OLYMPUS®

Optional Module

SZX2-ILD
SXZ2-ILPS

INSTRUCTIONS

LED COAXIAL ILLUMINATOR SYSTEM

This instruction manual is for the Olympus LED Coaxial Illuminator System. To ensure safety, obtain optimum performance, familiarize yourself fully 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.

AX7557

Printed on 100% recycled paper with soy ink.

CONTENTS

IMPORTANT

⚠ SAFETY PRECAUTIONS

1. Always use the power cord provided by Olympus.
2. Always **ground** the Power Supply.
3. The Power Supply incorporates high-voltage parts inside. Do not open the cover of this unit to prevent electric shock.

Notes on the LED (Light Emitting Diode) Safety

The LED built into the SZX2-ILD LED Coaxial Illuminator is categorized a Class 1 LED product by the following standards. It is basically safe but it is discommended to stare at the light from the LED Coaxial Illuminator for a long period as this could damage your eye.

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

Safety Symbols

The following symbols are found on the SZX2-ILPS Power Supply. 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.
I	Indicates that the main switch is ON.
O	Indicates that the main switch is OFF.

1 Getting Ready

1. This manual pertains only to the operating procedure of the LED Coaxial Illuminator System. Make sure that you also read the instruction manuals for the SZX2 microscope and ancillary modules so that you understand the overall operating instructions of the entire microscope system.
2. The LED Coaxial Illuminator System is a precision instrument. Handle it with care and avoid subjecting it to sudden or severe impact.
3. Do not use the LED Coaxial Illuminator System where it may be subjected to direct sunlight, high temperatures and humidity, dust or vibrations (for the operating environment, see Chapter 4, "SPECIFICATIONS" on page 10).
4. The variance in phase due to variance of individual LEDs has been adjusted using the provided exclusive set. Therefore, do not use a different set with this LED Coaxial Illuminator.

2 Maintenance and Storage

1. Clean the LED light emitting parts by blowing dirt away with a commercially available blower and then wiping lightly with a piece of cleaning paper (or freshly washed clean gauze). To remove fingerprints or oil smudges, wipe with cleaning paper 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 the parts other than the LED light emitting parts. If smudges are difficult to clean, wipe them with a soft cloth slightly moistened with a diluted neutral detergent.
3. Never disassemble any part of the system as this could cause malfunctions or reduced performance.
4. When disposing of this system, be sure to follow your local regulations or ordinances.

3 Caution

If the system 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 the 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 the equipment.
◎: Indicates commentary (for ease of operation and maintenance).

CE Marking

This device complies with the requirements of both directive 89/336/EEC, 2004/108/EC concerning electromagnetic compatibility and directive 73/23/EEC concerning low voltage. The CE marking indicates compliance with the above directives.

FCC

This device has been subjected to the compliance evaluation of the following FCC regulation:
FCC Part 15, Subpart B: Radio Frequency Equipment (Commercial and industrial areas)

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.

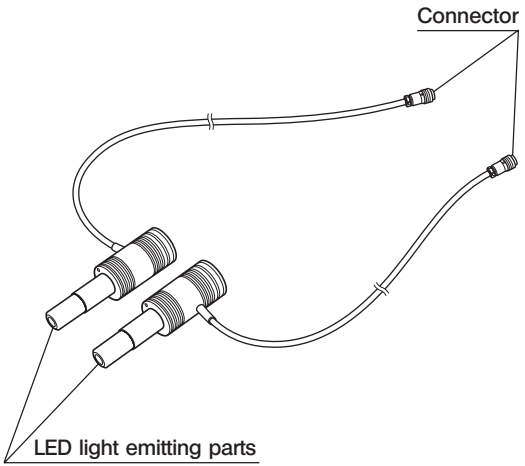
FCC WARNING: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

1 NOMENCLATURE

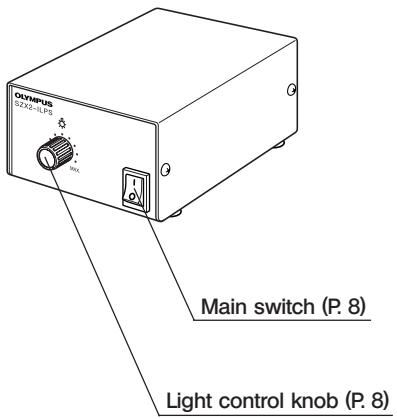
◎To perform microscopic observation using the LED Coaxial Illuminator System, the following modules are required in addition to this system.

