

## Optional parts (Separate sale)

### ● Interchangeable lens (additional purchase) (Fig. 11)

- RECTA-SYSTEM LENS 2X
- RECTA-SYSTEM LENS 2X AR
- RECTA-SYSTEM LENS 3.5X
- RECTA-SYSTEM LENS 3.5X AR

AR is multicoated lens.

It is the lens which added anti-reflection coating to all lenses surface. This has high transmissivity and is a bright lens.

This prevents the light of the sun and ceiling illumination reflect in a lens.

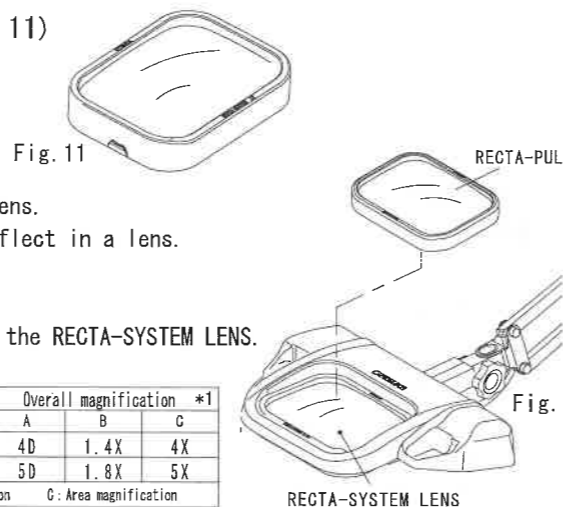


Fig. 11

### ● RECTA-PUL (Power up lens) (Fig. 12)

The lens magnification can be increased very easily by placing the RECTA-SYSTEM LENS.

Effective aperture	133×97 (mm)	Overall magnification			
		Overall magnification *1			
Lens material	Optical glass	Lens combination	A	B	C
		RECTA 2X + RECTA-PUL	4D	1.4X	4X
		RECTA 3.5X + RECTA-PUL	5D	1.8X	5X

\*1 A: Diopter B: Line Magnification C: Area magnification

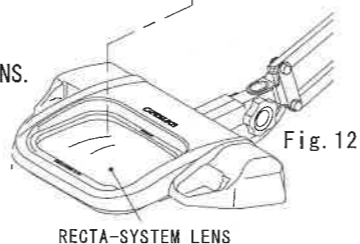


Fig. 12

### ● Flange base (For type-F) (Fig. 13)

Instead of a clamp, a screw-type flange base can be attached to a work desk where a clamp stand cannot be installed.

Note

- If you do not fix it, it will not stand by itself, so be sure to fix it with a screw etc.
- Screws and bolts for mounting the flange base are not included.

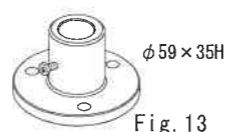


Fig. 13

### ● Offset clamp (For type-F) (For type-FD) (Fig. 15)

The OLIGHT III-L (FD) can be mounted at an offset position than usual when the back wall is close or the clamp encounters something.

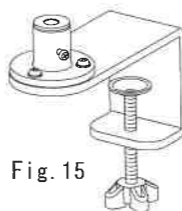


Fig. 15

### ● Horizontal bar extension (For type-B)

By attaching this part between the cross joint and the horizontal bar, the movable range of the lens housing can be extended. (Fig. 16)

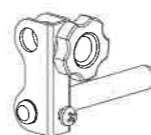
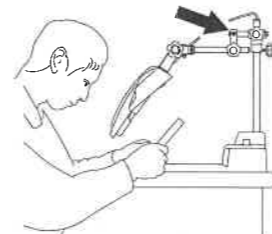


Fig. 16



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### ● L300 horizontal bar (For type-B)

the horizontal bar that is 160mm longer than the standard product. By changing the crossbar to an L300 horizontal bar, the lens housing can be installed as shown in the figure, allowing observation in a more natural posture. (Fig. 17)

