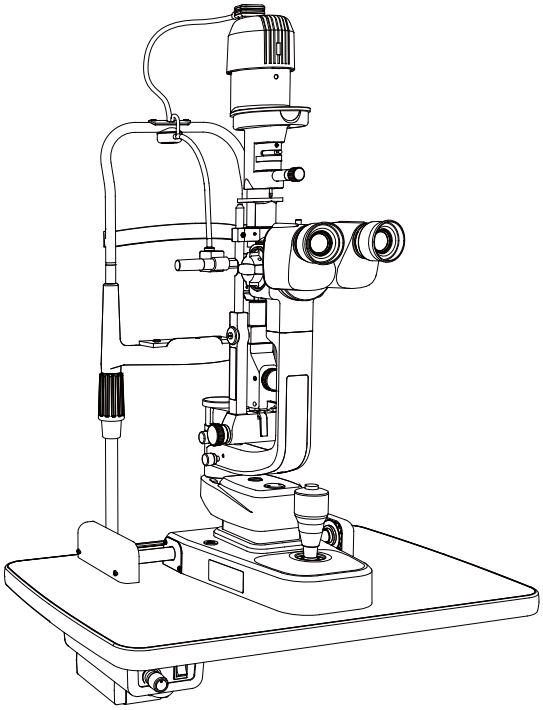
TOPCON



USER MANUAL
SLIT LAMP

SL-D301

INTRODUCTION

Thank you for purchasing the SLIT LAMP SL-D301.

INTENDED USE / INDICATIONS FOR USE

The Slit Lamp SL-D301 is an AC-powered slitlamp biomicroscope intended for use in eye examination of the anterior eye segment, from the cornea epithelium to the posterior capsule. It is used to aid in the diagnosis of diseases or trauma which affect the structural properties of the anterior eye segment.

FEATURES

This instrument has the following features:

- Various accessories to extend the system
- Ergonomic cable layout
- Clear fluorescent cornea observation and photography of cornea
- Clear eyeground observation and photography by color conversion filter

PURPOSE OF THIS MANUAL

To get the best usage from the instrument, please read DISPLAYS FOR SAFE USE and GENERAL SAFETY INFORMATION.
Keep this manual with the instrument for future reference.

CE

1. No part of this manual may be copied or reprinted, in whole or in part, without prior written permission.
2. The contents of this manual are subject to change without prior notice and without legal obligation.
3. The contents of this manual are correct to the best of our knowledge. Please inform us of any ambiguous or erroneous descriptions, missing information, etc.
4. Original Instructions
   This manual was originally written in English.

CONTENTS

DISPLAYS AND SYMBOLS FOR SAFE USE

To encourage safe and proper use and to prevent injury to the operator and others or potential damage to property, important messages are put on the instrument body and inserted in this manual.
We suggest that everyone understand the meaning of the following displays, icons and text before reading the GENERAL SAFETY INFORMATION and observe all listed instructions.

DISPLAY

Display	Meaning
⚠ **CONTRAINDICATION**	Situations in which the device should not be used because the risk of use clearly outweighs any possible benefit.
⚠ **WARNING**	Incorrect handling by ignoring this display may lead to a risk of death or serious injury.
⚠ **CAUTION**	Incorrect handling by ignoring this display may lead to personal injury or physical damage.
NOTE	Useful functions to know. Paying attention to these will prevent the noted problems.

SYMBOL

Symbol	IEC/ISO Publication	Description	Description (French)
~	IEC 60417-5032	Alternating Current	Courant alternatif
	IEC 60878-02-02	Type B applied part	Partie appliquée du Type B
	ISO 7010-W001	General warning sign	Symbole d'avertissement général
	ISO 7010-M002	Refer to instruction manual/ booklet	Voir le manuel/la brochure
	ISO 7000-2497	Date of manufacture	Date de fabrication
SN	ISO 7000-2498	Serial number	Numéro de série
	ISO 7000-3082	Manufacturer	Fabricant
EC REP	ISO 15223-1	Authorised Representative in the European Community	Représentant autorité pour l'Union européenne
	IEC 60417-5264	"On" (only for a part of EQUIPMENT)	Mise en service d'une partie d'appareil
	IEC 60417-5265	"Off" (only for a part of EQUIPMENT)	Mise hors service d'une partie d'appareil

GENERAL SAFETY INFORMATION

⚠ CONTRAINDICATION

This instrument must not be used for the following patients:

- Patients who are hypersensitive to light.
- Patients who recently underwent photodynamic therapy (PDT).
- Patients taking medication that causes photosensitivity.

⚠ WARNING

Ensuring the Safety of Patients and Operators

Use this instrument carefully on the following patients.

- Patients who have epidemic corneitis, conjunctivitis or any other infectious disease.
- Patients who are taking medications that cause light hypersensitivity.

To avoid injury to the patient's eye and nose, pay particular attention while operating the instrument body. (The patient may be injured.)

The Topcon SL-D301 is a medical device. The software and hardware has been designed in accordance with U.S., European and other international medical device design and manufacturing standards. Unauthorized modification of the Topcon SL-D301 software or hardware, or any addition or deletion of any application in any way can jeopardize the safety of operators and patients, the performance of the instrument, and the integrity of patient data.

Because prolonged intense light exposure can damage the retina, the use of the device for ocular examination should not be unnecessarily prolonged, and the brightness setting should not exceed what is needed to provide clear visualization of the target structures.

The retinal exposure dose for a photochemical hazard is a product of the radiance and the exposure time. If the value of radiance were reduced in half, twice the time would be needed to reach the maximum exposure limit.

While no acute optical radiation hazards have been identified for direct or indirect ophthalmoscopes, it is recommended that the intensity of light directed into the patient's eye be limited to the minimum level which is necessary for diagnosis. Infants, aphakes and persons with diseased eyes will be at greater risk. The risk may also be increased if the person being examined has had any exposure to the same instrument or any other ophthalmic instrument using a visible light source during the previous 24 hours. This will apply particularly if the eye has been exposed to retinal photography.

Equipment is not suitable for use in the presence of a Flammable Anesthetic Mixture with Air, Oxygen, or Nitrous Oxide.

The Topcon SL-D301 has no special protection against harmful ingress of water or other liquids (classified IPX0). To avoid damage to the instrument and cause a safety hazard, the cleaning solutions, including water, should not be directly applied to the device. Using a dampened cloth (without dripping), is a good method to clean the exterior surface of the enclosure.

Handling the cord on this product or cords associated with accessories sold with this product, will expose you to lead, a chemical known to the State of California to cause birth detects or other reproductive harm. **Wash hands after handling.**

Preventing Electric Shock and Fire.
To avoid fire in the event of an instrument malfunction, immediately turn off the power switch and remove the power plug from the outlet if you see smoke coming from the instrument or if you detect other problems. Don't install the instrument where it is difficult to disconnect the power plug from the outlet. Ask your dealer for repairs.

⚠ CAUTION

Ensuring the Safety of Patients and Operators
Be careful not to let the patient touch this instrument. The patient's hand may be pinched by a movable part.
To avoid burns caused by heat, do not replace the lamp with a new one immediately after it goes off.
To avoid injury to the patient's head, incline the illumination unit slowly while holding the base unit.
When operating the base unit, please note the following: •Beware of catching fingers in the moving parts. •Avoid hitting the patient's eyes or nose.

Preventing Electric Shock and Burn
To avoid injury or fire caused by electric shock, turn off the power switch and unplug the power cord when not in use.
To avoid injury caused by electric shock, turn off the power switch when replacing the lamp.

Electromagnetic Compatibility (EMC)
This instrument has been tested (with 100/120/230V) and found to comply with IEC60601-1-2 Ed.3.0: 2007as class B(classified according to CISPR11). This instrument radiates radio frequency energy within standard and may affect other devices in the vicinity. If you have discovered that turning on/off the instrument affects other devices, we recommend you change its position, keep a proper distance from other devices, or plug it into a different outlet. Please consult your authorized dealer if you have any additional questions.

HOW TO USE THIS MANUAL

- Read the instructions on pages 1 to 9 before using the machine.
- If you would like an overview of the system, begin by reading OPERATION PROCEDURE (page 22).

GENERAL MAINTENANCE INFORMATION

USER MAINTENANCE

To maintain the safety and performance of the instrument, unless done by an authorized service engineer, never attempt to do maintenance of items other than those specified here in.
For details about maintenance, read the description of this manual.

Replacing the Illumination Lamp

The illumination lamp can be replaced if necessary. For specific instructions, see page 30.

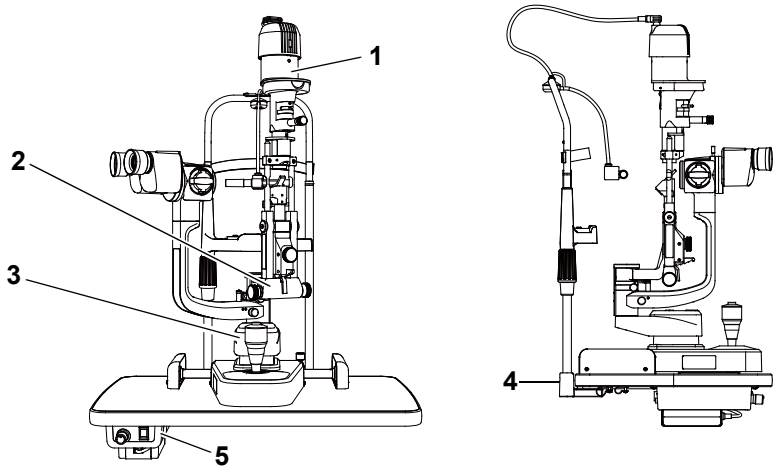
DISCLAIMERS

- TOPCON is not responsible for damage due to fire, earthquakes, actions or inactions of third persons or other accidents, or damage due to negligence and misuse by the user and any use under unusual conditions.
- TOPCON is not responsible for damage derived from inability to properly use this equipment, such as loss of business profits and suspension of business.
- TOPCON is not responsible for damage caused by operations other than those described in this user manual.
- The device does not provide a diagnose of any condition or lack thereof or any recommendation for appropriate treatment. The relevant healthcare provider is fully responsible for all diagnose and treatment decisions and recommendations.

POSITIONS OF WARNING AND CAUTION INDICATIONS

To ensure safety, warning labels are provided on the instrument body.

