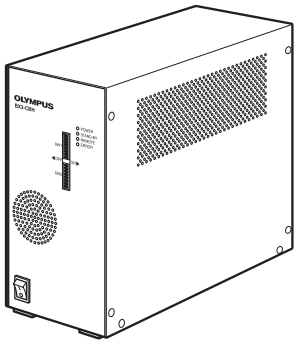


INSTRUCTIONS

BX3-CBH
U-MCZ

CONTROL BOX
CONTROLLER

Optical Microscope Accessory

To ensure the safety, obtain optimum performance and to familiarize yourself fully with the use of the BX63 motorized microscope, we recommend that you study this manual thoroughly before operating the microscope.

This product is applied with the requirements of standard IEC/EN61326-1
concerning electromagnetic compatibility.
- Immunity Industrial and basic electromagnetic environment
Emissions exceeding the level required by aforementioned standards may occur if
this product is electrically connected to other equipment.

In accordance with European Directive 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 our distributor in EU for return and/or collection systems available in your country.

NOTE: This product 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 product is operated in a commercial environment. This product 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 product 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 product.

FCC Supplier's Declaration of Conformity

Hereby declares that the product
Product name: Optical Microscope Accessory
Model Number: BX3-CBH

Conforms to the following specifications:
FCC Part 15, Subpart B, Section 15.107 and Section 15.109

Supplementary 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.

Responsible Party Name: Evident Scientific, Inc.
Address: 48 Woerd Ave Waltham, MA 02453, USA
Phone Number: 781-419-3900

For Korea only

이 기기는 업무용 환경에서 사용할 목적으로 적합성평가를 받은 기기로서 가정용 환경에서 사용하는 경우 전파간섭의 우려가 있습니다.

CONTENTS

IMPORTANT

The BX3-CBH control box is one of the basic modules for the BX63 microscope It is used to control the motorized drive operations of the microscope system and incorporates the power supply circuitry for this purpose. When it is used in the standalone mode, the motorized operations can be controlled from the touch panel controller (provided with the BX63) or the U-MCZ controller.

⚠ SAFETY PRECAUTIONS

1. Be sure to set the main switch of the BX3-CBH control box to " O " (OFF) before connecting cables.
   Also when the connected cable is going to be disconnected, make sure that the main switch is in the the " O " (OFF) position.
2. Always ensure that the grounding terminal of the microscope and that of the wall outlet are properly connected. If the equipment is not grounded, we can no longer warrant the electrical safety performance of the equipment.
3. When installing the control box, be sure to place it vertically while allowing a clearance of 10 cm or more around it (the front and side panels have the air outlets for the cooling fans).
4. Route the power cord and connection cables away from the lamp housing and its surroundings. Should a cord or cable come in contact with the hot lamp housing, the cord or cable could melt and cause electric shock.
5. Use only power cord which we specify. Otherwise the safety and EMC performance of the product can not be assured.

Safety Symbols

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

Symbol	Explanation
⚠	Indicates a non-specific general hazard. Follow the description given after this symbol or in instruction manual.
I	Indicates that the main switch is ON.
O	Indicates that the main switch is OFF.

1 Getting Ready

1. These products are precision instruments. Handle them with care avoiding subjecting them to sudden or severe impact and also connect the cables gently.
2. Do not use the instruments where they are subjected to direct sunlight, high temperature and humidity, dust or vibrations. (For the operating conditions, refer to chapter 3, "SPECIFICATIONS" on page 7.)
3. When the main switch of the BX3-CBH is " **I** " (ON), do not change the modules, connect/disconnect cables or perform manual switching operations except for those that are permitted in this manual, as this could result in malfunction.
4. To clean the lenses and other glass components, simply blow dirt 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.
5. Do not disassemble or modify any part of the instruments, as this could result in malfunction.
6. When the microscope needs to be packaged for forwarding to a remote location, contact us (to obtain advice for guaranteeing the performance).
7. When the accessories of this product are used, make sure that the system height does not exceed 1 meter. Otherwise, the stability of the device will be lost.
8. Before disposing of this product, be sure to follow the regulations and rules of your local government.

