 2 (IEC60664) • Installation category (overvoltage category): II (IEC60664)

* When the initial illuminance is 50%.

4 ASSEMBLY

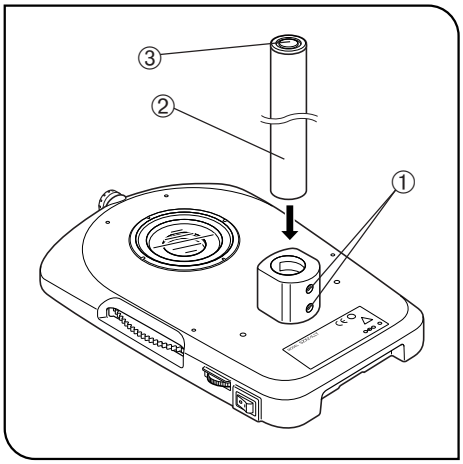


Fig. 8

1 Installing the Pillar (Fig. 8)

1. Using the Allen wrench provided with the illuminator stand, loosen the two clamping screws ① on the pillar support sleeve completely.
2. Hold the pillar ② so that the Allen screwdriver storage hole ③ comes at the top, and insert the pillar into the pillar support sleeve until it reaches the bottom.
3. Tighten the two clamping screws ① securely using the Allen wrench.

◎A long pillar such as the SZH-P400 (400 mm) or SZH-P600 (600 mm) auxiliary pillar can also be installed. However, as this makes the microscope body to be displaced to a higher position and deteriorates the stability, be sure to take the toppling prevention measures and to use the SZX-R drop prevention ring.

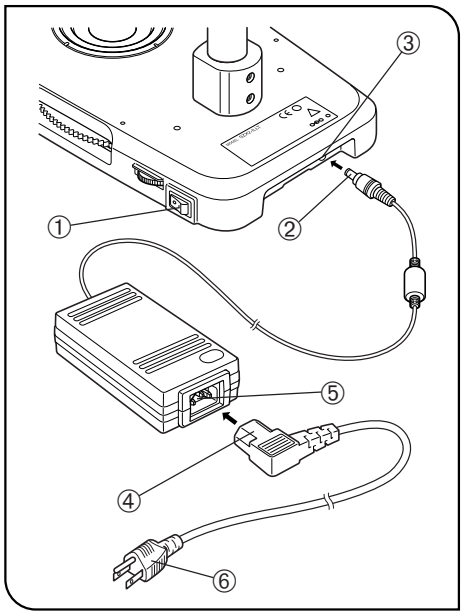


Fig. 9

2 Connecting the AC Adapter and Power Cord (Fig. 9)

⚠Cables and cords are vulnerable to bend or twist. Do not apply excessive force to them.

⚠Make sure that the main switch ① is set to "○" (OFF) before connecting the AC adapter and power cord.

⚠Always use the AC adapter and power cord provided by Olympus. If no power cord is provided, please select the power cord by referring to the section "PROPER SELECTION OF THE POWER SUPPLY CORD" at the end of this instruction manual. If the proper AC adapter and power cord are not used, Olympus can no longer warrant the electrical safety performance of the equipment.

⚠Use only the AC adapter specified by Olympus.

1. Connect the AC adapter plug ② to the AC receptacle ③ on the illuminator stand.
2. Connect the power cord connector ④ to the AC receptacle ⑤ of the AC adapter.
3. Connect the power cord plug ⑥ to a 3-conductor power outlet.

⚠Connect the provided power cord correctly and ensure that the grounding terminal of the power supply and that of the 3-conductor wall outlet are properly connected. If the equipment is not grounded, Olympus can no longer warrant the electrical safety performance of the equipment.

3 Attaching the Antiglare Plate (Figs. 10 & 11)

◎The antiglare plate attaching methods are variable between model SZX2-CCV (for use with the SZX2 series) and SZX-CCV (for use with the SZX series).

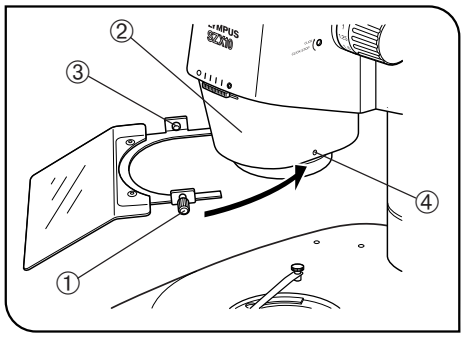


Fig. 10

SZX2-CCV

1. Loosen the antiglare plate clamping knob ① and insert the pin ③ on the antiglare plate into the positioning hole on the left side of the zoom microscope body ②.
2. Rotate the antiglare plate in the direction of the arrow so that it comes in close contact with the zoom microscope body.
3. Insert the clamping knob ① into the positioning hole ④ on the right side, and tighten the knob to fix the antiglare plate.

