

## LED LIGHT YNA-Ⅱ-4.5 INSTRUCTION MANUAL

Before using the LED light, please thoroughly read this instruction and keep it for future reference.





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### 1. Safety Precautions
















	This sign indicates the "possibility of death or severe injury" if used incorrectly.
	This sign indicates the "possibility of injury or physical damage only" if used incorrectly.

Following sections with symbols show what must be observed:

	Prohibitions (what must not be done) are indicated.
	Compulsory actions based on DIRECTIONS (what must be done) are indicated.
	This sign indicates the unit must not be disassembled.
	This sign indicates the unit must not be touched with a wet hand.

### WARNING

	Do not expose an eye to the light or stare it. There is a risk of vision disability.
	Do no use the unit nearby flammable gases like propane gas or gasoline or dust. There is a risk of catching fire or explosion.
	Do not leave the unit within a reach of a child. Doing so may cause injury or accidental ingestion.
	Do not cover the unit with a cloth or a blanket. Doing so may cause fire or the unit breakdown.
	Do not insert other devices' plug like AC adaptor into the DC jack of the unit. Doing so may cause fire or the unit breakdown.
	To avoid accidental lighting, unplug the DC plug before putting the unit into a bag or packing it. There is a risk of fire or the unit breakdown.

 CAUTIONS	
	Do not use the unit in combination with components from other devices. There is a risk of electrical shock or the unit breakdown.
	Do not use the unit in damp or wet locations. There is a risk of electrical shock or the unit breakdown.
	Do not put a heavy thing on the cord or the unit. There is a risk of electrical shock or the unit breakdown.
	Do not use the unit if damage is found with the cord. There is a risk of electrical shock or the unit breakdown.
	Do not short-circuit end terminals or touch them with fingers. There is a risk of electrical shock or the unit breakdown.
	Do not use deformed, damaged, leaky cell batteries. Doing so may cause overheating, ignition, or explosion.
	Do not hit the unit hard or throw it. Doing so may cause injury, the unit breakdown, or fire.
	Do not sterilize the unit. Doing so may cause the unit deforming or breakdown.
	Do not keep touching the light head when switching on the unit or shortly after switching off. Doing so may cause burn injury.
	Do not touch the cord, outlet, and the unit with a wet hand. Doing so may cause electrical shock.
	Do not decompose or remodel the unit. Doing so may cause burn injury, fire, or the unit breakdown.
	Do not tug the cord to pull DC plug from DC jack to avoid the unit breakdown. Hold the plug.
	Tighten the screws if they are loose to avoid the unit breakdown or injury.
	Remove the cell batteries if the unit will not be in use for a while to avoid the unit breakdown.

## 2. Outline of Unit

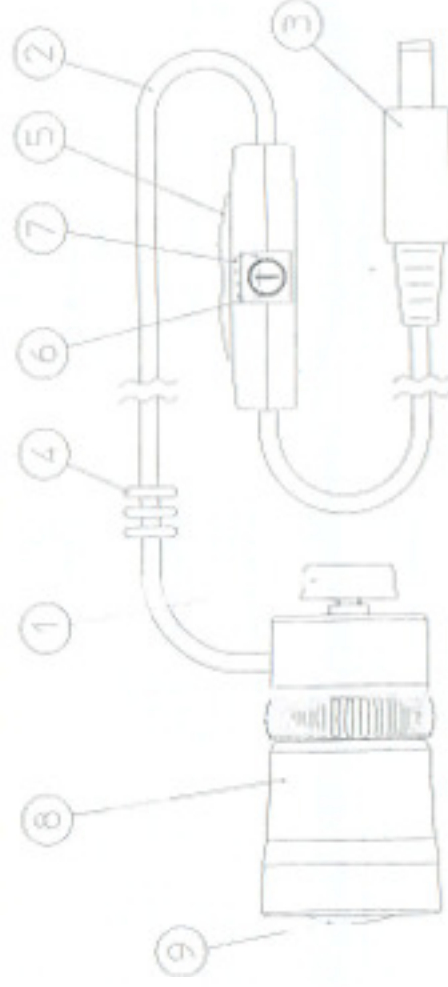
LED light YNA-II-4.5 is a medical device.

It uses three AA cell batteries to light a LED. Emitted light is collected with a collection lens, and illuminate an affected area.