- Applicable microscope: SZX16/SZX10/SZX7
- Applicable coaxial vertical illuminator: SZX2-ILLC16 (for SZX16)
  SZX2-ILLC10 (for SZX10/SZX7)

LED Coaxial Illuminator SZX2-ILD



Power Supply for LED Coaxial Illuminator SZX2-ILPS

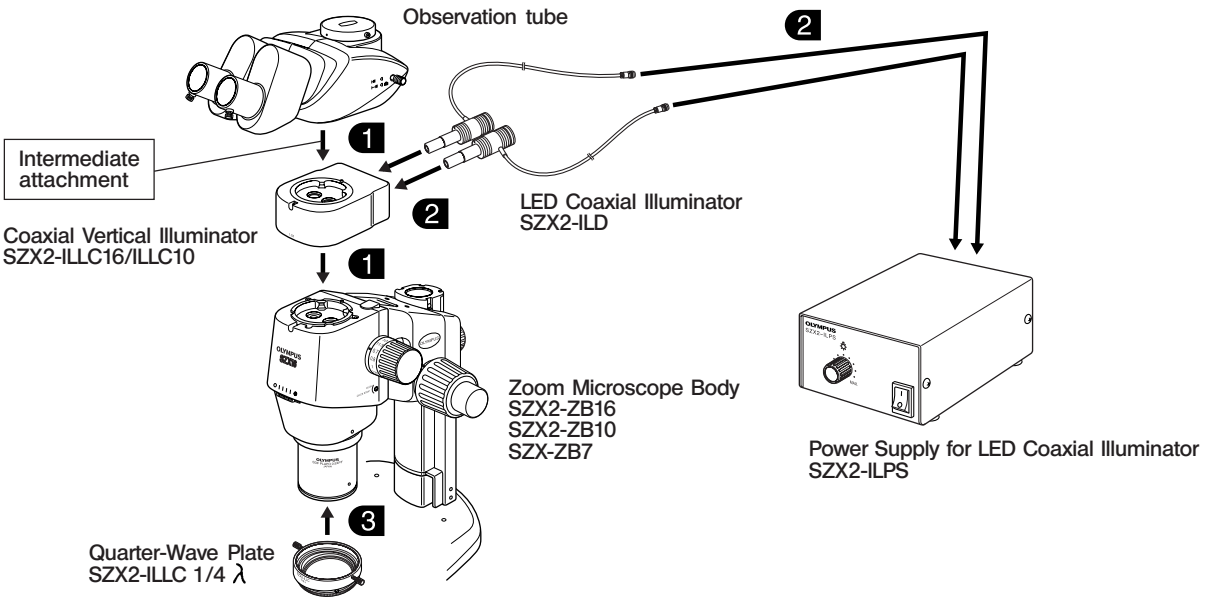


2 ASSEMBLY

The diagram below shows how to assemble the various modules. The numbers indicate the order of assembly.

★**When assembling the system, make sure that all parts are free of dust and dirt, and avoid scratching any part.**

◎The SZX2-ILLC16/ILLC10 must always be mounted directly above the zoom microscope body.
The SZX2-ILLC16/ILLC10 is not counted in the number of intermediate attachments, so an additional intermediate attachment can be mounted.



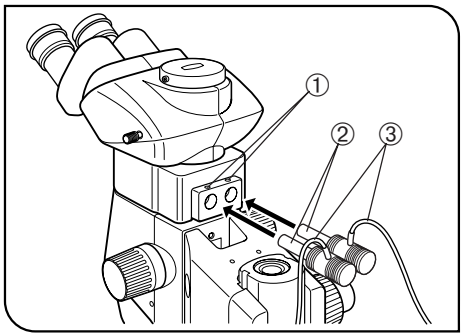


Fig. 1

1 Attaching the LED Coaxial Illuminator (Figs. 1-3)

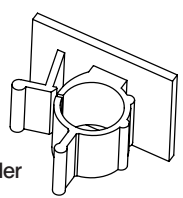
▲Cables and cords are vulnerable to bend or twist. Do not apply excessive force to them.

▲Make sure that the main switch of the power supply is set to "O" (OFF) before connecting the power cord.

▲Always use the 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 power cord is not used, Olympus can no longer warrant the electrical safety performance of the equipment.

1. Using the Allen screwdriver provided with the microscope body, loosen the clamping screws ① on the SZX2-ILLC16/ILLC10 coaxial vertical illuminator, While pointing the connecting sections of the cables ③ up, insert the LED light emitting parts ② of the SZX2-ILD LED Coaxial Illuminator all the way into the mounting ports (the insertion resistance will increase in the middle due to springs), and tighten the clamping screws ①.

◎To prevent the two SZX2-ILD cables from interfering with microscope operation, put them together by using the provided cable holder (see figure below). Then peel off the protective covering from the double-sided adhesive tape and attach the holder to the desired position such as on the microscope frame or focusing assembly.