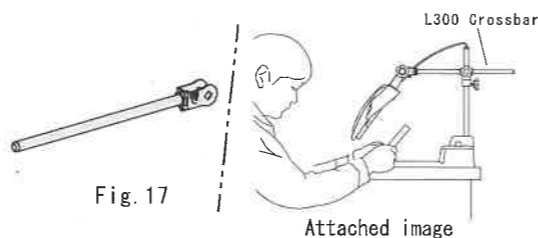


Fig. 17

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Fig. 17

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## Other precautions

- Do not use thinner, benzene, etc. to clean the body and plastic parts such as the Lamp cover. They can flake the paint and deform the parts.
- This machine is not for medical use. Also, do not use it in a place where medical equipment is used. There is a risk of noise entering the medical device.
- When you use this product as a lighting installation, take off a lens cover (Fig. 10) by all means. When you continue such a usage for a long time, a lens cover disturbs the heat radiation from an electrical component and shortens the life of the LED lamp.

## After-sales service

- For repair of the illuminated magnifier, ask distributor at which you purchased it.
- This illuminated magnifier has One year guarantee for repairs.

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# Instruction manual

OTSUKA

## Illuminated magnifier OLIGHT3L series

Thank you for your purchasing OTSUKA's illuminated magnifier. Please read this instruction manual before use by all means to have you use it for a long time.

OLIGHT3L-B  
OLIGHT3L-F  
OLIGHT3L-FD

The model name is abbreviated in the description.  
An example: OLIGHT3L-B⇒Type-B, OLIGHT3L-F⇒Type-F, OLIGHT3L-FD⇒Type-FD

## Safety precautions

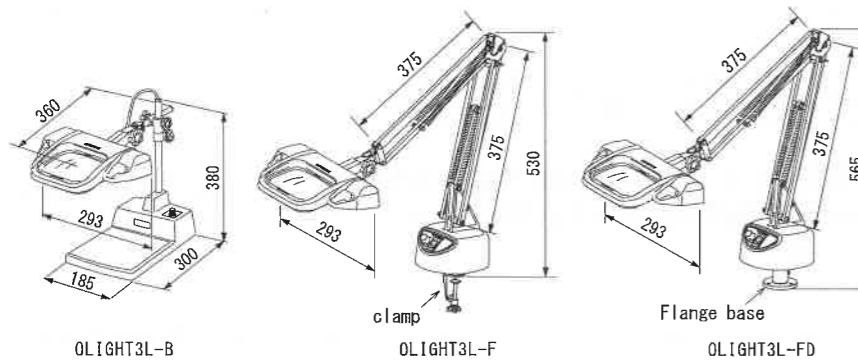
Before using the device you purchased, be sure to read this "Safety precautions" and understand how to use it. The following section explains important items you must observe to prevent injury to you and other persons or damage to properties and use your device safely. This instruction manual uses various symbols to warn of Max. danger to the user or other persons, as well as property damage. These symbols and their meanings are shown next.

	Prohibited items are described under this mark.		Items which you must carry out.		Warnings or cautions.		Ignoring an item under this mark and wrong use could cause death or serious bodily injury.
							Ignoring an item under this mark and wrong use could cause bodily injury or property damage.