## 3. Composition & Function of Unit

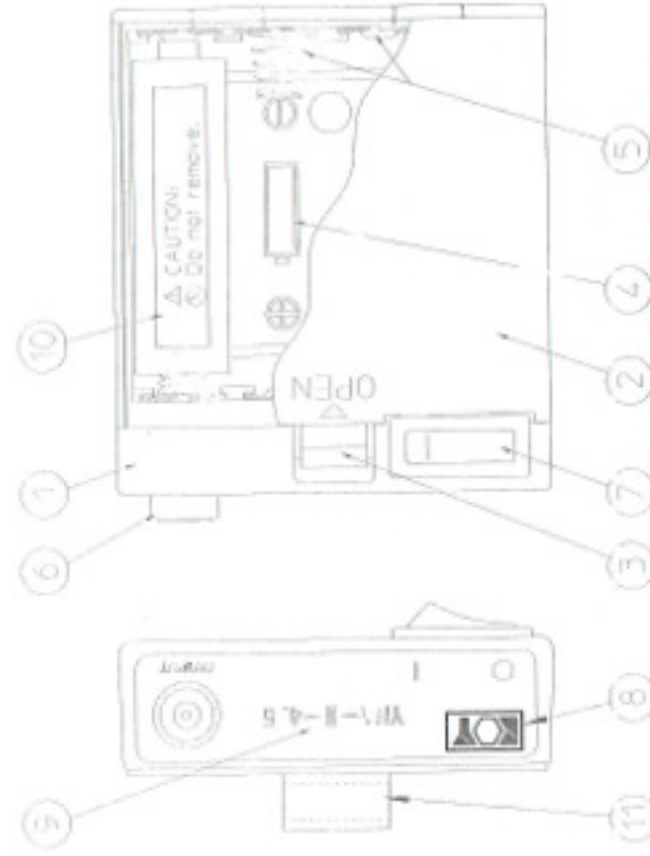
Shown below are the composition and the function of per product:

3-1. Light Head Part... 1 set



- ① Fixing Screw..... Used for fixing the hinge that holds the light head.  
It can be tighten / loosen with fingers.
- ② Cord..... Flexible & light weight power cord.
- ③ DC Plug..... Connects to DC jack of the battery case to source power.
- ④ Cord Ring..... Rubber rings to neatly fix the power cord to spectacles temples.
- ⑤ Inter switch..... Switched 'on / 'off by pressing the pad at center.
- ⑥ Source Pilot Lamp..... Indicates power 'on / 'off.
- ⑦ Lot Numbers..... Lot Numbers given by the manufacturer. (Opposite side of ⑥.)
- ⑧ Lens Barrel..... Contains LED and a lens.
- ⑨ Collection Lens..... Collects light emitted by LED to illuminate forward.

### 3-2. Battery Case Part... 1 set

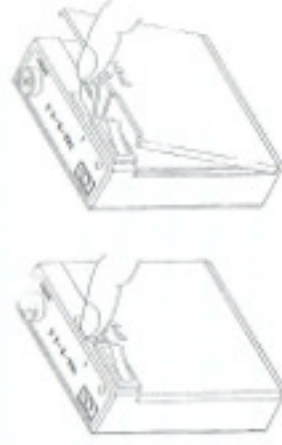


- ① Battery Case.....Dedicated Battery Case for AA Cell Batteries.
- ② Cover..... Dismounted in setting batteries; mounted after setting them.
- ③ Lock Knob.....Operated to dismount Cover.

Press down the Knob as the sign,

▽, (*Indication: OPEN*) shows, and pull. Follow the opposite procedure to mount Cover.

Snap it on.



- ④ Battery Symbol.....Set cell batteries as the Symbols show.  
⊕ and ⊖ signs are provided indicating polar characters.
- ⑤ Terminal.....Touches batteries to conduct electricity.
- ⑥ DC Jack..... Connects to DC Plug at Light Head Part to output power  
(*Indication: OUTPUT*).
- ⑦ Power Switch.....Seesaw-type switch.  
Pressing to | side powers the unit on, ○ side the unit off.
- ⑧ Company Logo.....Marketing Authorization Holder Logo.
- ⑨ Sale Name..... Sale Name (name under which product is sold) of this unit.
- ⑩ Safety Circuit Part...Safety Circuit is built in. Never remove this component.
- ⑪ Hook.....Battery Case can be hung on your side with Hook.

#### 4. How to use Unit

##### 4-1. Attaching Light Head

Unscrew Fixing Screw, attach a hinge that conforms to dimensions as shown in the drawing. Then fix the hinge to a spectacles frame, and adjust direction.



##### 4-2. Aligning Power Cord From Light Head Parallel To Spectacle Frame

Refer to the manual of the spectacles frame as well to which the LED light is being attached.

※ Care should be taken not to pull the cord forcibly or to press it to a sharp corner. Do not bend it at small radius or bind it; handle it carefully.

If needed, apply Cord Rings to the spectacles frame to fix the cord.

##### 4-3. Setting Cell Batteries to Battery Case

Open the cover, set three AA Batteries in the directions as Battery Symbol shows.

As the batteries are set, mount the cover to the original position.