2 Intended use

This product has been designed to be used to observe magnified images of specimens in various routine work and research applications.
Do not use this product for any purpose other than its intended use.

3 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.

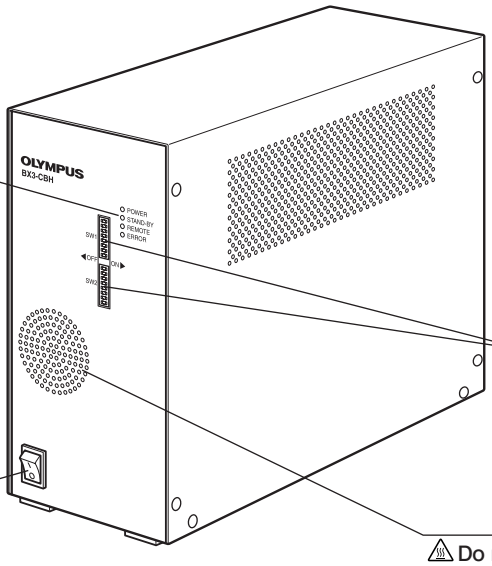
The following symbols are used to set off text in this instruction manual.

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

◎ : Indicates commentary (for ease of operation and maintenance).

1 MODULE NOMENCLATURE

Control Box BX3-CBH



Indicator LEDs

POWER: Power status indicator.
STAND-BY: Standby mode indicator.
REMOTE: Remote control indicator.
ERROR: Error indicator
(which flashes in case of an error)

DIP switch

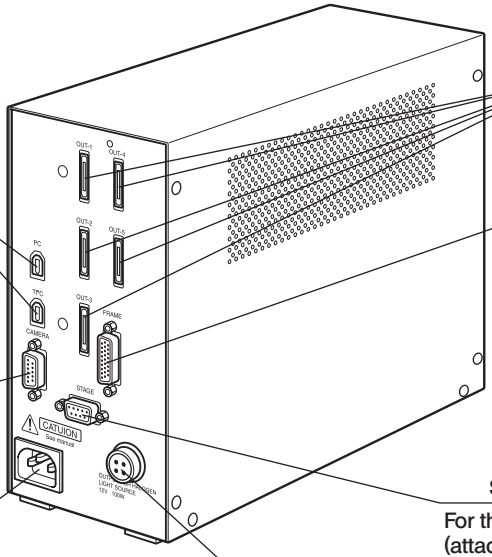
For use in operation setting.
(See page 5 for details.)

Main switch

I : ON O : OFF

Cooling fan outlet

⚠ Do not block this outlet!!
(Allow a clearance of at least 10 cm.)



OUT 1 to 5 connectors

Universal outputs to the respective modules.

TPC/PC connectors

For the touch panel controller (TPC) and personal computer (PC).

FRAME connector

For the microscope frame.

CAMERA connector

For the DP series camera.

STAGE connector

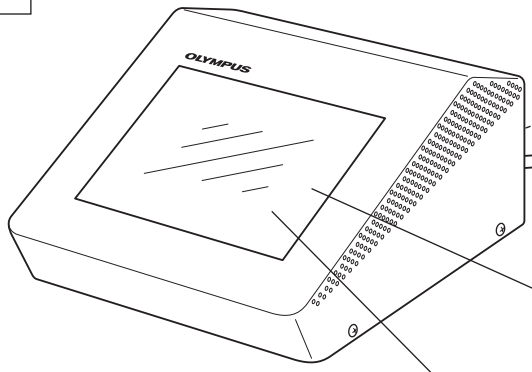
For the control box (attached to BX3-SSU).

Power cord connector

100 W halogen lamp housing connector

Touch panel controller (provided with the BX63F)

◎For details, read the instruction manual for the BX63.

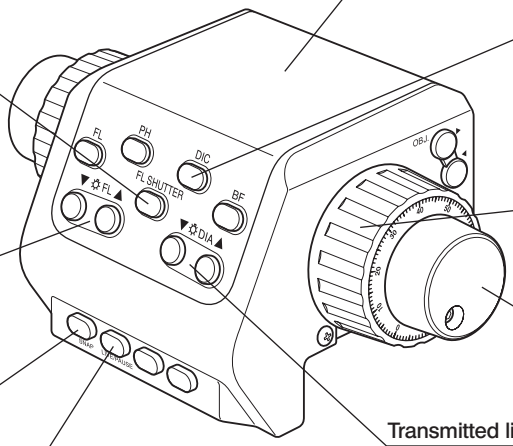


Main switch
ON :One short press
OFF :One short press

Touch panel
Touch to control the desired operations.