WARNING							
	Since long continuous use of the magnifier tires your eyes and body, take extreme care about working posture and rest. (Stop using the magnifier every 15 minutes and rest your eyes for a while.)		Do not leave a metal piece such as a clip in the magnifier or splash water or oil over it since they can cause a short circuit or a fire. (Protection class: IP20)		Do not use or keep the magnifier in a place where there is much dust, moisture, oil mist or steam. Doing so can cause a fire or an electric shock.		Do not pull the power cable to unplug it. Doing so can cause a short circuit or a fire. Pull it out with the plug part.
	Do not operate with your finger on the movable part such as the arm. Doing so can result in bone fractures and injuries. (applies to Type-F, FD)		Do not touch the magnifier or hold the power plug with wet hand. Doing so can cause an electric shock.		If it starts thundering, do not touch a metallic part or power plug of the magnifier. If the thunderbolt strikes the magnifier, you may get an electric shock.		Do not turn the main body more than 180 degrees. Doing so can cause a disconnection or a short circuit, and that can cause a fire. (applies to Type-F, FD)
	Be sure to use the voltage and the frequency written in the label. Using the wrong voltage outlet may cause ignition or malfunction.		If abnormal smell, abnormal sound or smoke comes out, turn off the power immediately and disconnect the power plug. If left unchecked, it may cause a fire.		Do not use the magnifier in a place where there may be combustible gas, explosive gas, etc. around it. Doing so can cause a fire or an explosion.		If dust is accumulated on the power plug, it can lower insulation with moisture and can cause a fire. Periodically wipe off dust from the power cable with a dry cloth.
	Do not hold the electric wire to move or operate the illuminated lens. Doing so can cause a disconnection or a short circuit and that can cause a fire or an electric shock.		When the F-type is moved, your hair may wind around its spring. If you have long hair, arrange it with hair clips. (applies to Type-F, FD)		Do not use on heating equipment. This will hinder heat dissipation and shorten the life of the LED lamp as well as cause a failure.		Fig. 1 Please do not use it as shown in Figure 1 with the lamp cord pushed like the arrow between pipes. When a free arm is greatly moved the cord might be damaged and it be short if such a usage is done. (applies to Type-F, FD)
	Do not bend or twist the power cable forcibly or place a heavy thing on it. Do not leave the cable bound when using. Doing so can cause a short circuit or a disconnection and that can cause a fire or an electric shock.		If the power cable or power plug is damaged or broken, do not use them. Using them can cause an electric shock or a fire. For repair of the power cable and power plug, ask the shop at which you purchased them.		If you look the sun through the lens, the sunbeam will be condensed on your eye and you may lose your sight.		Do not modify or disassemble the magnifier. Doing so can cause a fire or an electric shock. Once the magnifier is modified or disassembled, it may not be repaired even in the guarantee period. We will not be liable for any property accident or personal accident caused by modification.
	Do not rotate the lens frame by more than ±180°. Applying tension to the cable may cause a disconnection or short circuit, resulting in a fire. (applies to Type-B)		Since a lens is used, it condenses light. Continuous radiation of strong light such as sunbeam to a flammable material can cause a fire. Accordingly, do not set the magnifier on a place where it may be irradiated with such light. While the magnifier is not used, keep the lens cover or a sunbeam blocking cloth on it.		Do not remove the spring unnecessarily from arms. If it is removed wrongly, it may jump out to a person or may break a peripheral device. The spring must be replaced by a person having the maintenance knowledge according to the proper replacement procedure. (applies to Type-F, FD)		Disassembly prohibited
	Turning the volume knob more than necessary may cause a malfunction.						