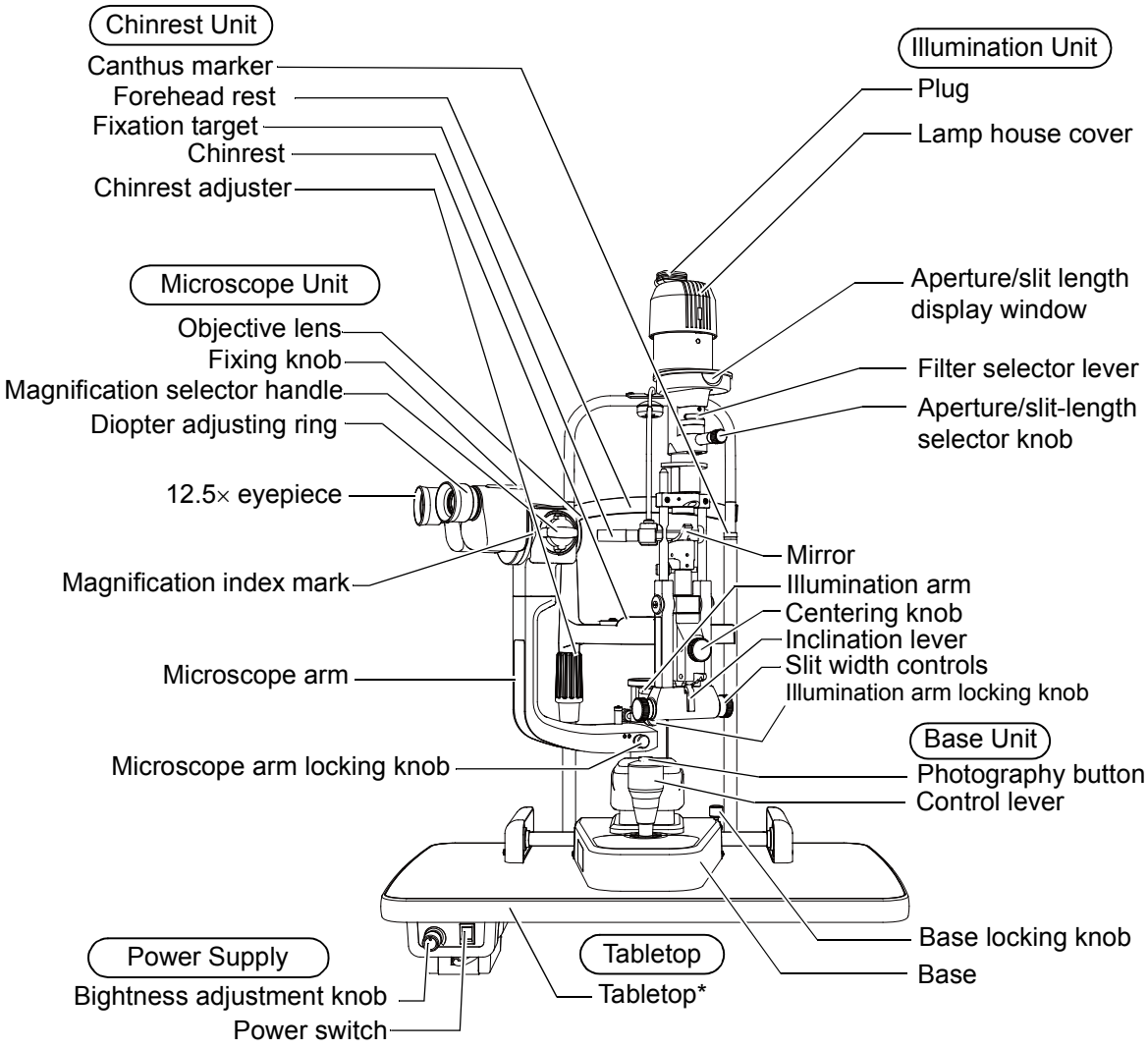
Use the instrument following these warning instructions. If any of the following labels are missing, contact your dealer or TOPCON (see the back cover).Fabricant



No.	Label	Meaning	Signification
1		**CAUTION** • To prevent electric shocks, switch off the power supply and remove the power cord before replacing the lamp. • Do not replace the lamp immediately after switching it off: the high temperatures could cause burns.	**PRÉCAUTION** • Afin d'éviter les chocs électriques, coupez l'alimentation électrique et débranchez le câble d'alimentation avant de remplacer la lampe. • Ne pas remplacer la lampe immédiatement après l'avoir éteinte: la température élevée peut provoquer des brûlures.
2		**CAUTION** To avoid injury to the patient's head, incline the illumination unit slowly while holding the base unit.	**PRÉCAUTION** Afin d'éviter de blesser le patient à la tête, inclinez lentement l'élément lumineux tout en maintenant la base de l'appareil.
3		**CAUTION** When operating the base unit, please note the following: ・Beware of catching fingers in the moving parts. ・Avoid hitting the patient's eyes or nose.	**PRÉCAUTION** Lorsque vous maniez la base de l'appareil, veuillez noter les points suivants: • Faites attention à ne pas vous coincer les doigts dans les parties en mouvement. • Évitez de heurter les yeux ou le nez du patient.
4		Degree of protection against electric shock : TYPE B APPLIED PART	Degré de protection contre les chocs électriques : TYPE B PARTIE D'APPLICATION
5		AC adapter Model :BPM050S18F03 Manufacturer :Bridge Power Corporation	Adaptateur secteur Modèle :BPM050S18F03 Fabricant :Bridge Power Corporation

SYSTEM DIAGRAM

COMPONENT NAMES



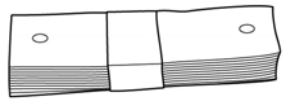
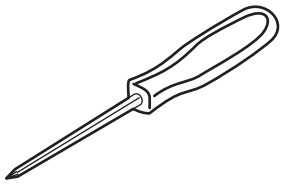
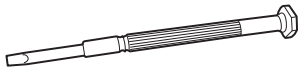
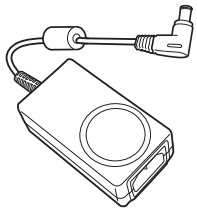
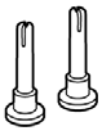
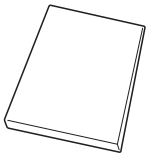
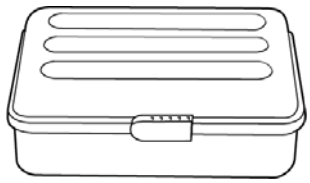
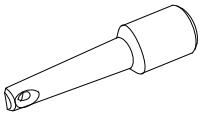
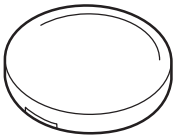
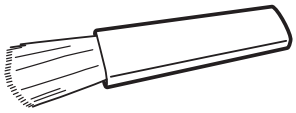
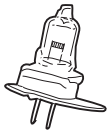
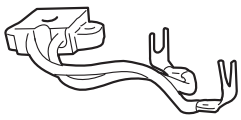
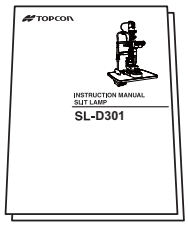
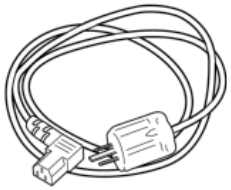
* Tabetop is opptional accessory.

COMPOSITION OF PARTS THAT COME IN CONTACT WITH THE PATIENT

Forehead rest: Polyamide resin
Chinrest : Polyamide resin

STANDARD ACCESSORIES

Make sure that all the following standard accessories are included.
Figures in parentheses are the quantities.

Chinrest tissue (1) 	Dust cover (1) 	Test rod (1) 
Crosshead screwdriver (1) 	Screwdriver (1) 	AC adapter (1) (model:BPM050S18F03) 
Chinrest tissue pin (2) 	Square mirror (1) 	Accessory case (1) 
Luminous fixation target (1) 	Cap (1) 	Cleaning brush (1) 
Illumination lamp (1) 	Socket (1) 	User manual (1), Instruction manual (1) 
Power cord (1) * 		

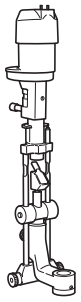
* More than one power cord can be included on certain occasions.

For optional accessories, see “Optional Accessories” on page 47.

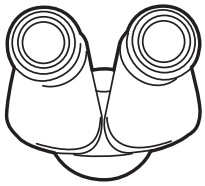
COMPONENTS

COMPONENTS

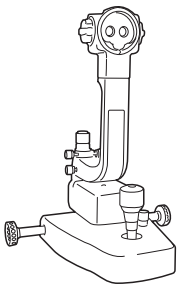
(1) Illumination unit



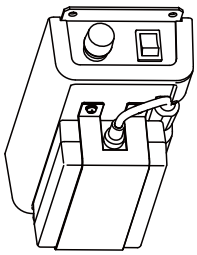
(2) Binocular tubes



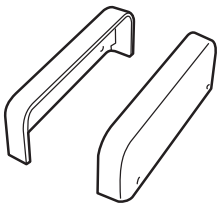
(3) Base unit



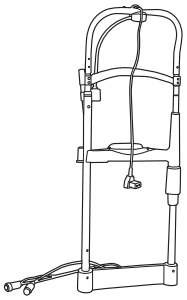
(4) Power Supply



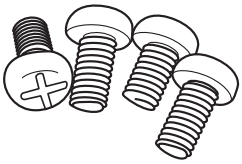
(5) Rail cover



(6) Chinrest unit



(7) Rail cover fixing screw



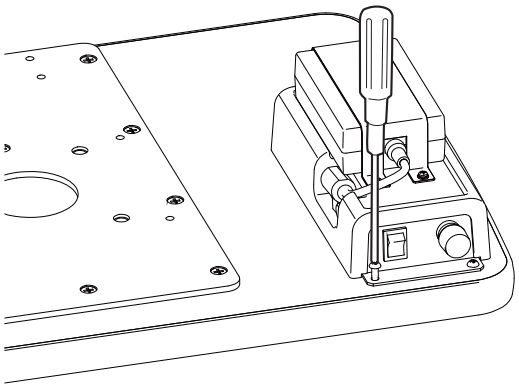
Article name	Qty	Article name	Qty
(1) Illumination unit	1	(5)Rail cover	2
(2) Binocular tubes	1	(6)Chinrest unit	1
(3) Base unit	1	(7) Rail cover fixing screw	4
(4) Power Supply	1		

ASSEMBLY PROCEDURE

SECURING THE POWER UNIT

- The tabletop SO-TABLE06 and SO-TABLE07 is optional accessory.

1 Affix the power supply to the back of the tabletop with 4 screws.



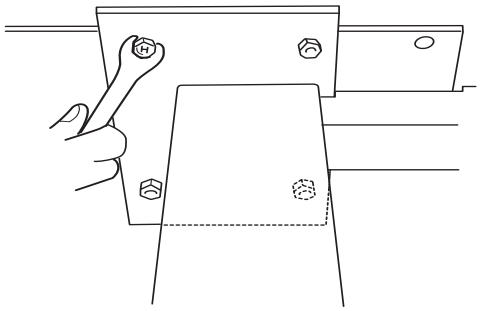
* The illustration depicts the SO-TABLE06.

SECURING THE TABLETOP SO-TABLE06 (OPTIONAL ACCESSORY)

⚠CAUTION	To prevent falling during use and movement, secure each unit.

FITTING TO AUTOMATIC INSTRUMENT TABLE AIT-16

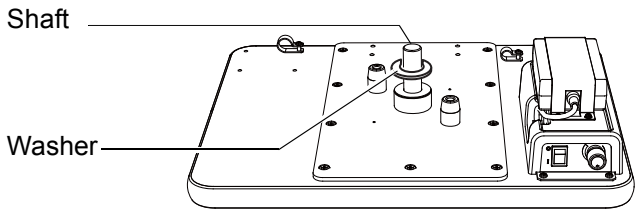
1 Place the tabletop on the instrument table, and secure it with the 4 bolts attached to the instrument table.



SECURING THE TABLETOP SO-TABLE07 (OPTIONAL ACCESSORY)

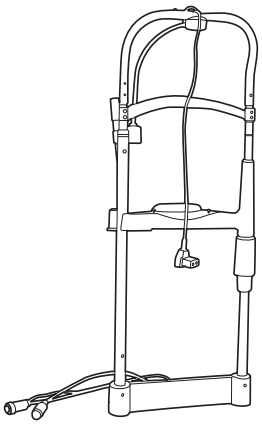
1 Peel off the tape which secures the plastic washer to the mounting bracket's shaft.