Protection sheet is provided at the time of shipment.
Peel off the protection sheet before use.

Controller U-MCZ



SHUTTER button

Observation mode selector buttons
- PH: Phase contrast observation
- FL: Fluorescence observation
- DIC: Differential interference contrast observation
- BF: Brightfield observation

Coarse adjustment knob

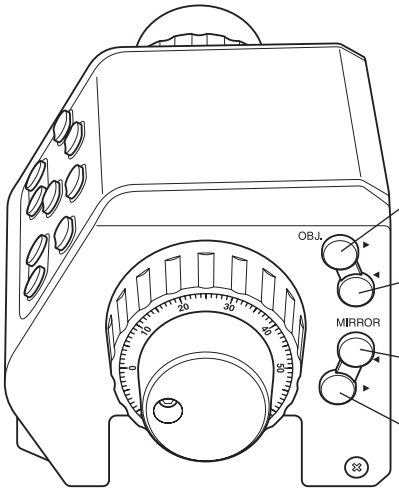
Fluorescence brightness control buttons ▼▲
Switches the U-AW motorized attenuator wheel.

Fine adjustment knob
Detachable.

SNAP (still image capture) button

LIVE/PAUSE button

Transmitted light brightness control buttons ▼▲
LED lamp: Adjusts the LED brightness.
Halogen bulb: Switches the U-AW motorized attenuator wheel.



Objective switching button ▲
Switches the revolving nosepiece position to a larger number.

Objective switching button ▼
Switches the revolving nosepiece position to a smaller number.

Mirror unit switching button ▲
Switches the mirror unit position to a larger number.

Mirror unit switching button ▼
Switches the mirror unit position to a smaller number.

2 OPERATION

2-1 Control Box BX3-CBH

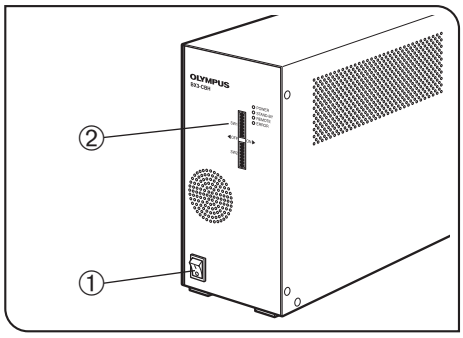


Fig. 1

1 Setting the DIP Switch Operation (Fig. 1)

◎The DIP switches are covered with a dust-protection sticker. Remove the sticker carefully and replace it in its original position when the setting is complete.

CAUTION

- **Be sure to set the main switch ① to " O " (OFF) before changing the DIP switch setting (ON-OFF switching).**
  The DIP switch setting is entered at the moment the main switch is set to " I " (ON).
- **Be careful not to touch the internal circuit boards when setting the DIP switches. If a circuit board is contacted, it may be destroyed by the static electricity. Since a human body is charged with a small amount of static electricity, it should be discharged from your body before proceeding to setting. The static electricity in your body can be discharged by simply touching any metallic object.**

DIP SW 1-4 ②

OFF: Confirmation tone is generated. (Default)
ON: Confirmation tone is not generated.

Other DIP SW

All of them are reserved for the manufacturer's use.

DIP SW1-6 *

OFF: When you start the system, the XY stage moves to the last position when you exited the system.
ON: When you start the system, the XY stage moves to the origin position.

DIP SW1-7 *

OFF: When you start the system, the focus position of the objective lens moves to the last position when you exited the system.
ON: When you start the system, the focus position of the objective lens moves to the origin position.

* Setting is possible only when V01.02.01 or the later version of the software BX3-BSW is installed in the touch panel controller.