CAUTION							
	When you use this in the environment except the specifications temperature range, it breaks down and may shorten life remarkably.		Do not splash water over the lens to wash. If water is splashed, it may enter the body and it can cause blur and mold.		The main body turns when you install it in the sloping place, and an accident may happen. Please install the main body in the horizontal place. (applies to Type-F, FD)		Cleaner containing a polishing agent Do not wipe the lens with detergent containing polishing powder or a dirty cloth. If you do so, lens surface may be scratched or lens coating may be flaked off. If the lens is stained, wipe it with a lens cleaning cloth or a glass cleaning cloth.
	The lens frame has a rotary stopper to prevent the tension from depending on a cord. Please do not turn a lens frame unit forcibly. It damages a cord and causes a fire and the electric shock. (applies to Type-F, FD)		If it is installed on a slope, the main unit may slide down and fall, causing the main unit to malfunction, break or injure your feet. Do not install the main unit at an angle of more than 5°. (applies to Type-B)		Handle the lamp and lens carefully so as not to break them. If they are broken, you may be injured or get an electric shock. Stop work, and ask it for repair.		If the lens frame (shade) is turned upside down, the interchangeable lens may fall and break itself or injure your foot. Please insert a rubber frame in the right direction. Push it to the end surely.
	Do not apply strong force in the direction of the arrow when the arm is in the state as shown in the figure. (applies to Type-F, FD)		Do not forcibly rotate the head in the direction shown in the figure by more than ±80°. The head may be damaged or the cable may be subjected to excessive tension, causing a break or a short circuit, resulting in a fire. (applies to Type-F, FD)		When the magnifier is moved on a desk, the desk surface may be scratched. The clamp of the OLIGHT3L can scratch the desk surface. If it is necessary to protect the desk surface, place a sheet or a plate under the magnifier.		If your hand or elbow is strongly pressed or rubbed against an edge of a pressed or die-cast part, it may be hurt. Take care when handling.
	The magnifier has many moving metallic parts which are in contact with each other. While they are rubbed against each other many times, slight amount of metallic powder may fall. Accordingly, the magnifier is not suitable for use in a Clean Room. Even if a loss is made in your devices, products, etc. Because of the use of the magnifier, we are not liable for that loss. If the object of observation etc. May be damaged by metallic powder, do not use the magnifier or do not move the movable parts above the object or take other measures to prevent foreign matter from falling over the object.						In case of B type, when the lens part is swung right and left, the weight of the lens part may cause the body to fall and damage the observation object. For normal use, set the following angles to the maximum value. (applies to Type-B)

■ Names of parts (Unit:mm)



■ Specifications

	OLIGHT3L-B	OLIGHT3L-F	OLIGHT3L-FD
Weight (excluding lens)	2.3kg	2.5kg	約2.4kg
Cramp width	15~60mm	15~60mm	
Light source	LED ※1		
Power source	100V~240V 50Hz-60Hz ※2		
Power consumption	9W		
Continuous dimming	50%~100%		
lens	interchangeable lens system Rectangular optical glass lens (144x108mm)		
Adaptive lens	RECTA-SYSTEM LENS 2X or 3.5X		
Dimensions of the head	293x205mm		
Body color	off white		
Operating temperature	5°C~40°C		
IP Number	IP20 indoor use only		

※1 Each LED bulb is manufactured under strict controls. There may be LED bulbs having different colors from the adjacent ones, however. This is not a defect or a trouble. Please understand in advance.  
 ※2 The power supply is available to Max 240V by appointing a plug shape.

■ A Note on the Magnification of Lenses

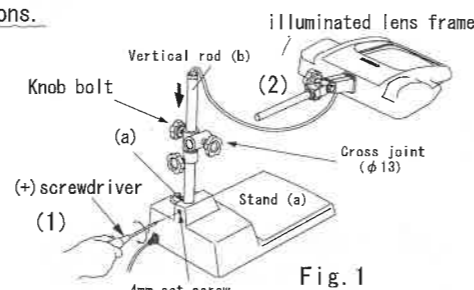
The magnification that is engraved on the lens frame is expressed by the area magnification. Refer to the conversion table in Table 2 for diopters and line magnifications.

■ Setting method

● OLIGHT3L-B

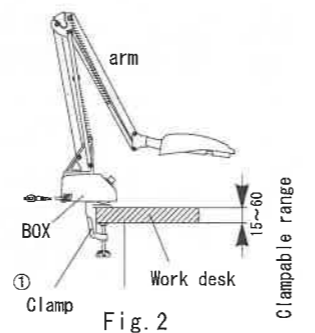
Use it on a horizontal surface such as a work table.