2 Insert the plastic washer, together with the shaft, into the cavity for the ophthalmic unit arm.

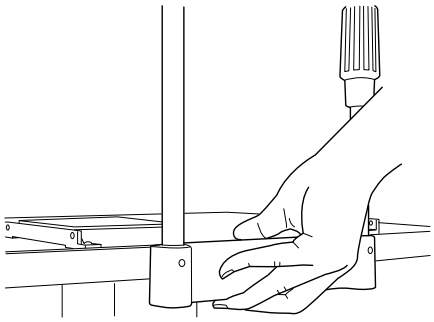


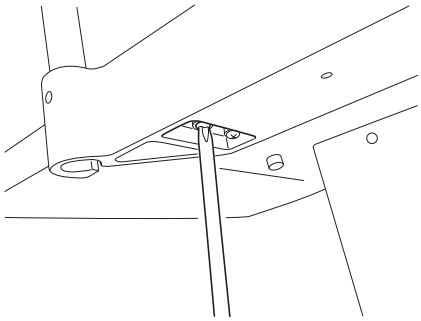
SECURING THE CHINREST

1 Take out the chinrest from the upper section of the container box.

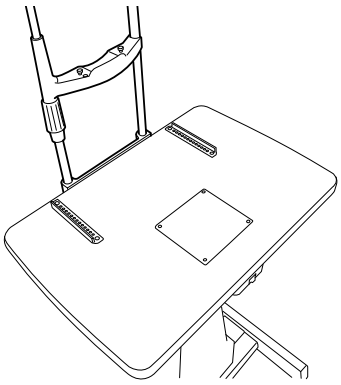


2 Attach the chinrest to the bottom face of the table, and affix it to the table using 4 screws.





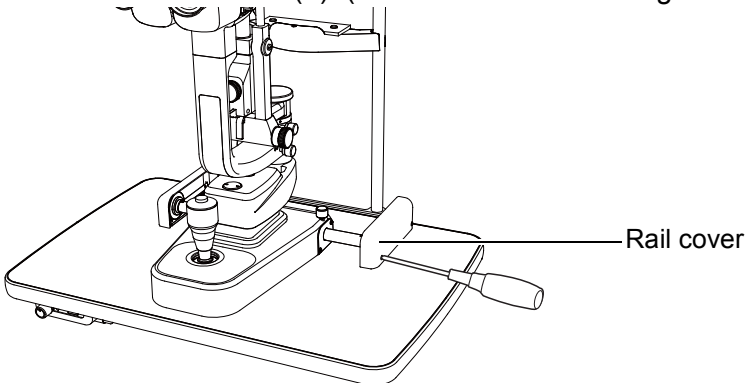
3 Chinrest fitted to the tabletop.



SECURING THE BASE UNIT AND RAIL COVER

1 Align the wheel of the base unit with the rail of the tabletop.

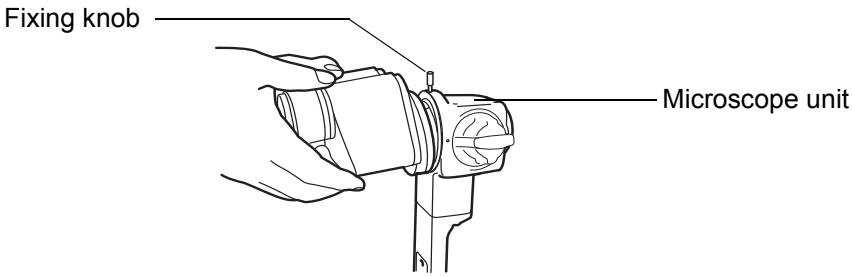
2 Secure the rail covers with 4 screws (7): (2 screws each on the right and left sides).



SECURING THE BINOCULAR TUBES

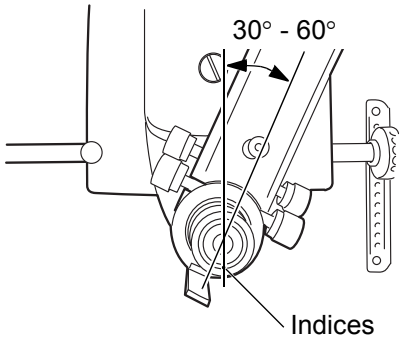
1 Align the pin of the microscope unit with the groove on the binocular tubes, and fit the binocular tubes with the fixing knob.

NOTE	Make sure you do not touch the lens surfaces.

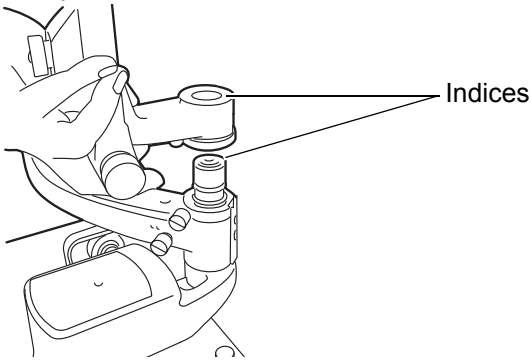


SECURING THE ILLUMINATION UNIT

Loosen the microscope arm locking-knob of the base unit, manually turn the shaft and tilt the guide rod-shaft index 30-60°, then refasten the microscope-arm locking-knob.

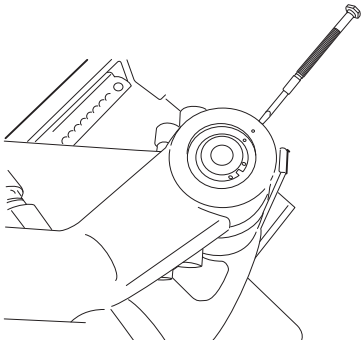


2 Loosen the fixing screw on the outside of the fitting cavity of the illumination unit with a screwdriver. Align indices and slowly lower the illumination unit onto the shaft of the base unit.



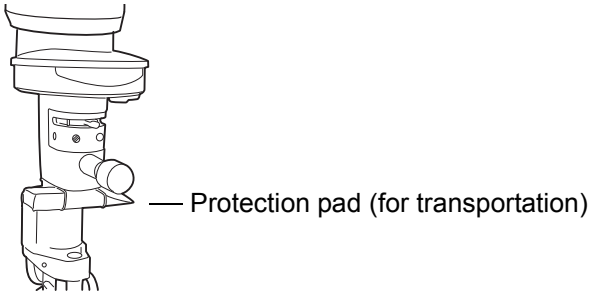
NOTE	While assembling the illumination unit, take care not to get your fingers caught.

3 Firmly tighten the fixing screw with a screwdriver.



REMOVING THE ILLUMINATION UNIT PAD

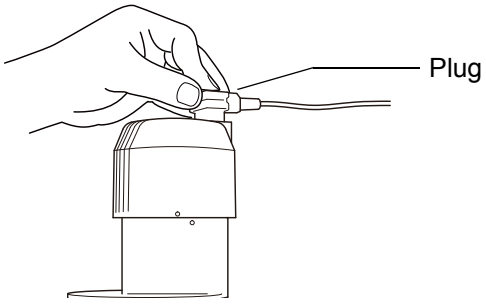
1 Remove the rubber band and slowly withdraw the protection pad from the slit operation mechanism of the illumination unit.



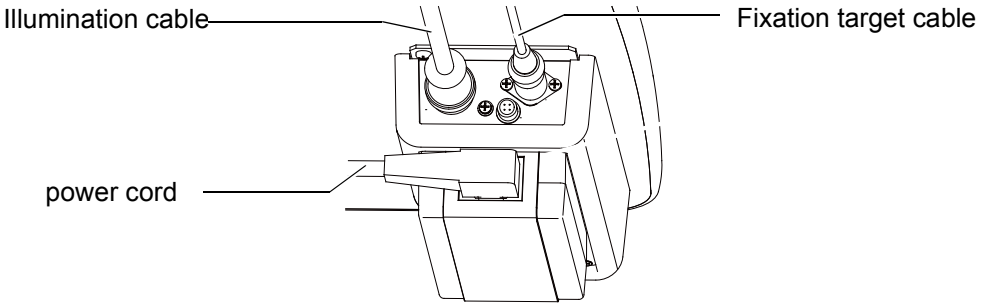
CONNECTING THE CABLES

⚠CAUTION	• Use the power cord applicable to the voltage of the commercial power supply being used. Using a power cord improper to the commercial power supplymay cause the instrument to malfunction. • The power cable in standard accessories for this instrument cannot use besides this instrument.

1 Remove the tape from the lamp house cover of the illumination unit. Plug the cable from the upper part of the chinrest into the illumination unit.



2 Connect the cable from the lower part of the chinrest unit and the power cord to the power supply.



3 Pull the base assembly toward the operator's side fully. Attach the cables to the rear side of the table with the cable clip to adjust the loosening of the cord.

4 Move the base assembly and illumination assembly and make sure there is enough cable to allow free movement of the base assembly in all directions.

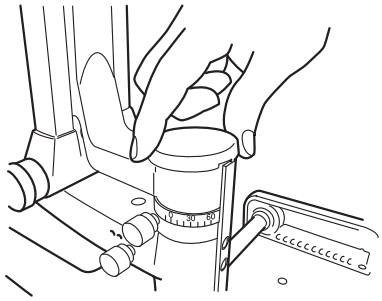
FITTING THE CHINREST TISSUE

1 Remove the chinrest tissue pins.

2 Take approximately one-fifth of the pad of chinrest tissues and secure this at each end with the pins.

FITTING THE CAP

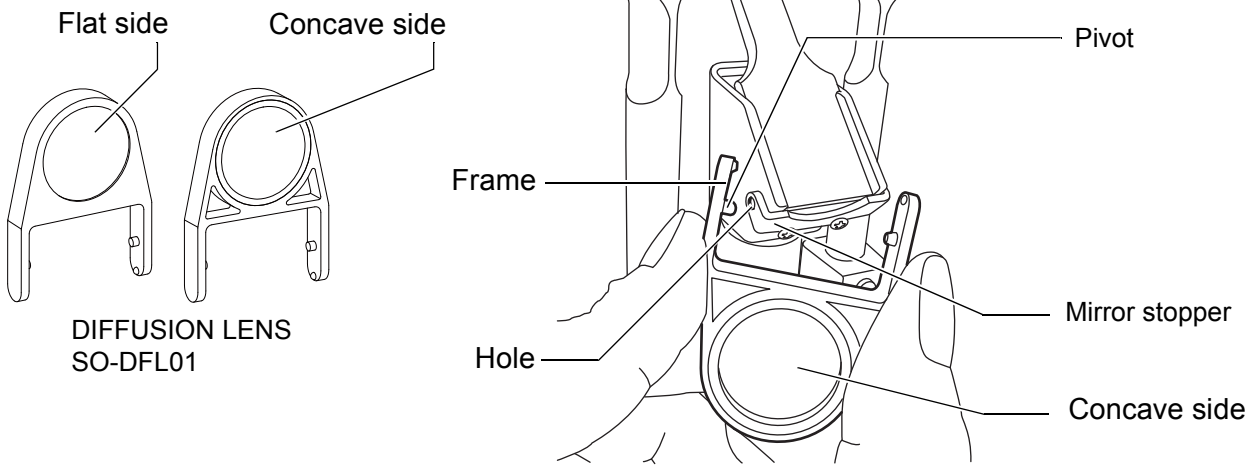
1 Fit the cap to the shaft aligning the guide rod with the groove in the cap.



FITTING THE DIFFUSION LENS SO-DFL01 (OPTIONAL ACCESSORY)

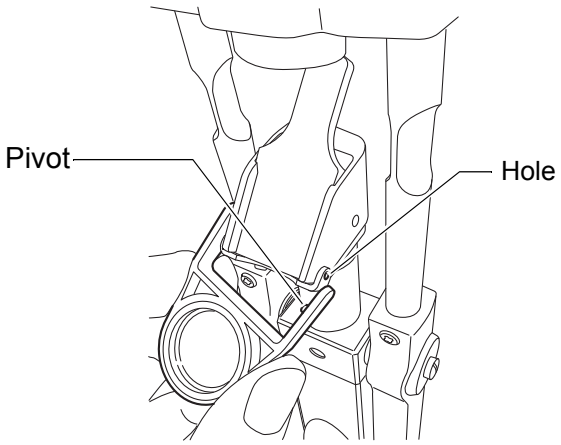
1 Insert one pivot of frame of SO-DFL01 into the hole of mirror stopper.

NOTE	Be careful not to make mistake of the flat side / concave side of SO-DFL01. Set the concave side as shown below.