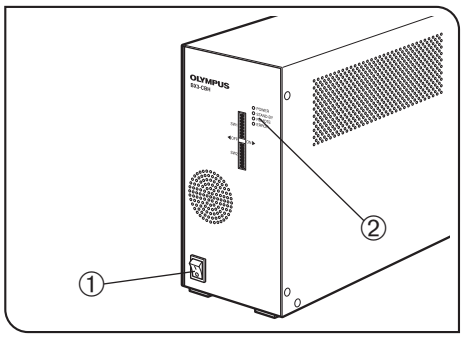


Fig. 2

2 Turning Power ON (Fig. 2)

◎Confirm that the modules to be used are connected properly (page 8).

1. Set the main switch ① to " I " (ON) and then set the main switch of the touch panel controller to " I " (ON).
2. Check the Indicator LEDs.
   - POWER: Should light green when the main switch is " I " (ON).
   - STAND-BY: Should flash orange in the standby mode.
   - REMOTE: When this indicator LED lights in blue, controlling is possible on the touch panel controller.
   - ERROR: Should flash red in case of an error.

2-2 Controller U-MCZ

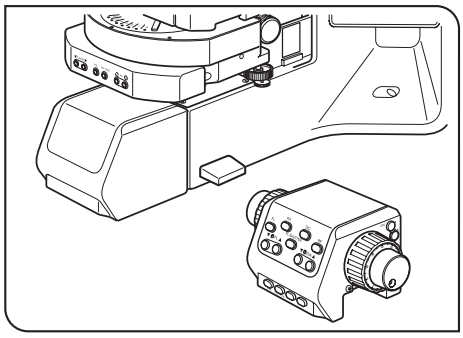


Fig. 3

1 Installing the Controller (Figs. 3 to 5)

◎The controller can either be placed on a desktop or mounted on the front of the microscope frame.

Desktop installation (Fig. 3)

After connecting the cable (see page 8), place the Z-controller in an easy-to-control position on a desktop.

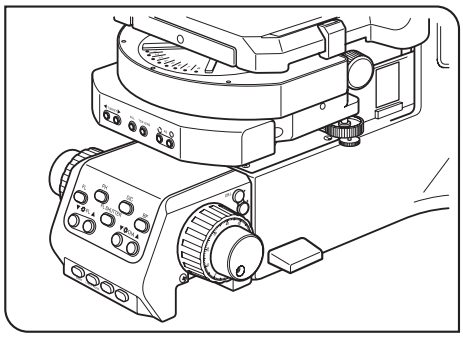


Fig. 4

Microscope mounting (Fig. 4 & 5)

When the controller is placed on the front of the microscope frame, lay the U-MCZ cable along the left side of the microscope frame (when viewed from the front) or through the bottom of the microscope frame.
To lay the cable through the bottom of the microscope frame, ask us to perform the installation work.
Installation by the user is possible if the cable is laid along the left side of the microscope frame.

CAUTION
- **When laying the cable along the left side of the microscope frame, be careful not to damage the cable by letting it get caught by the top of a desk or by the microscope frame.**
- **Be careful not to hold it by the U-MCZ. It is installed in a manner that it is easily detached and damaged if pulled upward.**

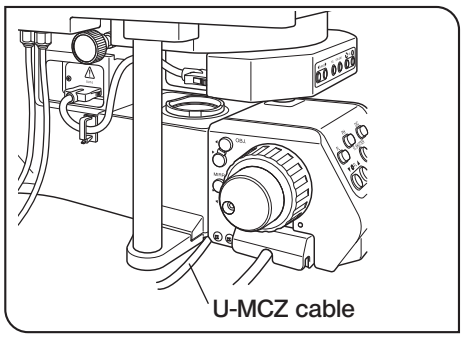


Fig. 5

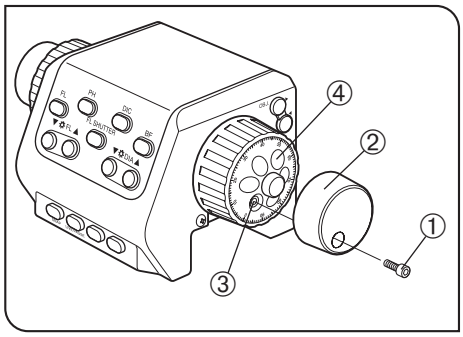


Fig. 6

2 Removing the Fine Adjustment Knobs (Fig. 6)

◎Fine focus adjustment is possible even when the fine adjustment knobs installed on both sides of the controller are removed.