- Insert the Vertical rod (b) into the support insertion hole (a) of the main unit, and fix it firmly with the 4mm screw set in the main unit with a Phillips screwdriver when it stops. (Fig.1)
- Insert the horizontal bar of the illumination lens frame unit into the  $\phi 13$  hole of the cross joint and tighten the knob bolt. (Fig.1)



● OLIGHT3L-F

Securely mount the clamp on a level surface such as a workbench or table. The top plate should be a rigid material with no large chamfers. If it is thinner than 15 mm, please put a suitable adjustment plate. (Fig.2)



● OLIGHT3L-FD

- Fix the flange base to the workbench or jig with three screws and bolts. (Fig.3 and Fig.4)
- Insert the flange bush into the hole of the flange base and insert the shaft from below the main body. When it stops, fix it securely with the 4mm screw set on the flange base. (Fig.4)

Note

- If you do not fix it, it will not stand on its own, so be sure to fix it with a screw etc.
- Flange base mounting screws and bolts are not included.

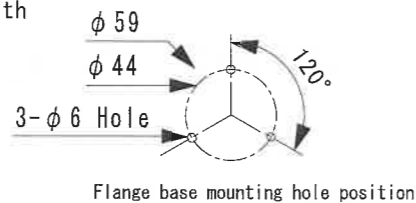


Fig. 3

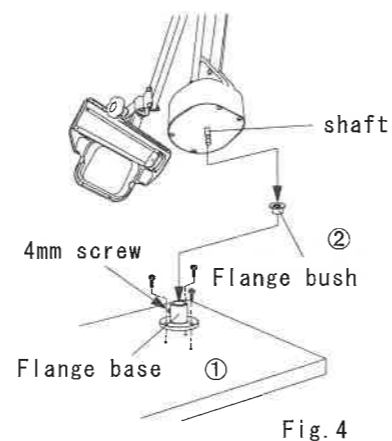


Fig. 4

■ Using method

- Connect the power plug to outlet of power supply within specification.
- Lighting method of the lamp  
For switching on the light, please operate power switch to show in Fig.5.
- Adjustment of the brightness  
The continuous dimming of light can be adjusted to a desired level in the range from Max to Min with the dimming knob. (Fig.5)  
Please do not turn it forcibly across an adjustment range.

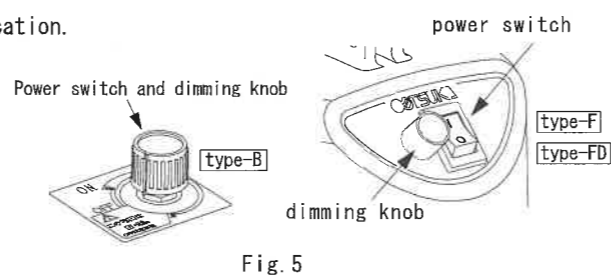


Fig. 5

■ Adjustment of the arm [For type-F] [For type-FD]

- Tighten two butterfly-nuts when you feel the loosening of the arm, and a lens frame do not stop at the angle that you aimed at.
- When you want to change the elevation angle of the lens part, Move it after loosening a knob nut. In the case of the turn of the direction ( $\pm 80^\circ$ ) to show in the Fig.6, it is not necessary to clamp it.
- When you use it for a long term, the slack may occur in the coupling part of the free arm. Check the slack of the screw of all parts regularly, and tighten it up.

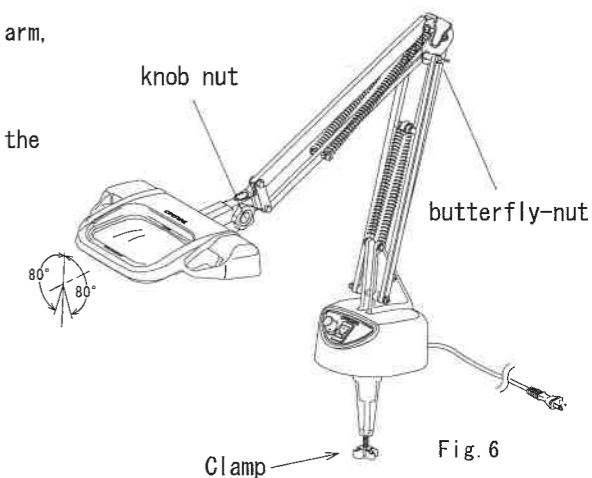


Fig. 6

■ Interchangeable lenses

● Handling method of replacement lens

To remove the lens, push its rubber frame rim from below (B, B') with your fingertips as shown in Fig.7 while pushing the A part of the rubber frame (both sides) in the arrow(a) a direction. The projection of the A part has the function of to prevent a fall lens.