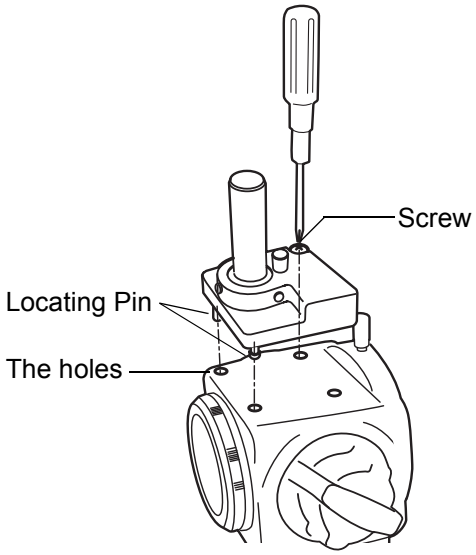
2 Insert another pivot into the opposite hole of mirror stopper.

NOTE	• Be careful not to extend the frame excessively. The frame may be deformed and, if so, it cannot be attached. • Make sure you do not touch the mirror surface,If you touch the mirror surface, please clean this according to the process on page 33 Cleaning Lenses and Mirrors.

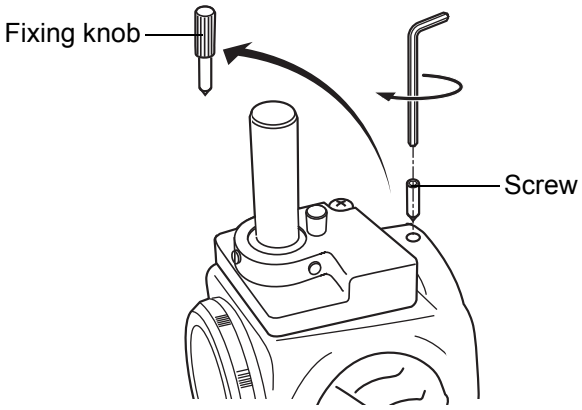


SECURING THE TONOMETER MOUNT SO-TM1 (OPTIONAL ACCESSORY)

1 Align the locating pin of SO-TM1 into the holes of the microscope, and fasten the screw.



2 Remove the fixing knob of the microscope, and secure the eyepieceunit, etc with the packaged screw.



3 Applanation tonometer R900 type, Photokeratoscope attachment, etc could be mounted on SO-TM1.

PREPARATIONS

POWERING ON

⚠WARNING	To avoid fire and electric shock in case of leakage, be sure to use a grounded outlet. Do not connect to outlets that are not grounded.

⚠CAUTION	• Use the power cord applicable to the voltage of the commercial power supply being used. Using a power cord improper to the commercial power supplymay cause the instrument to malfunction. • The power cable in standard accessories for this instrument cannot use besides this instrument.

1 Connect the power cord.

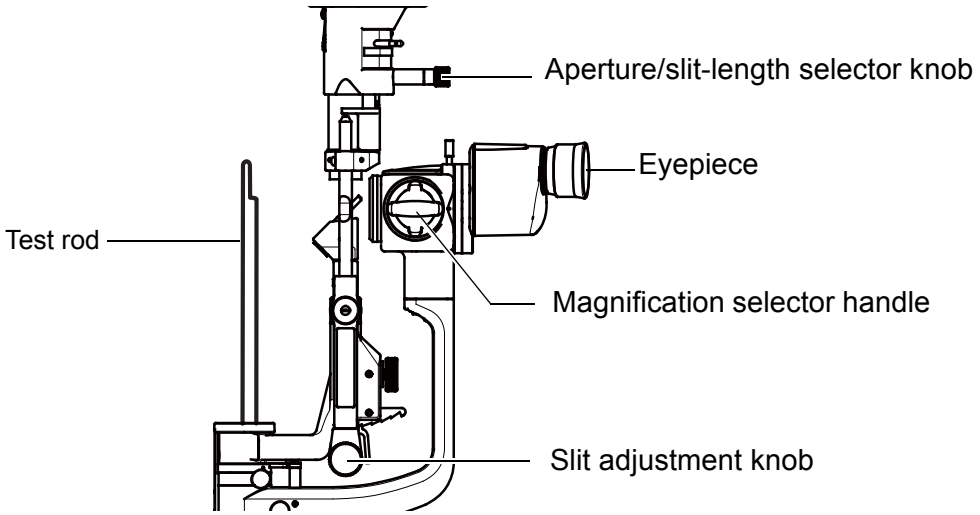
2 Turn ON the POWER switch.

ADJUSTING THE DIOPTER AND PUPILLARY DISTANCE (PD)

NOTE	To ensure sharp observation of slit images, always carry out the diopter and PD adjustments.

In case that no test rod is provided, set the diopter scale to your diopter by turning the diopter adjustment ring.

1 Insert the test rod into the rotation shaft cavity, and set the black face square with the microscope.



2 Place the brightness adjustment knob (see page 25) in at the 2/3.

3 Adjust the illumination to ϕ 9mm by adjusting the slit width control knob and aperture/slit length control knob.

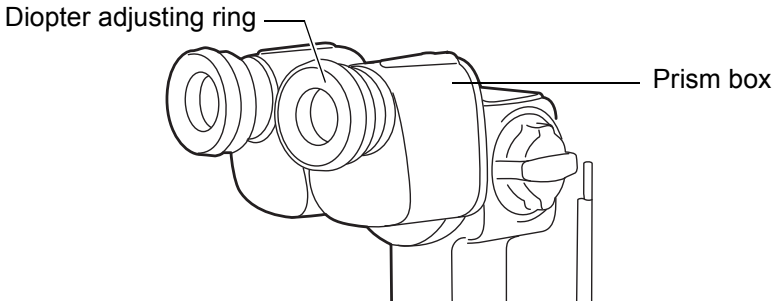
4 Turn the diopter adjusting ring of the eyepiece at one side fully counter-clockwise.

5 Turn the diopter adjusting ring clockwise and stop when the test rod can be clearly seen.

6 Adjust the diopter of another eyepiece in the same way as above.

7 After adjusting the diopter, turn the slit width control knob until the slit width is about 1mm, then check if the slit image projected on the test rod is properly in focus.

8 Holding the prism box, look through the eyepiece with both eyes, and adjust the pupillary distance so that the image projected on the test rod can be seen without diplopia (double vision), and appear to be three dimensional.

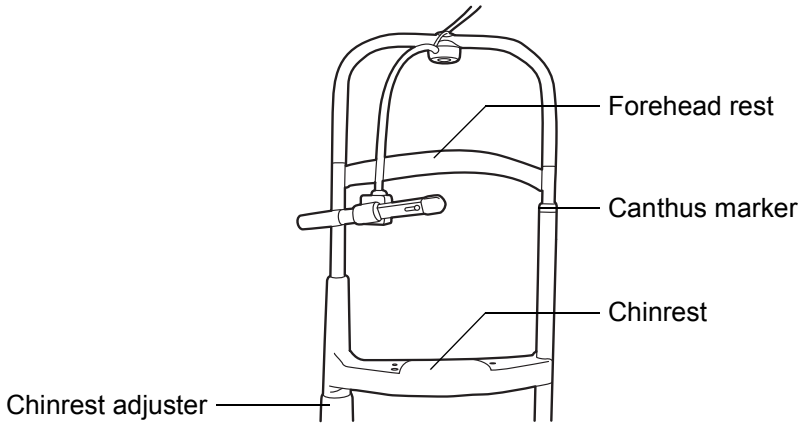


OPERATION PROCEDURE

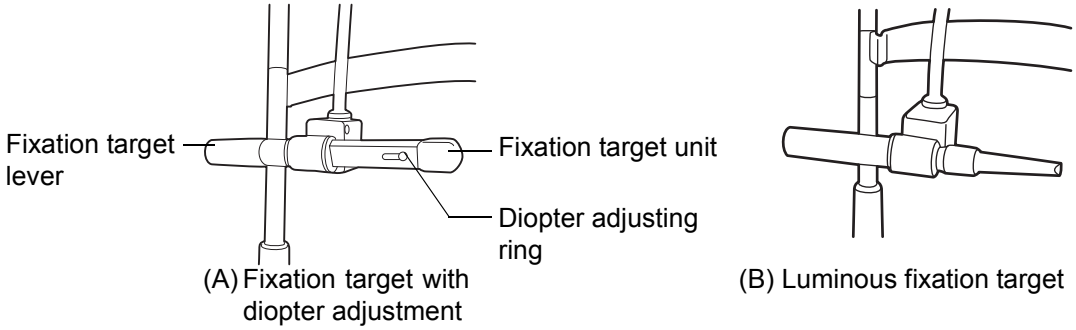
FIXING THE PATIENT'S FACE AND FIXATION

1 Place the patient's chin on the chinrest with his forehead against the forehead rest.

2 By rotating the chinrest adjuster, align the patient's eye with the canthus marker on the chinrest frame.



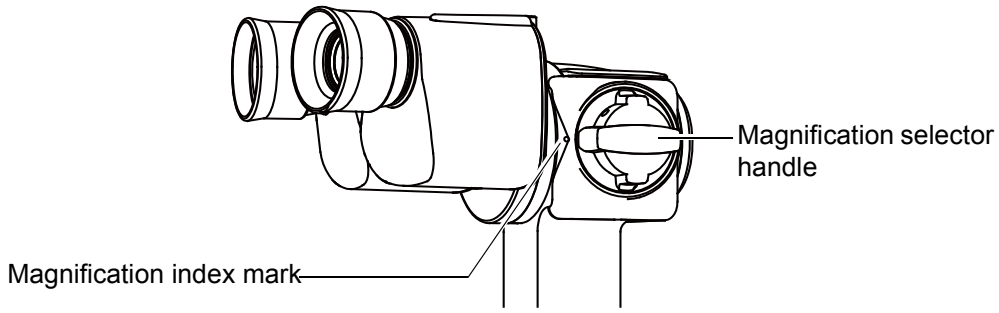
3 Ask the patient to look at the fixation target with the eye that is not being examined.To change the patient's fixation point, hold the fixation target at the end opposite to the target and adjust accordingly.



NOTE	• When using the fixation target with diopter adjustment (A), slide the diopter adjustment knob so that the patient can see the following target (◎). • The ring target can be adjusted within a range of -15D to +10D. • The luminous fixation target is used for myopia of -15D or more. • When replacing targets, remove the target by pulling gently whilst supporting the opposite end.

OPERATING THE MICROSCOPE UNIT

Turn the magnification selector to set a magnification value against the magnification index mark.



NOTE	For the overall magnification in conjunction with magnification marks of the magnification selector handle, see page 35.

OPERATING THE BASE AND FOCUSING

⚠CAUTION	• To avoid injury to the eye and nose whilst moving the base unit, make sure that you have a clear view of the slit lamp and the patient's face. • For the safety of the operator and the patient, do not place fingers between moving parts.

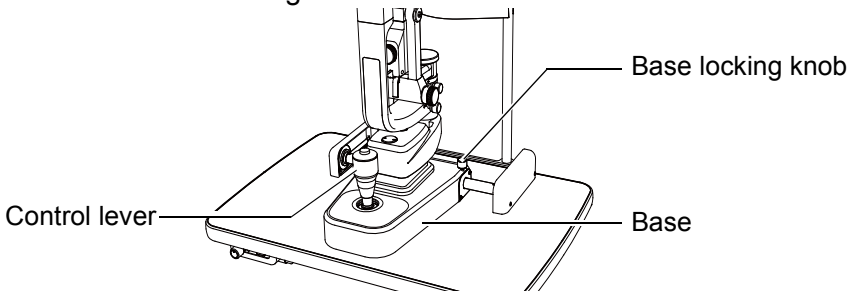
NOTE	• To prevent dropping the base locking knob from the base, do not loosen the knob too much. • Rough focusing is carried out with major movements, following step 1-3. • Fine focusing is done with the microscope, following steps 2 and 3.

1 For major horizontal movements, hold the control lever in the upright position and move the entire base.

2 For fine adjustments, move the control lever in the required direction.

3 The base can be raised by turning the control lever clockwise, and lowered by turning the control lever counter-clockwise.