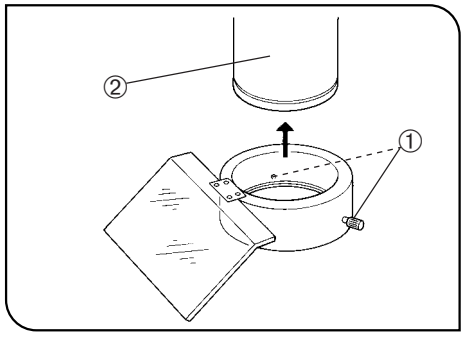


Fig. 11

SZX-CCV

1. Loosen the two antiglare plate clamping knobs ① and fit the antiglare plate into the tip of the objective ②.
2. Tighten the two clamping knobs ① to fix the antiglare plate.

PROPER SELECTION OF THE POWER SUPPLY CORD

If no power supply cord is provided, please select the proper power supply cord for the equipment by referring to " Specifications " and " Certified Cord " below:

CAUTION: In case you use a non-approved power supply cord for Olympus products, Olympus can no longer warrant the electrical safety of the equipment.

Specifications

Voltage Rating	125V AC (for 100-120V AC area) or, 250V AC (for 220-240V AC area)
Current Rating	6A minimum
Temperature Rating	60°C minimum
Length	3.05 m maximum
Fittings Configuration	Grounding type attachment plug cap. Opposite terminates in molded-on IEC configuration appliance coupling.

Table 1 Certified Cord

A power supply cord should be certified by one of the agencies listed in Table 1 , or comprised of cordage marked with an agency marking per Table 1 or marked per Table 2. The fittings are to be marked with at least one of agencies listed in Table 1. In case you are unable to buy locally in your country the power supply cord which is approved by one of the agencies mentioned in Table 1, please use replacements approved by any other equivalent and authorized agencies in your country.

Country	Agency	Certification Mark	Country	Agency	Certification Mark
Argentina	IRAM		Italy	IMQ	
Australia	SAA		Japan	JET, JQA, TÜV, UL-APEX / MITI	
Austria	ÖVE		Netherlands	KEMA	
Belgium	CEBEC		Norway	NEMKO	
Canada	CSA		Spain	AEE	
Denmark	DEMKO		Sweden	SEMKO	
Finland	FEI		Switzerland	SEV	
France	UTE		United Kingdom	ASTA BSI	
Germany	VDE		U.S.A.	UL	
Ireland	NSAI				

Table 2 HAR Flexible Cord

APPROVAL ORGANIZATIONS AND CORDAGE HARMONIZATION MARKING METHODS

Approval Organization	Printed or Embossed Harmonization Marking (May be located on jacket or insulation of internal wiring)		Alternative Marking Utilizing Black-Red-Yellow Thread (Length of color section in mm)		
			Black	Red	Yellow
Comite Electrotechnique Belge (CEBEC)	CEBEC	‹HAR›	10	30	10
Verband Deutscher Elektrotechniker (VDE) e.V. Prüfstelle	‹VDE›	‹HAR›	30	10	10
Union Technique de l´Electricite´ (UTE)	USE	‹HAR›	30	10	30
Instituto Italiano del Marchio di Qualita´ (IMQ)	IEMMEQU	‹HAR›	10	30	50
British Approvals Service for Electric Cables (BASEC)	BASEC	‹HAR›	10	10	30
N.V. KEMA	KEMA-KEUR	‹HAR›	10	30	30
SEMKO AB Svenska Elektriska Materielkontrollanstalter	SEMKO	‹HAR›	10	10	50
Österreichischer Verband für Elektrotechnik (ÖVE)	‹ÖVE›	‹HAR›	30	10	50
Danmarks Elektriske Materialkontroll (DEMKO)	‹DEMKO›	‹HAR›	30	10	30
National Standards Authority of Ireland (NSAI)	‹NSAI›	‹HAR›	30	30	50
Norges Elektriske Materiellkontroll (NEMKO)	NEMKO	‹HAR›	10	10	70
Asociacion Electrotecnica Y Electronica Espanola (AEE)	‹UNED›	‹HAR›	30	10	70
Hellenic Organization for Standardization (ELOT)	ELOT	‹HAR›	30	30	70
Instituto Portages da Qualidade (IPQ)	np	‹HAR›	10	10	90
Schweizerischer Elektro Technischer Verein (SEV)	SEV	‹HAR›	10	30	90
Elektriska Inspektoratet	SETI	‹HAR›	10	30	90

Underwriters Laboratories Inc. (UL)	SV, SVT, SJ or SJT, 3 X 18AWG
Canadian Standards Association (CSA)	SV, SVT, SJ or SJT, 3 X 18AWG

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