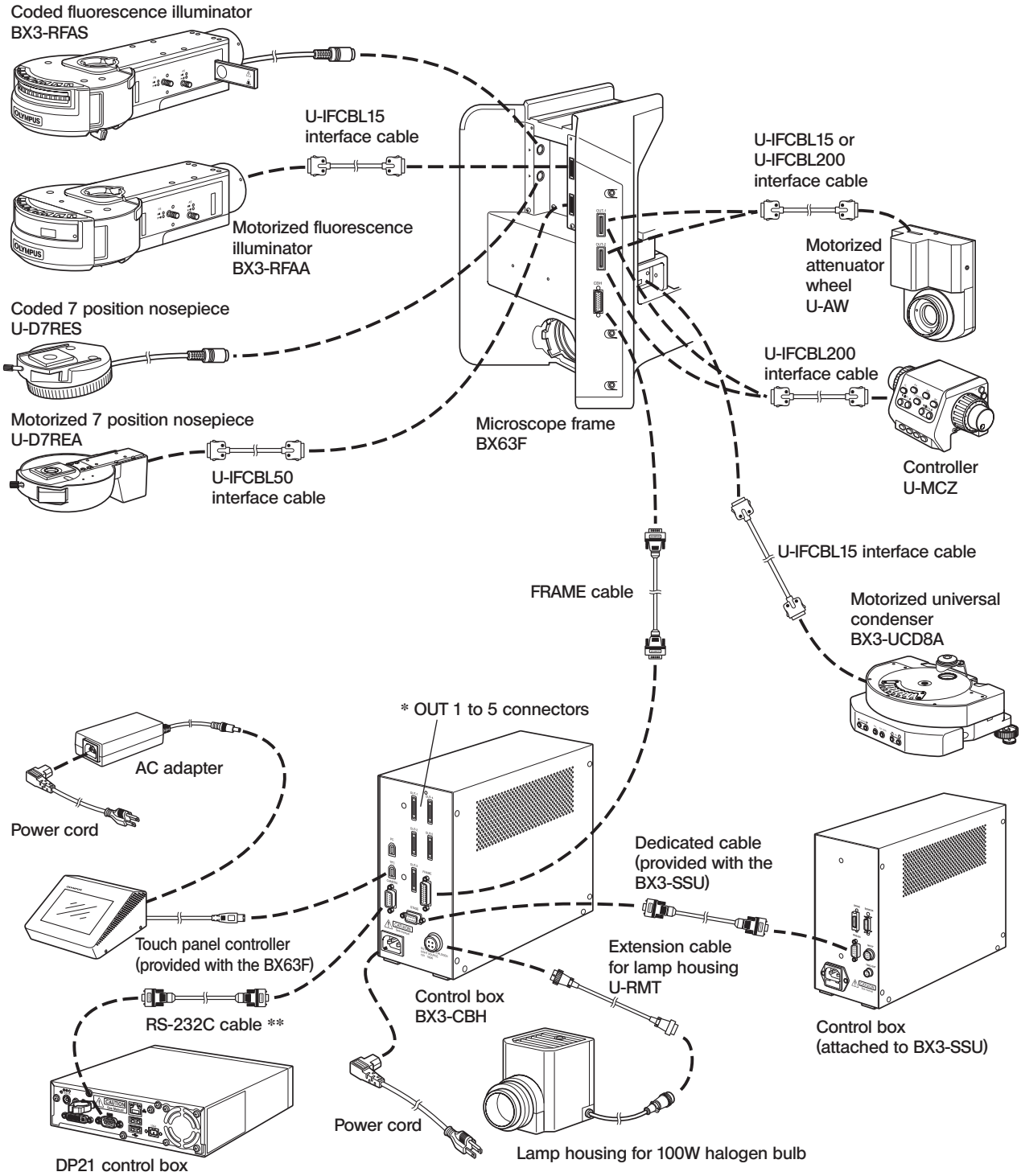
1. Loosen the clamping screw ① with an Allen screwdriver and remove the fine adjustment knob ②.
2. Attach the provided sticker the hole ③ from which the screw was removed.
3. The fine adjustment dial ④ left after the knob is removed can be turned with the tip or ball of your finger.