4 To fix the base, fasten the base locking knob.



OPERATING THE ILLUMINATION UNIT

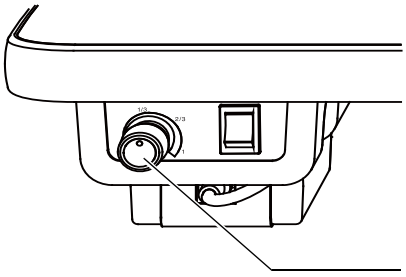
⚠CAUTION	• To avoid injury to the patient's head, incline the illumination unit holding the base unit. • To avoid causing discomfort to the patient or any damage to the patient's eye, keep the illumination at its minimum during adjustment.

NOTE	• Adjust the slit width according to the results of the investigation. • The slit-width scale should be used as a guideline. • When using the square mirror, incline the illumination unit at least 10º.

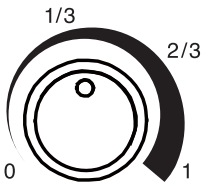
ADJUSTING THE BRIGHTNESS

Turn the brightness adjustment knob.

The brightness of the illumination light can be adjusted to the preferred illumination setting.



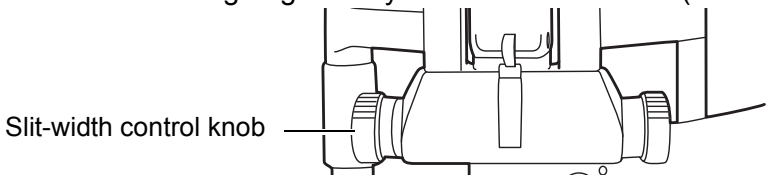
NOTE	The surrounding number of the brightness adjustment knob indicate the ratio of brightness, where 1 is the maximum value.



ADJUSTING THE SLIT WIDTH

Turn the slit-width control knob.

The slit width can be changed gradually between 0 and 9mm (9mm=circle).

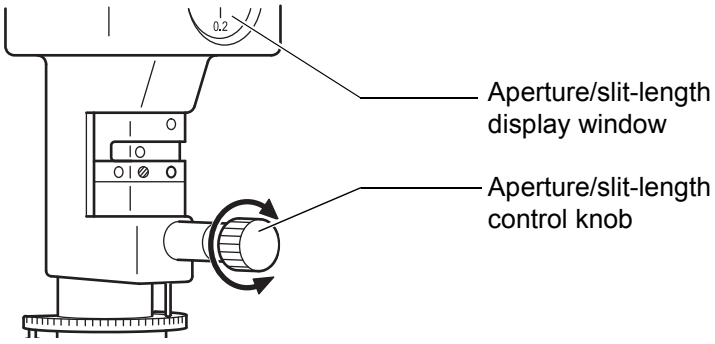


CHANGING THE APERTURE/SLIT LENGTH

Turn the aperture/slit-length control knob.

When the slit is fully opened, 7 types of spot illumination (ϕ9, ϕ8, ϕ5, ϕ3, ϕ2, ϕ1, ϕ0.2mm) are available. The slit width can be changed gradually from 1mm to 8mm.

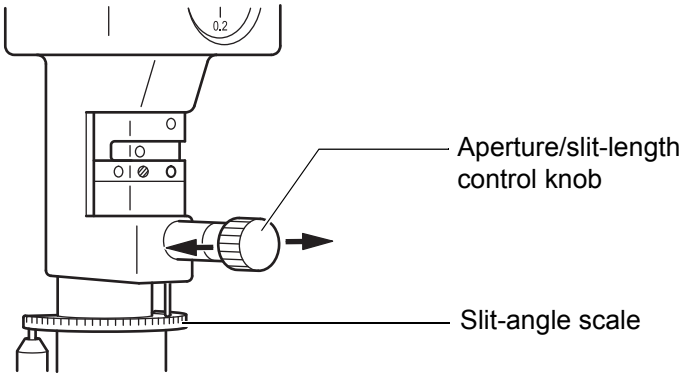
NOTE	The spot illumination size and slit length are displayed on the aperture/slit-length display window.



TURNING THE SLIT

Horizontally rotate the aperture/slit-length control knob.

This directly changes the slit image from vertical to horizontal. In this mode, the slit angle can be read off the angle scale.



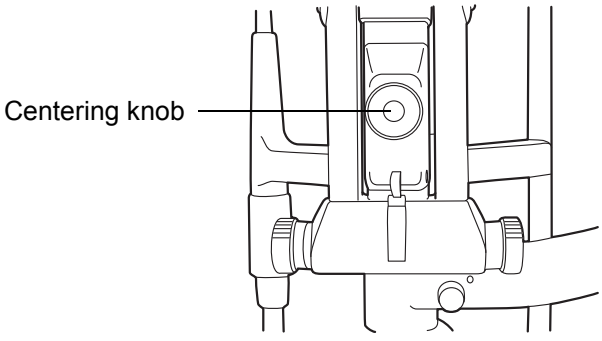
SWINGING THE SLIT SIDEWAYS

Loosen the centering knob and swing the illumination unit right and left.

This provides indirect illumination displacing the slit light from the microscope center.

By fastening the centering knob, the slit light returns to the center of the vision field.

NOTE	This function is used for scanning observation and observation with indirect illumination.

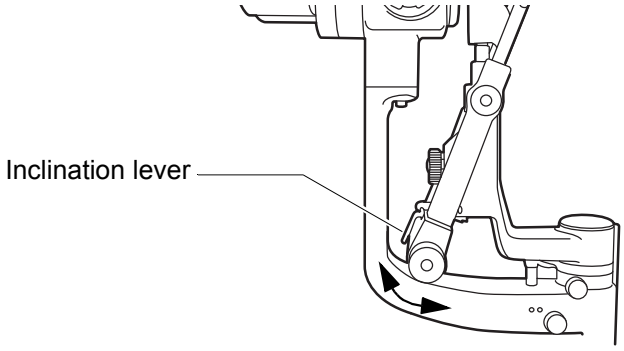


INCLINED ILLUMINATION

Press to unlock the inclination lever and pull.

The illumination unit is inclined for inclined illumination up to 20° in 5° steps.

NOTE	This function is used for observing a horizontal cross section, and for corner angle and fundus observation.

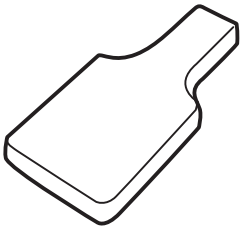


REFLECTION MIRROR

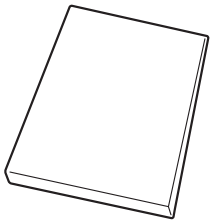
For this instrument, a battledore mirror and a square mirror are available. For normal observation, the battledore mirror is used.

However, if the arm angle scale, which represents the angle formed by the illumination arm and microscope arm, reads approx. 3° to 10° and the observation light flux is disturbed by the battledore mirror, then the square mirror should be used.

The square mirror is to be used when the arm angle is opened to more than 10°.



Battledore mirror



Square mirror

NOTE	The square mirror is standard accessory.

REPLACING REFLECTION MIRRORS

Replace mirrors as follows, taking care not to touch the mirror and lens surfaces:

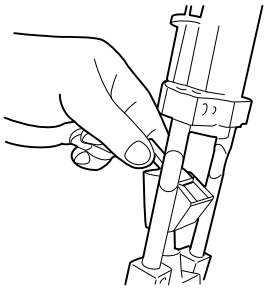
1 Open the microscope arm and illumination arm 30° or more.

2 Incline the illumination unit 10° or more.

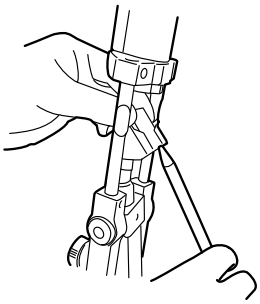
3 Pull out the battledore mirror, holding the slender part on both sides. To reinsert the battledore mirror, hold the slender part on both sides and insert.

4 Insert the square mirror from the side recessed on the back.

5 To pull out the square mirror, which has no handle, push the square mirror up as illustrated below.



Battledore mirror

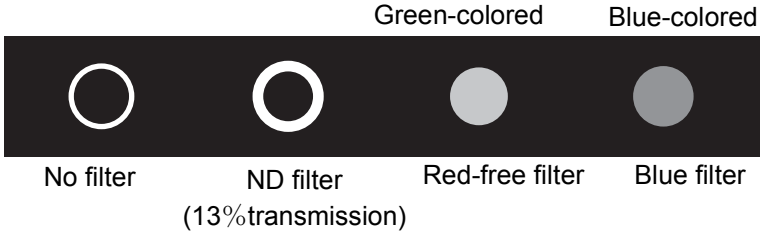


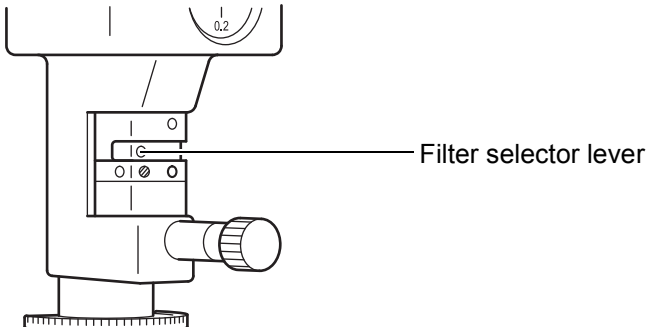
Square mirror

NOTE	If you touch the mirror or lens surface, please clean this according to the process on page 33 "Cleaning Lenses and Mirrors".

CHANGING FILTERS

Move the filter selector lever right and left to select the required filter from the 4 types.

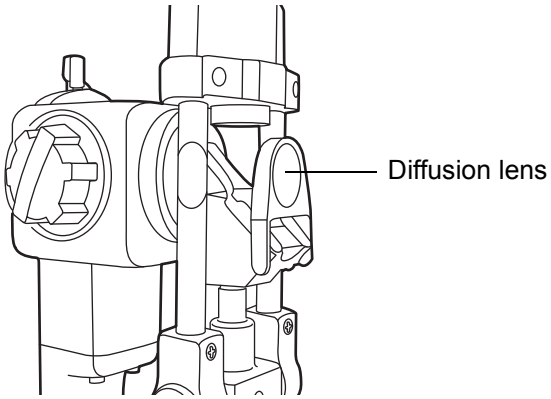




DIFFUSION LENS SO-DF 01 (OPTIONAL ACCESSORY)

When in use, the diffusion lens is set vertically in front of the reflection mirror.
When not in use, remove the diffusion lens from the light path.

NOTE	When using the diffusion lens, open the microscope arm and illumination arm 30° to avoid friction of the diffusion lens or illumination support. Also, fully open the slit; otherwise this prevents sufficient light from entering.



ENDING PROCEDURE

Turn OFF the Power switch.

MAINTENANCE AND CHECKUPS

PERIODIC MAINTENANCE

Before using, confirm the following:

- •Adjust the diopter and eye width following ADJUSTING THE DIOPTER AND PUPILLARY DISTANCE (PD) on page 20 and turn the Slit width controls and make the slit width about 1mm: The slit image projected on the test rod is seen clearly.
- •Move the base forward-backward and right-left: The base moves smoothly.
- •Component parts, including the eyepiece unit, are fitted in place.
- •The chinrest base is firmly fitted to the table.
- •Cables and plugs are firmly connected.
- •The slit width doesn't narrow by disengaging a hand from the Slit width control knob.
- •The illumination unit smoothly swings.

Daily Care

This instrument may be affected adversely by dust. Apply the dust cover when not using.

PLACING AN ORDER FOR CONSUMABLES

When ordering consumable items, contact your dealer or TOPCON (see the back cover).

Specify the article name, product code and quantity.