Cable holder

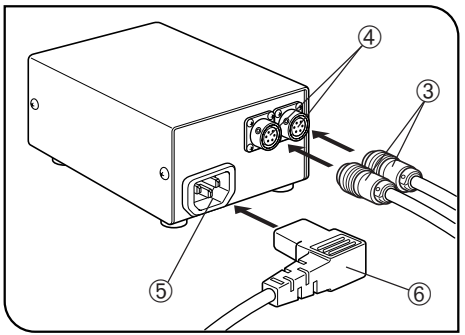


Fig. 2

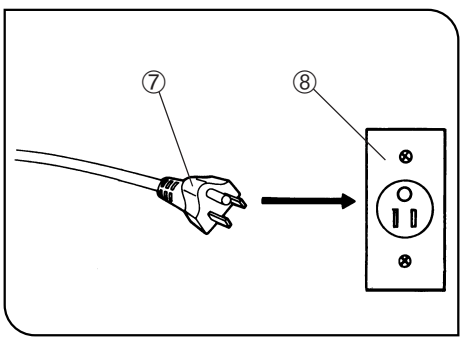


Fig. 3

2. Insert the connector ③ of the SZX2-ILD firmly into the OUTPUT connector ④ on the rear panel of the SZX2-ILPS.
3. Insert the connector ⑥ of the power cord into the power cord connector ⑤ of the SZX2-ILPS, and insert the power cord plug ⑦ into the power outlet ⑧.

▲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.

▲Unplugging the power cord is also used to stop power supply in case of emergency. Set up the Power Supply so that the power cord connector (on the back of the unit) or the power cord plug is within your reach.

3 OPERATION

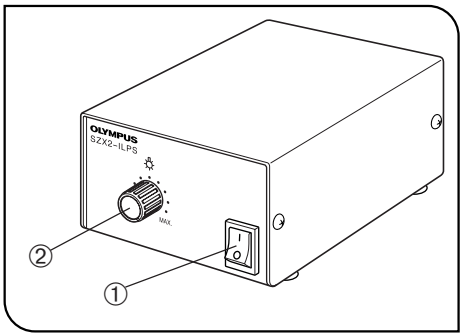


Fig. 4

1 Adjusting the Brightness (Fig. 4)

1. Set the main switch ① of the SZX2-ILPS Power Supply to "|" (ON) and turn the light intensity control knob ② clockwise to adjust the brightness.

* The light intensity control does not alter the color temperature. However, while the color temperature of daylight (natural light) is 5500K to 6000K, that of the LED light is 6500K, so the LED light may look slightly bluish.

2 Available Observation Magnifications

3 Adjusting the Orientation of the Quarter-Wave Plate

◎ The detailed operation is identical to the description in the Instruction Manual for the SZX2-ILLC16/ILLC10 Coaxial Vertical Illuminator. Please refer to its instruction manual.

4 SPECIFICATIONS

■ LED Coaxial Illuminator SZX2-ILD

Item	Specification
LED color	White
Color temperature	Max. 8000K Min. 5000K
Dimensions	ϕ 22 x 78 mm Cable length: 1500 mm
Weight	80 g
Average life	Approx. 20000 hours (Ambient temperature 20°C, light intensity level 50%)

■ Power Supply SZX2-ILPS

Item	Specification
System	Constant-current lighting, 2 circuits
Output current variation	0 to 630 mA
Rated supply voltage	100-240 V AC, 0.2-0.1 A, 50/60 Hz
Power consumption	12 W
Dimensions	95(W) x 132(D) x 55(H) mm (excluding projections)
Weight	600 g

■ Common Specifications to SZX2-ILD/ILPS

Item	Specification
Operating environment	• Indoor use. • Altitude: Max. 2000 meters. • 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 (93°F), 60% at 37°C (99°F), to 50% relative humidity at 40°C (104°F). • Main supply voltage fluctuations not to exceed ±10% of nominal voltage. • Pollution degree: 2 (in accordance with IEC60664) • Installation/Overvoltage category: II (in accordance with IEC60664)

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

MEMO

OLYMPUS®

OLYMPUS CORPORATION
Shinjuku Monolith, 3-1, Nishi Shinjuku 2-chome, Shinjuku-ku, Tokyo, Japan
OLYMPUS LIFE AND MATERIAL SCIENCE EUROPA GMBH
Postfach 10 49 08, 20034, Hamburg, Germany
OLYMPUS AMERICA INC.
2 Corporate Center Drive, Melville, NY 11747-3157, U.S.A.
OLYMPUS SURGICAL & INDUSTRIAL AMERICA INC.
One Corporate Drive, Orangeburg, NY 10962, U.S.A.
OLYMPUS SINGAPORE PTE LTD.
491B River Valley Road, #12-01/04 Valley Point Office Tower, Singapore 248373
OLYMPUS UK LTD.
2-8 Honduras Street, London EC1Y OTX, United Kingdom.
OLYMPUS AUSTRALIA PTY. LTD.
31 Gilby Road, Mt. Waverley, VIC 3149, Melbourne, Australia.
OLYMPUS LATIN AMERICA, INC.
6100 Blue Lagoon Drive, Suite 390 Miami, FL 33126-2087, U.S.A.

Printed in Japan 2006 09 M 010–①