3 SPECIFICATIONS

Item	Specification
Control Box BX3-CBH	
Rating	100-120/220-240 V ∿ 50/60 Hz 4.6/2.8 A
Indicator LEDs	• POWER LED. • STANDBY LED. • REMOTE LED. • ERROR LED: Flashes in case of an error.
Dimensions and weight	100 (W) x 215 (H) x 280 (D) mm, 4.2 kg
Controller U-MCZ	
Button functions	• Observation mode selection. • SHUTTER. • Transmitted light brightness control. • Fluorescence brightness control. • Objective switching (left/right). • Mirror unit switching (left/right). • SNAP (Still image capturing). • LIVE/PAUSE switching.
Focusing control (when combined with the BX63)	• Motorized drive using a stepping motor. • Moving distance of fine adjustment handle by minimum scale: 1um *1 • Moving distance of coarse adjustment handle by one rotation: 1mm *1 *2 • Resolution: 0.01 μm. Maximum speed: 5 mm/sec. • Stroke: 20 mm up, 0 mm down with respect to the position focusing on the stage top surface. *1 The moving distance is just a rough indication. The actual moving distance is displayed on touch panel controller. *2 The moving distance varies depending on the speed to rotate the handle.
Dimensions and weight	203 (W) x 97 (H) x 110.5 (D) mm, 2.1 kg
Operating environment	
• Indoor use. • Altitude: Max. 2000 meters • Ambient temperature: 5° to 40°C (41° 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). • Supply voltage fluctuations: ±10% • Pollution degree: 2 (in accordance with IEC60664-1) • Installation/Overvoltage category: II (in accordance with IEC60664-1)	
Transport/Storage environment	
• Temperature: Min. –25°C, Max. 65°C • Humidity: Min. 0%, Max. 90%	

4 SYSTEM CONNECTIONS

CAUTION
- Be sure to set the main switch of the BX3-CBH control box to "O" (OFF) before proceeding to connections.
- Each connector must always be connected to the module designated by us. When connecting each connector, align the orientation of the male connector with the female connector and insert securely. If a connector has the lock screws, also tighten them firmly.



* The OUT 1 to 5 connectors accept the connections of the U-AW, U-MCZ, etc.

** The RS-232C cables should be commercially available straight cables (D-sub 9-pin female − D-sub 9-pin female).

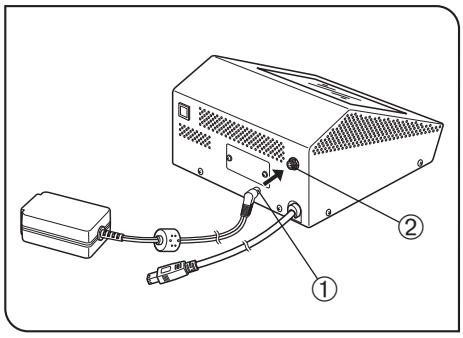


Fig. 7

1 Attaching the AC Adapter (Fig. 7)

CAUTION • **Cables and cords are vulnerable when bent or twisted. Never subject them to excessive force.**

1. Insert the connector ① of the AC adapter firmly into the connector ② on the touch panel controller.

CAUTION **Always use the designated AC adapter. Using a non-designated AC adapter may cause malfunction.**