Article name		Product code
Light source	Halogen lamp	447032530
	Socket	405261249
Chinrest tissue		403104082

USER MAINTENANCE ITEMS

Item	Inspection time	Contents
Inspection	Before using	• Adjusting the diopter and pupillary distance • Focus of slit image • The base unit must move smoothly. • The components must be fitted in place correctly. • The chinrest unit must be fitted to the table unit correctly. • The cables and plugs must be connected correctly. • The objective lens, eyepiece and mirror must not be stained or damaged.
Cleaning	When the part is stained	• Objective lens • Eyepiece • Mirror • Sliding plate, rail and wheel shaft unit • Forehead rest and chinrest unit
Replacement	As required	• Halogen lamp • Socket
Supply	As required	• Chinrest tissue

DEALER MAINTENANCE ITEMS

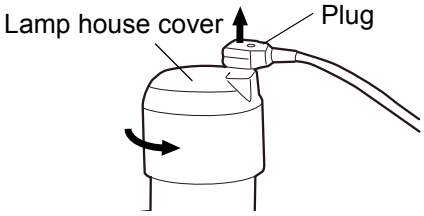
Item	Inspection time	Contents
Adjustment	Within 12 months from the last maintenance	• Slit width control knob torque • Inclination torque of illumination unit

REPLACING ILLUMINATION LAMPS

⚠CAUTION	• When replacing the lamp, switch off the power supply and remove the power cord to avoid electric shock. • Beware of high temperatures when replacing the lamp immediately after switching it off: these could cause burns.

NOTE	• To ensure perfect illumination, make sure that the socket flange and notch are firmly fitted to the lamp house. • Use a soft cloth and do not touch the illumination lamp with bare fingers: fingerprints and stains may affect illumination and cause premature failure of the lamp.

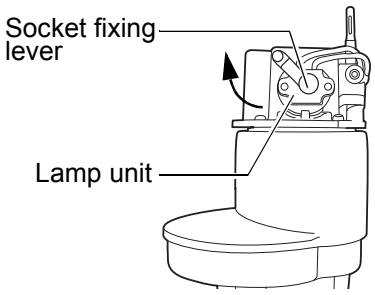
1 Turn OFF (◯) the POWER switch and remove the cable plug.
Pull out the plug from the lamp house cover. Turn the lamp house cover counterclockwise and remove upward.



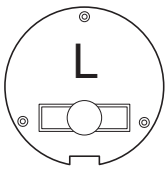
2 Lightly pull the socket fixing lever and turn in the direction indicated by the arrow.

3 Pull out the lamp unit.

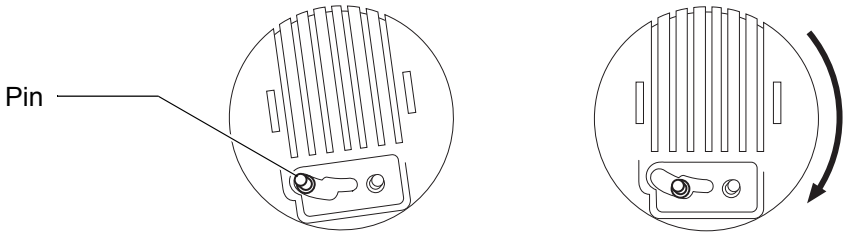
4 Remove the illumination lamp from the socket and fit the new lamp.
When fitting the new lamp, make sure the direction of the illumination lamp and socket is correct.
∗ For the article name and product code of the illumination lamp, refer to PLACING AN ORDER FOR CONSUMABLES on P.30.



NOTE	Check the marked "L" on the illumination lamp. If "L" is not marked, it can not use.



5 Fit the pin into the groove on the lamp house cover as shown below. Turn the lamp house cover clockwise to fix it.



6 Connect the plug.

NOTE	Unless the pin is fitted into the groove correctly, the plug is not connected properly and the illumination is not turned on.

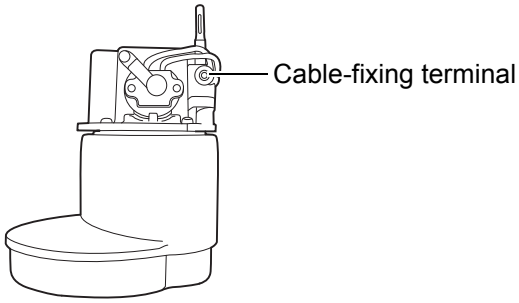
REPLACING SOCKETS

NOTE	The socket may deteriorate due to the constant heat: therefore, it should be replaced after the lamps have been changed two or three times.

1 Remove the lamp following steps 1 - 4 of REPLACING ILLUMINATION LAMPS.

2 Loosen the cable-fixing terminal by turning it counterclockwise, remove the cable and replace the socket with a new one.
*For the article name and product code of the socket, refer to PLACING AN ORDER FOR CONSUMABLES on P.30.

3 Turn the cable-fixing terminal clockwise to fix the cable securely.



NOTE	Unless the cable-fixing terminal is fixed securely, the illumination may not be turned on.

4 Install the lamp house cover and plug following steps 5 - 6 of REPLACING ILLUMINATION LAMPS.

RESTOCKING CHINREST TISSUE

When the chinrest tissue supply is depleted, pull out the chinrest tissue pins and replace tissue.

DAILY CARE

⚠CAUTION	• Before carrying out daily care, remove the power cord (to avoid electric shocks) and wait until the lamp house has cooled (to avoid burns). • Do not touch parts inside the lamp house cover during operation and immediately after switching off the power supply: this could cause burns.

NOTE	• To prevent the chinrest, forehead rest and other plastic parts from discoloration and deterioration, do not use volatile solvents for cleaning, including benzine, thinner, ether, gasoline, etc. • Wipe parts with a cloth moistened with a tepid solution of neutral kitchen detergent.

CLEANING APPLIED PARTS

Wipe the forehead rest, the chinrest with a cloth moistened with a tepid solution of neutral detergent for kitchenware.

CLEANING LENSES AND MIRRORS

REMOVING STAINS

NOTE	To prevent damaging lens surfaces, do not hold gauze with tweezers.

1 Prepare a solution of ethyl alcohol 20% and ether 80%.

2 Remove dust from lens and mirror surfaces with the cleaning brush, or a blower.

3 Using clean gauze or lint-free tissue, lightly clean with a rotating movement from the center of the lens/mirror outwards.

4 If the stain remains, repeat this 2 to 3 times.

5 If stains are persistent, call your dealer or TOPCON (see the back cover).

TROUBLESHOOTING

TROUBLESHOOTING GUIDE

⚠CAUTION	To avoid electric shocks, do not attempt overhauling, rebuilding or repairs. Ask your dealer for repair.

If you suspect a problem, check the possible cause by means of the check list below.
If the check list below does not solve the problem, or if the problem is not included in the list, contact your dealer or TOPCON (see the back cover).

Check List

Problem	Possible cause	Check	Page
Illumination lamp does not work	Plug of lamp house cover is switched off	Insert plug.	17
	Cable connection is disconnected	Check cable connection.	20
	POWER switch is OFF	Turn ON POWER switch.	20
	Brightness adjustment knob is the minimum	Turn up brightness adjustment knob.	25
	Illumination lamp is broken	Replace it with a new illumination lamp.	30
	Socket has deteriorated	Replace it with a new socket.	32
	Slit width is the minimum	Rotate the Slit width controls	25
Illumination field is not uniform/is shady/ is dark	Filter selector lever is out of position	Click filter selector lever.	28

SPECIFICATIONS AND PERFORMANCE

Specifications and Performance

Microscope unit	
Type	Galileo type
Magnification	Drum, 3-step magnification
Magnification steps	10/16/25
Overall magnification (actual vision field)	10.00 (ϕ22.5mm) 15.98 (ϕ14.1mm) 25.53 (ϕ8.8mm)
Eyepiece lens	Magnification: 12.5x Diopter adjustment range: -5D to +5D
PD adjustment range	55 to 78mm
Illumination unit	
Illumination field	Slit width: 0 to 9mm, can be altered gradually (9mm=circle) Slit length: 1 to 8mm, can be altered gradually
Aperture diameter	ϕ9, 8, 5, 3, 2, 1, 0.2mm
Slit direction	Vertical to horizontal, can be altered gradually
Inclination	5°, 10°, 15,° 20° from below Available for use side swing
Filter	Blue filter, red-free filter, ND filter (13% transmission), UV cut filter (normal use), IR cut filter (normal use)
Illumination lamp	Halogen type: 6V 20W
Base unit	
Forward-backward movement length	90mm
Right-left movement length	100mm
Vertical movement length	30mm
Fine adjustment in all directions length	12mm
Chinrest unit	
Adjustable range of the vertical direction	80mm
Fixation target	Fixation target with diopter adjustment Light source for fixation target: LED (red)

- The specification and design of the product can be altered for improvements without prior notice.

NOTE	The following statement is the Essential performance provided for by IEC60601-1. The halogen lamp is not to be turned off. There are no component failures.

GENERAL INFORMATION ON USAGE AND MAINTENANCE

INTENDED PATIENT POPULATION

The patient who undergoes an examination by this instrument must maintain concentration for a few minutes and keep to the following instructions:

To fix the face to the chinrest, forehead rest.

To keep the eye open.

To understand and follow instructions when undergoing an examination.

INTENDED USER PROFILE

The SL-D301 SLIT LAMP is an electric instrument for medical use.

Use this instrument under a doctor's guidance.

ENVIRONMENTAL CONDITIONS FOR USE

Temperature : 10°C to 40°C
Humidity : 30% to 90% (non-condensing)
Air pressure : 700hPa to 1060hPa

STORAGE, USAGE PERIOD

1. Environmental conditions (without package)
   * Temperature : 10°C to 40°C
   Humidity : 10% to 95% (without dew condensation)
   Air pressure : 700hPa to 1060hPa
   ***THIS INSTRUMENT DOES NOT MEET THE TEMPERATURE REQUIREMENTS OF ISO 15004-1 FOR STORAGE. DO NOT STORE THIS INSTRUMENT IN CONDITIONS WHERE THE TEMPERATURE MAY RISE ABOVE 40°C OR FALL BELOW 10°C.**
2. When storing the instrument, ensure that the following conditions are met:
   (1) The instrument must not be splashed with water.
   (2) Do not store the instrument in an environment where air pressure, temperature, humidity, ventilation, sunlight, dust, salty/sulfurous air, etc. could cause damage.
   (3) Do not store or transport the instrument on a slanted or uneven surface or in an area where it is subject to vibrations or instability.
   (4) Do not store the instrument where chemicals are stored or gas is generated.
3. Normal life span of the instrument:
   8 years from delivery providing regular maintenance is performed (according to the self-certification [TOPCON data])

ENVIRONMENTAL CONDITIONS FOR PACKAGING IN STORAGE

Temperature : -20°C to 50°C
Humidity : 10% to 95%
Air pressure : 700hPa to 1060hPa

ENVIRONMENTAL CONDITIONS FOR PACKAGING IN TRANSPORTAION

Temperature : -40°C to 70°C
Humidity : 10% to 95%
Air pressure : 700hPa to 1060hPa

ELECTRIC RATING

Source voltage : AC100 - 240V
Frequency : 50 - 60Hz
Power input : 80VA

DIMENSIONS AND WEIGHT

Dimensions, Weight	
Dimensions: w/o Table	312mm(W) x 296mm(D) x 646 to 676mm(H)
w/ Unit Table	440mm(W) x 410mm(D) x 760 to 790mm(H)
w/ AIT Table	550mm(W) x 430mm(D) x 760 to 790mm(H)
Weight: w/o Table	12kg
w/ Unit Table	17kg
w/ AIT Table	17.5kg
Height from the top to patient's eye	375mm

SYSTEM CLASSIFICATION

- Type of protection against electric shocks: Class I equipment
  Class I equipment does not depend on basic insulation only for protection against electric shocks. It can also be earthed; therefore, the metal parts with which one comes into contact do not become conductive if the basic insulation fails.
- Degree of protection against electric shocks: Type B applied part
  Type B applied part is the applied part complying with the specified requirements of the Standard IEC 60601-1 to provide protection against electric shock, particularly regarding allowable LEAKAGE CURRENT.
- Degree of protection against harmful ingress of water: IPx0
  SL-D301 has no protection against ingress of water. (The degree of protection against harmful ingress of water defined in IEC 60529 is IPx0)
- Classification according to the methods of sterilization or disinfection recommended by the manufacture: not applicable.
  SL-D301 has no part to be sterilized or be disinfected.
- Not AP or APG equipment
- Classification according to the degree of safety of application in the presence of a flammable anaesthetic mixture with air or with oxygen or nitrous oxide: Equipment not suitable for use in the presence of a flammable anaesthetic mixture with air or with oxygen or nitrous oxide.
  SL-D301 should be used in environments where no flammable anesthetics and/or flammable gases are presents.
- Classification according to the mode of operation: Continuous operation.
  Continuos operation is the operation under normal load for an unlimited period, without the specified limits of temperature being exceeded.