※ Setting the batteries in wrong directions may cause overheating.

Do not mix batteries of different brands or the new and the old; use three new batteries.

Recommended batteries: AA Alkali Battery (LR6); AA Nickel-metal-hydrated Battery.

Carefully read the manual attached to the batteries being used.

##### 4-4. Attaching Light Head and Battery Case

Wear a spectacles frame attached with Light Head. Place Battery Case at a pocket of the clothes or at waist. Line the cord so that it does not get in the way.

Firmly insert DC Plug from Light Head into DC Jack of Battery Case to the end.

##### 4-5. Lighting The Unit

Press Power Switch to | side to light the unit.

If the hinge attached is with a tilt-mechanism, set it to the optimum angle.

##### 4-6. Turning Off Temporarily

By pressing the Inter-switch pad the light turns off.

It turns on by pressing the pad again or re-switching the main Power Switch.

##### 4-6. Turning Off

Press Power Switch to O side to turn off the light.

##### 4-7. Dismounting The Unit

Follow the procedure 4-1~4-4 in opposite direction for taking off the spectacles frame fitted with Light Head or dismantling it.

## 5. Maintenance

### 5-1. Pre-use Check

Check the following categories before use. If any abnormality is found, do not use the unit:

- Damage, severe stretch, deformation of Cord.
- The unit is firmly assembled (no rattling when shaken).
- Overall damage of the unit.

### 5-2. Replacing Batteries

Light Illuminance decreases with the batteries draining as 7. Technical Data shows.

If it is deemed not enough to observe affected area, immediately replace the batteries with new or fully-charged ones.

### 5-3. Cleaning

#### • Light Head / Battery Case

For daily care, wipe the unit with a dry cloth. If heavily soiled, wipe it with a cloth slightly saturated with mild solution of neutral detergent, then dry it with a cloth.

#### • Collection Lens

Do not directly touch Collection Lens with fingers at all times. Keep it clean.

Use a blower or carefully wipe it with a lens cleaner.

#### • Terminals

Wipe Terminals with a dry cloth; use a cotton bud to clean narrow areas.

※ Do not use thinner or alcohol. Not sterilizable.

### 5-4. Storing / Shipping Environment

Store or ship under the condition as shown in 7. Technical Data, avoiding direct sunlight and a humid place.

### 5-5. Transporting

For transporting, use the original packaging materials or cases with enough strength.

Avoid heavy load or shock.

Unplug DC Plug from DC Jack prior to shipping or packing to avoid accidental lighting.

### 5-6. Disposal

#### • Handling Batteries

Batteries are precious recyclable resources.

Old Batteries should be insulated with vinyl tape applied at the poles, or be individually packed in plastic bags. They should be put in a collection box provided by a recycling manufacturer or ask a dealer or the maker for collecting them.

For more details, read the instruction of the battery being used.

### 5-7. Service / Repair

If the unit does not work normally while being used properly, please contact addresses at the back of this instruction for service / repair.

Do not decompose or remodel the unit. Doing so may cause injury, burn injury, or electrical shock as well as the unit breakdown.



## 6. How to handle in case of trouble

If trouble occurs, follow any of the following procedures. Should the trouble continues, contact the marketing authorization holder shown at the end of this manual.

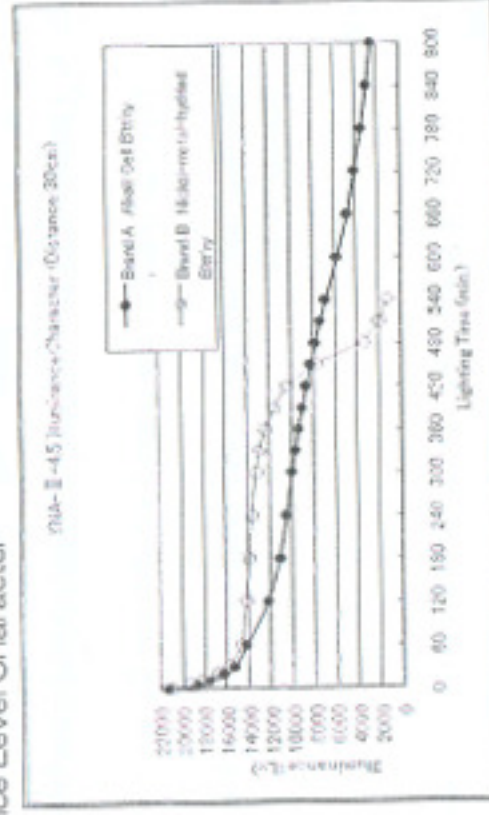
Description of Trouble:	Assumed Cause:	How to deal:
Battery Case Cover cannot be opened.	Trying to open Cover in wrong way.	Follow correct way referring to 3-2 Battery Case Part.
Cell Batteries cannot be inserted into Battery Case.	Trying to insert wrong-size cell batteries.	Insert size AA cell batteries.
Battery Case Cover cannot be closed.	Wrong-size cell batteries are in place. Foreign article is in place.	Insert size AA cell batteries. Remove foreign article.
DC Jack and Plug cannot be connected.	Foreign article adheres to. DC Jack or Plug is deformed or damaged. Battery drained.	Remove foreign article. Ask a seller for repair. Replace with new (fully charged) batteries.
Unit cannot not be powered when Power switch is on.	Batteries are inserted in wrong way. DC Jack and Plug are not connected.	Insert batteries in correct way. Connect DC Jack and Plug.
Unit does not illuminate when Inter-switch is on.	Power switch is turned off.	Turn on Power switch.
Dim illumination.	Battery level is falling.	Replace with new (fully charged) batteries.
Light is not even or dim.	Collection Lens is stained or foreign article adheres to it. Light is hindered with other wearable equipments (e.g. surgical loupes).	Cleanse the lens / remove foreign article. Adjust the equipments and the Unit positions.
Light wavers.	Unit is not firmly fixed to Hinge.	Tighten Fixing Screw well.
Light Head or Battery Case abnormally develops beat. Abnormal noise is made. Unusual smell is made.	Stop using the unit, as mechanical failure is suspected.	Ask a seller for repair.