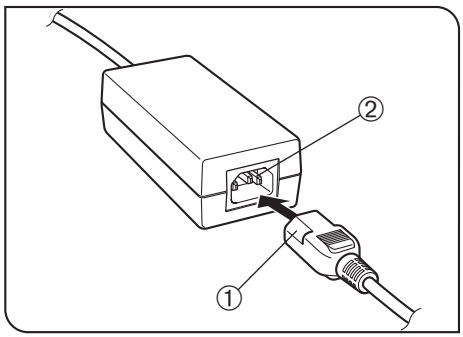


Fig. 8

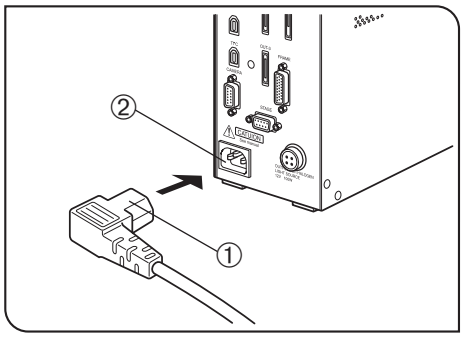


Fig. 9

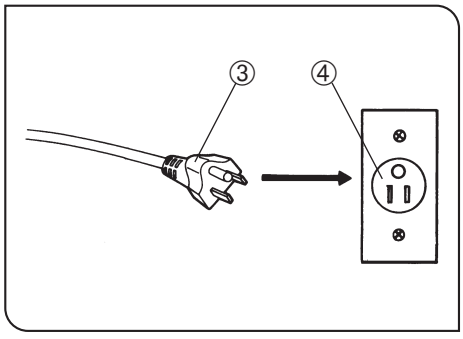


Fig. 10

2 Attaching the Power Cord (Figs. 8 to 10)

CAUTION **Always use the power cord provided by us. If no power cord is provided with the microscope, please select the proper power cord by referring to section "PROPER SELECTION OF THE POWER SUPPLY CORD" at the end of this instruction manual.**

Connecting to the AC adapter (Fig. 8)

1. Insert the connector ① of the power cord firmly into the input connector ② of the AC adapter (Fig. 8).

CAUTION **The power cord should be connected to a grounded/earthed, 3-conductor power outlet. If the power outlet is not grounded/earthed properly, we can no longer warrant the electrical safety performance of the equipment.**

2. Plug the power cord plug ③ into the wall outlet ④ (Fig. 10).

CAUTION **Should the power cord come in contact with the hot lamp socket, the power cord could melt and cause electric shock. Be sure to route the power cord away from the lamp socket.**

Connecting to the BX3-CBH (Fig. 9)

1. Insert the connector ① of the power cord firmly into the input connector ② of the BX3-CBH (Fig. 9).
2. Plug the power cord plug ③ into the wall outlet ④ (Fig. 10).

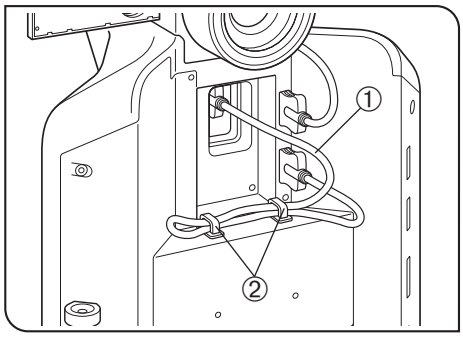


Fig. 11

3 Attaching the revolving nosepiece cable (Fig. 11)

3. Peel off the backings from the provided cable holders ② and use them to bundle and attach the cable ① of the revolving nosepiece in the position shown in the Fig. 11.
4. Bundle other connection cables using the five Velcro tapes provided with the BX3-CBH.

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 our products, we 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 the agencies listed in Table 1. In case you are unable to buy locally 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	
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		USA	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. Prüstelle	‹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

Manufactured by

Evident Corporation

6666 Inatomi, Tatsuno-machi, Kamiina-gun, Nagano 399-0495, Japan

Distributed by

Evident Europe GmbH

Caffamacherreihe 8-10, 20355 Hamburg, Germany

Evident Europe GmbH – UK Branch

Part 2nd Floor Part A, Endeavour House, Coopers End Road, Stansted CM24 1AL, UK

Evident Scientific, Inc.

48 Woerd Ave, Waltham, MA 02453, USA

Evident Scientific Singapore PTE. LTD.

#04-04/05, 25 Ubi Rd 4, UBIX Singapore 408621

Evident Australia PTY LTD

Level 4, 97 Waterloo Road Macquarie Park NSW 2113, Australia

Life science solutions	Industrial solutions
Service Center	**Service Center**
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Official website	**Official website**
https://www.olympus-lifescience.com	https://www.olympus-ims.com