OPERATION PRINCIPLES

Illuminates the observed part by the illumination light emitted from the illumination optical system and allows enlargement observation by binocular stereoscopic microscope.

CHECKPOINTS FOR MAINTENANCE

1. Regularly maintain and check the instrument and its parts.
2. When using the instrument after a prolonged period of inactivity, confirm normal and safe operation beforehand.
3. To take a good picture, be careful not to stain the objective lens with fingerprints or dust.
4. When this instrument is not in use, cap the objective lens and cover the instrument with the dust cover.
5. When the objective lens is stained, clean it according to Cleaning Lenses and Mirrors in this manual.

DISPOSAL

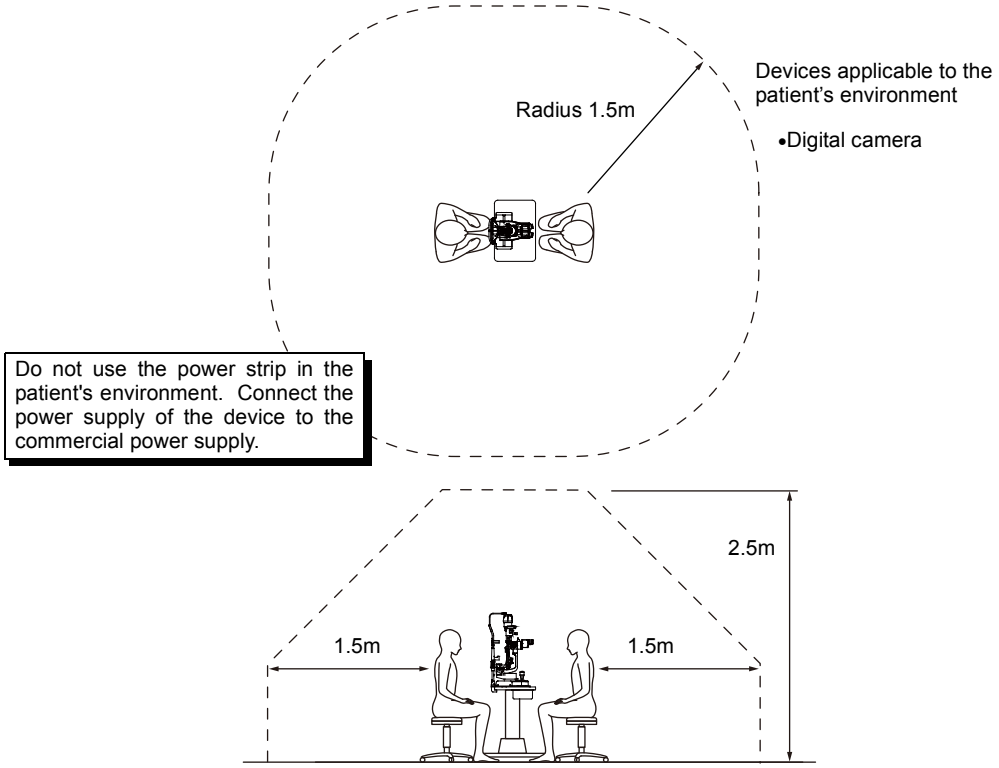
⚠CAUTION	The base contains strong springs. Do not attempt to disassemble or burn the base, as the springs could cause injury by shooting out of it.

- When disposing of SL-D301 parts, follow the local regulations for disposal and recycling.

NOTE	 This symbol is applicable for EU member countries only. To avoid potential damage to the environment and possibly human health, this instrument should be disposed of (i) for EU member countries - in accordance with WEEE (Directive on Waste Electrical and Electronic Equipment), or (ii) for all other countries, in accordance with local disposal and recycling laws.

PATIENT'S ENVIRONMENT

When the patient or inspector may touch the devices (including the connecting devices) or when the patient or inspector may touch the person that comes into contact with the devices (including the connecting devices), the patient's environment is shown below.
In the patient's environment, use the device conforming to IEC60601-1. If you are compelled to use any device not conforming to IEC60601-1, use an insulation transformer.



Requirements for the EXTERNAL DEVICE

The external device connected to the analog and digital interfaces must comply with the respective IEC or ISO standards (e.g. IEC 60950-1 for data processing equipment and IEC 60601-1 for medical equipment).
Anybody connecting additional equipment to medical electrical equipment configures a medical system and is therefore responsible that the system complies with the requirements for medial electrical systems. Attention is drawn to the fact that local laws take priority over the above mentioned requirements. If in doubt, contact your dealer or TOPCON (see the back cover).

ELECTROMAGNETIC COMPATIBILITY

This product conforms to the EMC standard (IEC 60601-1-2 Ed.3: 2007).

a) MEDICAL ELECTRICAL EQUIPMENT needs special precautions regarding EMC and needs to be installed and put into service according to the EMC information provided in the ACCOMPANYING DOCUMENTS.
b) Portable and mobile RF communications equipment can affect MEDICAL ELECTRICAL EQUIPMENT.
c) The use of ACCESSORIES, transducers and cables other than those specified, with the exception of transducers and cables sold by the manufacturer of the EQUIPMENT or SYSTEM as replacement parts for internal components, may result in increased EMISSIONS or decreased IMMUNITY of the EQUIPMENT or SYSTEM.
d) The EQUIPMENT or SYSTEM should not be used adjacent to or stacked with other equipment. If adjacent or stacked use is necessary, the EQUIPMENT or SYSTEM should be observed to verify normal operation in the configuration in which it will be used.
e) The use of the ACCESSORY, transducer or cable with EQUIPMENT and SYSTEMS other than those specified may result in increased EMISSION or decreased IMMUNITY of the EQUIPMENT or SYSTEM.

Item	Cable shield	Ferrite core	Length(m)
ACCESSORIES			
DIGITAL CAMERA UNIT DC-4	-	-	-
BACKGROUND ILLUMINATION BG-2GN	-	-	-
CABLES			
AC Power cord (for AC adapter)	Not Used	Not Used	3.0
DC-4 TRIGGER cable	Used	Used	1.0
LAN cable	Used	Used	3.0
ILLUMINATION cable	Used	Not Used	1.6
AC adapter cable	Not Used	Used	0.15

Guidance and manufacturer's declaration - electromagnetic emissions		
The SL-D301 is intended for use in the electromagnetic environment specified below. The customer or the user of the SL-D301 should assure that it is used in such an environment.		
Emissions test	**Compliance**	**Electromagnetic environment - guidance**
RF emissions CISPR 11	Group 1	The SL-D301 uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class B	The SL-D301 is suitable for use in all establishments including domestic and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC61000-3-2	Class A	
Voltage fluctuations/ flicker emissions IEC61000-3-3	Complies	

Guidance and manufacturer's declaration - electromagnetic immunity			
The SL-D301 is intended for use in the electromagnetic environment specified below. The customer or the user of the SL-D301 should assure that it is used in such an environment.			
Immunity test	**IEC 60601 test level**	**Compliance level**	**Electromagnetic environment - guidance**
Electrostatic discharge (ESD) IEC 61000-4-2	± 6 kV contact ± 8 kV air	± 6 kV contact ± 8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-4	± 2 kV for power supply lines ± 1 kV for input/output lines	± 2 kV for power supply lines ± 1 kV for input/output lines	Main power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	± 1 kV line(s) to line(s) ± 2 kV line(s) to earth	± 1 kV line(s) to line(s) ± 2 kV line(s) to earth	Main power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and Voltage variations on power supply input lines IEC 61000-4-11	<5% U_t (>95% dip in U_t) for 0.5 cycle 40% U_t (60% dip in U_t) for 5 cycles 70% U_t (30% dip in U_t) for 25 cycles <5% U_t (>95% dip in U_t) for 5 sec	<5% U_t (>95% dip in U_t) for 0.5 cycle 40% U_t (60% dip in U_t) for 5 cycles 70% U_t (30% dip in U_t) for 25 cycles <5% U_t (>95% dip in U_t) for 5 sec	Main power quality should be that of a typical commercial or hospital environment. If the user or the SL-D301 requires continued operation during main power interruptions, it is recommended that the SL-D301 be powered from an uninterruptible power supply or battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
NOTE U_t is the a.c. main voltage prior to application of the test level.			

Guidance and manufacturer's declaration - electromagnetic immunity			
The SL-D301 is intended for use in the electromagnetic environment specified below. The customer or the user of the SL-D301 should assure that it is used in such an environment.			
Immunity test	**IEC 60601 test level**	**Compliance level**	**Electromagnetic environment - guidance**
Conducted RF IEC 61000-4-6 Radiated RF IEC 61000-4-3	3 Vrms 150kHz to 80MHz 3 V/m 80MHz to 2.5GHz	3 V 3 V/m	Portable and mobile RF communications equipment should be used no closer to any part of the SL-D301, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance $d = 1.2\sqrt{P}$ $d = 1.2\sqrt{P}$ 80MHz to 800MHz $d = 2.3\sqrt{P}$ 800MHz to 2.5GHz where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, [a] should be less than the compliance level in each frequency range. [b] Interference may occur in the vicinity of equipment marked with the following symbol: 
NOTE 1	At 80 MHz and 800 MHz, the higher frequency range applies.		
NOTE 2	These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.		

a Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the SL-D301 is used exceeds the applicable RF compliance level above, the SL-D301 should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the SL-D301.

b Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

Recommended separation distance between portable and mobile RF communications equipment and the SL-D301

The SL-D301 is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the SL-D301 can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the SL-D301 as recommended below, according to the maximum output power of the communications equipment.

Rated maximum output power of transmitter W	**Separation distance according to frequency of transmitter m**		
	150kHz to 80MHz $d = 1.2\sqrt{P}$	**80MHz to 800MHz** $d = 1.2\sqrt{P}$	**800MHz to 2.5GHz** $d = 2.3\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

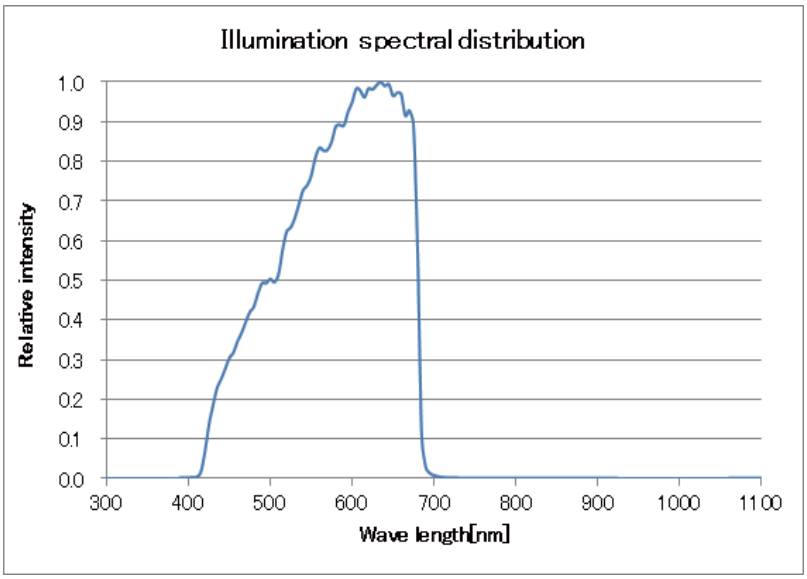
For transmitters rated at a maximum output power not listed above, the recommended separation distance *d* in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where *P* is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

NOTE 1	At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.
NOTE 2	These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

OPTICAL RADIATION HAZARD

⚠CAUTION	• The light radiated from the instrument is potentially hazardous. The longer the exposure time is, the higher the risk of causing disorder to the eye is. • When operating with the maximum intensity, the light radiation reaches values exceeding the safety guideline in about 309 sec.