## 7. YNA - II - 4.5 Technical Data

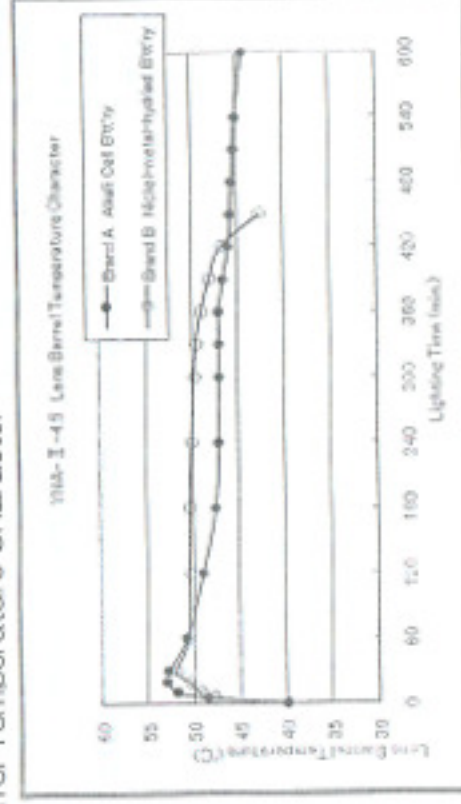
- Dimension                      Light Head                       $\phi$  21.4x36.2mm (Lens Barrel Part)
- Battery Case                      65x73x21mm (Excl. Protuberances)
- Weight                            Light Head                      35g (Incl. Switch & Cord)
- Battery Case                      75g (Excl. Batteries)
- LED                                3W White LED
- Rated Voltage                    DC 4.5V
- Recommended Battery            AA Alkali Cell Batteries (LR6)                       $\times$  3, or
- Nickel Metal-metal-hydrated Battery                       $\times$  3

- Spot Size                      Approximately  $\phi$  75mm (Distance from Collection Lens: 30cm)
- Figures showing illuminance characters and lens barrel temperature characters in continual lighting with commercially available batteries used (varies depending on batteries used):

### Illuminance Level Character



### Lens Barrel Temperature Character



- Nominal Use Temperature:  
(at transporting / storing):  
0°C~40°C  
-20°C~60°C  
35°C~60°C
- Nominal Use Humidity:  
700hPa~1060hPa
- Nominal Use Atmosphere:  
Internally-powered ME Equipment
- Type of Protection against Electrical Shock:  
Type B Equipment
- Classification of Level against Electrical Shock:  
IPX0
- Level of Protection against Water / Dust:  
Continuous Work
- Actuation Mode:
- Product Composition:

Light Head	× 1
Battery Case Instruction	× 1
Manual	× 1

• Marketing Authorization Holder Nameplate •

Contents of the Nameplate Affixed on Underside of Battery Case:



... Serial Number

Keeler & YANO LTD. MADE IN JAPAN

... Marketing Authorization Holder Name / Location

 ... This logo indicates the product satisfies the EU-set Standards.



... This logo indicates the product must be separated from general refuse at disposal in EU.

• LED Warning Label•



This label warns against irradiation by LED light.

**DO NOT STARE LIGHT.**

This device falls into CLASS 2 (EN60825-1: 1994,+A1,+A2), with the maximum output 22mW, the wavelengths 360-780nm.