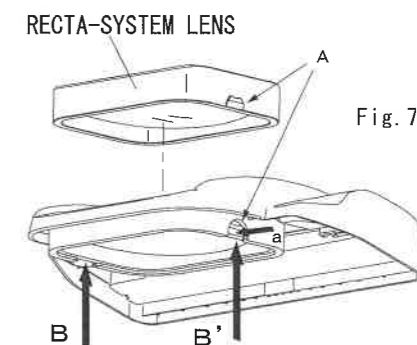


Fig. 7

- Insert it in the direction where letters of the rubber frame (RECTA-SYSTEM 2X (3.5X) 、OTSUKA) are seen in the front. (Fig.8)

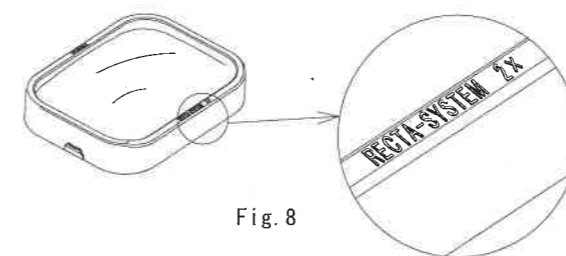


Fig. 8

- If the lens becomes dirty, gently wipe the surface with a cloth for eyeglasses. Alternatively, draw a circle on a soft cloth such as gauze (Fig. 16).
- The lens of the illuminated magnifier condenses light. Continuous radiation of strong light such as sunbeam to a flammable material can cause a fire. Accordingly, do not set the magnifier on a place where it may be irradiated with such light. While the magnifier is not used, keep the lens cover (Fig.10) or a sunbeam blocking cloth on it.

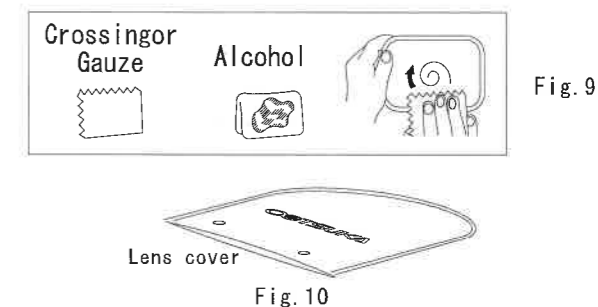


Fig. 9

■ Using and maintenance method of replacement lens

- Magnification varies with the position of the lens between the object and your eyes. Set the lens to a position where you can see the object most clearly and your eyes are least tired. Adjust its height and angle, eye point, and working distance so that it will be parallel with the object as much as possible according to the table 2.
- When replacing the lens or observing an object, tighten the screw (black knob) of the lens mount so securely that the lens frame will not lower.
- When using the illuminated magnifier, take measures to prevent the ceiling light from reflecting in the lens and entering your eyes.

■ Interchangeable lenses

Notation of lens frame	Magnification *1			① Eye point (mm)	② Lens Aperture (mm)	③ Working distance (mm)	Weight (kg)
	A	B	C				
RECTA-SYSTEM LENS 2X	2D	1.4X	2X	150	139x103	160	0.56
RECTA-SYSTEM LENS 3.5X	3.5D	1.8X	3.5X	150	139x103	120	0.73

\*1 A: Diopter B: Line Magnification C: Area magnification

The magnification is a theoretical value calculated than lens curvature. In addition, eye point and working distance are different values by the eyesight of the observer, age. The list showed the average numerical value of the position that looked have few distortions. Look for your position to see most comfortably.