RELATIVE SPECTRAL DISTRIBUTION OF ILLUMINATION LIGHT



Because prolonged intense light exposure can damage the retina, the use of the device for ocular examination should not be unnecessarily prolonged, and the brightness setting should not exceed what is needed to provide clear visualization of the target structures.

The retinal exposure dose for a photochemical hazard is a product of the radiance and the exposure time. If the value of radiance were reduced in half, twice the time would be needed to reach the maximum exposure limit.

While no acute optical radiation hazards have been identified for slit lamps, it is recommended that the intensity of light directed into the patient's eye be limited to the minimum level which is necessary for diagnosis. Infants, aphakes and persons with diseased eyes will be at greater risk. The risk may also be increased if the person being examined has had any exposure with the same instrument or any other ophthalmic instrument using a visible light source during the previous 24 hours. This will apply particularly if the eye has been exposed to retinal photography.

TYPE OF PLUG

Country	Voltage/frequency	Type of plug
Mexico	110V/50Hz	Type C&E
Argentina	220V/60Hz	Type A
Peru	220V/60Hz	Type A
Venezuela	110V/50Hz	Type C&E
Bolivia & Paraguay	220V/60Hz	Type A (Most common) Type H (Infrequently)
Chile	220V/60Hz	Type A
Colombia	110V/50Hz	Type C
Brazil	220V/60Hz 127V/60Hz	Type A Type C
Ecuador	110V/50Hz	Type C&E
USA	120V/60Hz	Type A (Hospital Grade)
Canada	120V/60Hz	Type A (Hospital Grade)

OPTIONAL ACCESSORIES

TOPCON SLIT LAMP SL-D301 provides the following optional accessories for imaging.
For inquiries, please call your dealer or TOPCON (see the back cover)

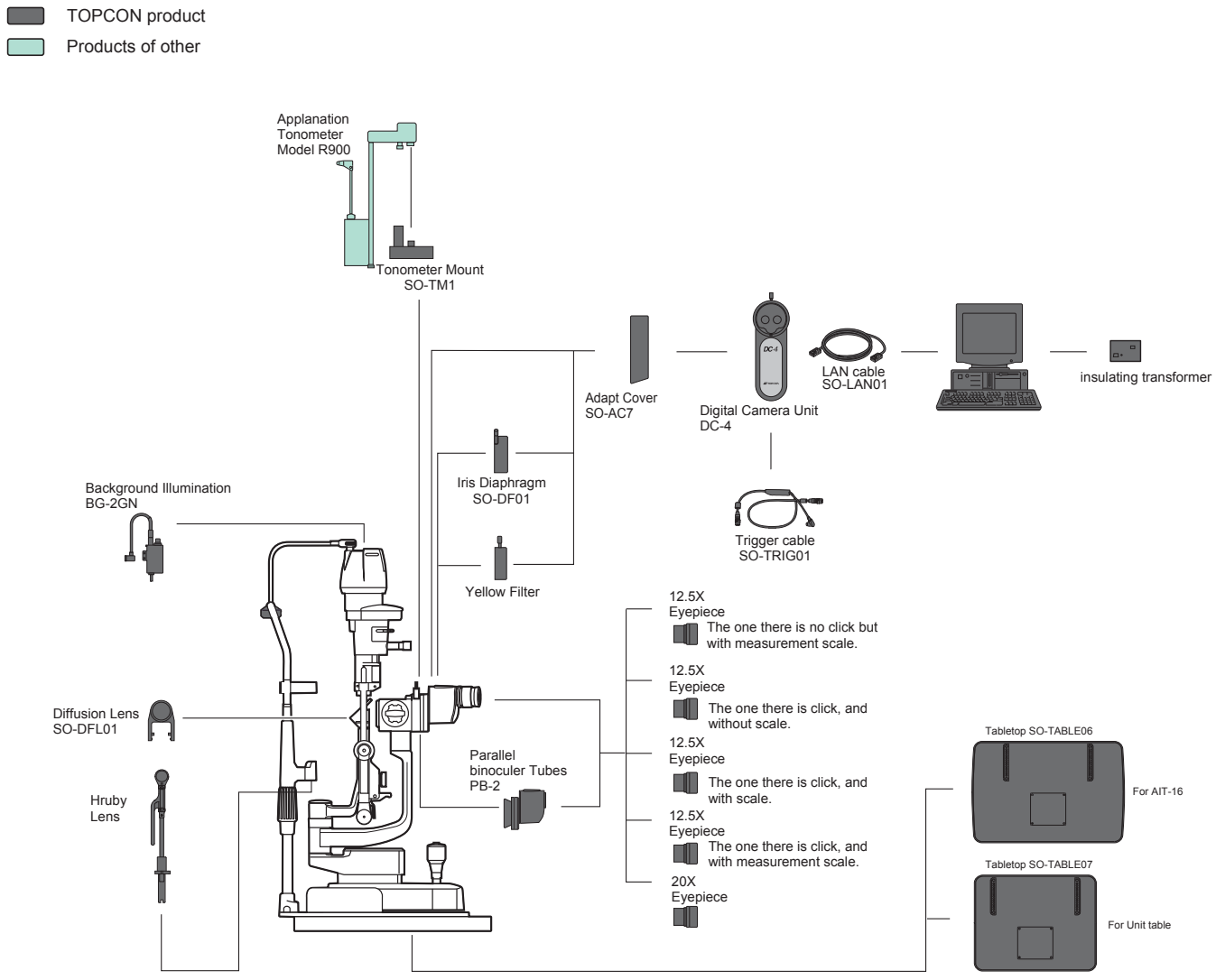
⚠CAUTION	To prevent falling during use and movement, secure optional accessories.

•For details, please refer to the instruction manuals of each product.

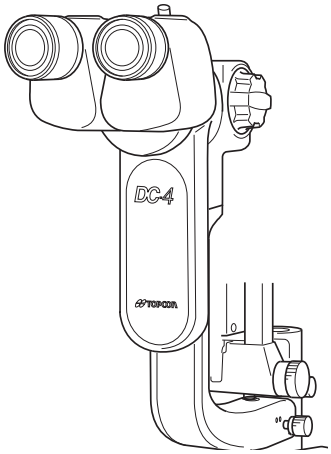
SYSTEM CONFIGURATION

⚠CAUTION	To avoid electric shock, do not touch the external connection terminal and the patient at the same time.

System Chart



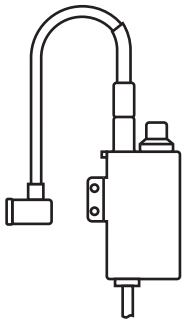
DIGITAL CAMERA UNIT DC-4



FEATURES

- Simple operation and high-quality digital image.
- Optimized functions for slit lamp photography.
- Compact body and internal cabling for a neat look.
- All DC-4 functions are software driven.

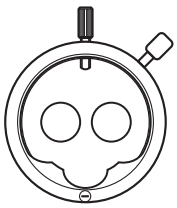
BACKGROUND ILLUMINATION BG-2GN



FEATURES

- Used for background illumination.

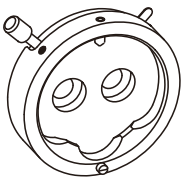
YELLOW FILTER UNIT



FEATURES

- Combines with the blue filter prepared in the main body for a high-contrast fluorescence observation.
- Easy switching between filter insertion & removal.

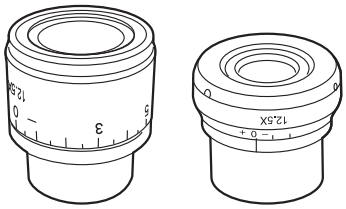
IRIS DIAPHRAGM SO-DF01



FEATURES

When taking picture, you can adjust the light intensity and the depth according to the need.

12.5x Eyepiece

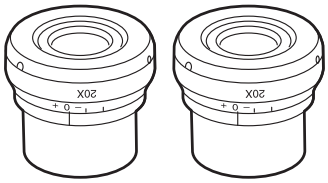


FEATURES

There are four types as below:

- One with internal measurement scale and no click stops.
- One without internal scale and click stops on each adjustment step.
- One with internal scale and click stops on each adjustment step.
- One with internal measurement scale and click stops on each adjustment step.

20X EYEPIECE

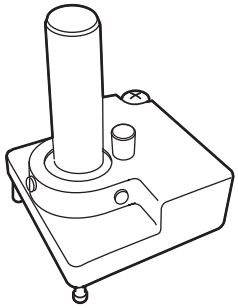


FEATURES

- Replaces the normal eyepiece for high magnification observation.

TONOMETER MOUNT SO-TM1

FEATURES



- For the measuring of the intraocular pressure, models R900 type and T900 type, Haag-Streit, are available.

* If the R900 type is being used for the SL-D301, the tonometer mount SO-TM1 is required.
(Depending on specification, SO-TM1 may be included in standard accessories.)

* If the T900 type is in use, the tonometer guide plate (for T-900 type) is required.

HRUBY LENS

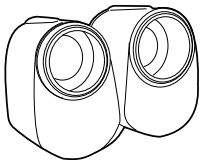
FEATURES

Normally, observation is possible only up to the anterior vitreous body due to the refractive power of the cornea and lens. With the Hruby lens, the posterior vitreous body and the retina can be observed.

PARALLEL BINOCULAR TUBE PB-2

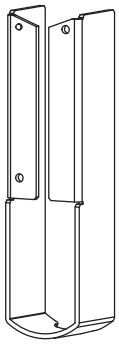
FEATURES

- Can observe a parallel view of the object.



ADAPT COVER SO-AC7

FEATURES

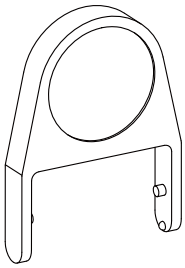


Used to cover the gaps with the microscope arm and hide cables when attaching the digital camera unit DC-4.

SO-AC7: For SL-D301 + DC-4 +SO-DF01

DIFFUSION LENS SO-DFL01

FEATURES



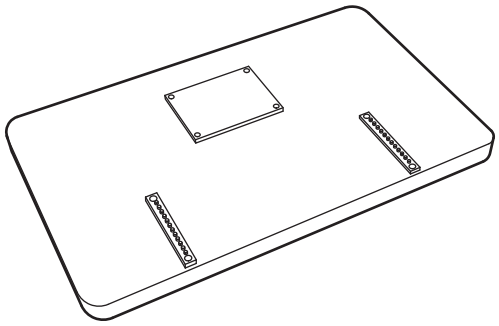
Large area can be illuminated with diffuse illumination.

TABLETOP SO-TABLE06, 07

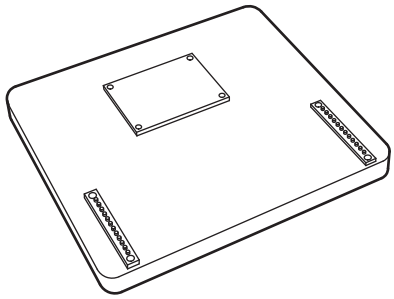
FEATURES

• The tabletop to support the base unit, the chinrest unit and the power supply.

SO-TABLE06 For AIT-16



SO-TABLE07 For Unit table



Please provide the following information when contacting us regarding questions about this instrument:

- Model name: SL-D301
- Serial No.: This is printed on the rating nameplate on the right side of the power supply unit.
- Period of use: Please inform us of the date of purchase.
- Defective condition: Please provide us with as much detail as possible on the problem.

SLIT LAMP
SL-D301

USER MANUAL

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SLIT LAMP

SL-D301

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