3.5V Retinoscope User's Guide



Thank you for purchasing the 3.5V Retinoscope. To prevent damage to the 3.5V Retinoscope or injury to yourself or to others, read the following safety precaution in their entirety before using this equipment. Keep these safety instructions where all those who use the device will read them.

Symbol:



Attention: Read user's guide for Warning and Cautions and Instructions for operation.

Warnings and Cautions



Warning: This device must not be used in the presence of flammable gases.



Warning: This device should not be immersed in fluids.



Warning: Use 3.5 V Retinoscope only with all approved 3.5 V power supplied.



Warning: Federal law restricts this device to sale or order of a physician.

1. Part list

Show as Fig.1



Fig. 1

- 1. Dust glass;
- 2. Focusing knob;
- 3. Rubber brow rest;
- 4. Peep hole;
- 5. Bulb.
- 2. Operating Instructions
 - 1. Connect the 3.5 V Retinoscope to the power .
 - 2. Control ring allows for easy adjustment and continuous 360° rotation. Maintains the same plane of focus during rotation.
 - 3. 100% dustproof housings and glass cover on the front keep the device cleaner longer.

3. Maintenance

3.1 Replacing the Illumination bulb

Turn off the main power switch, remove the 3.5 VRetinoscope from the power . grasp end of bulb and pull out (use nail file or similar object if needed). Insert replacement bulb, Push bulb in firmly. Show as Fig.2.

The specification of bulb for the 3.5 V Retinoscope is 3.5 V/2.7 W



Fig.2

3.2 Cleaning

The cleaning of the 3.5 V Retinoscope is easily accomplished by wiping the external surface with a cloth dampened with a mild detergent and water solution, or a 70% isopropyl alcohol, or a 10% bleach solution (by volume). Do not immerse.

NOTE: Solution entering the assembly could damage internal components. Use caution to ensure cloth is not saturated with solution.



Caution: The 3.5 V Retinoscope should never be placed in municipal waste.

Optical Specifications				
Rotation			≥ 190°	
Distance from the device to which the real image ^a of the lamp filament is adjustable			$ \leq 450 \text{ mm}$	
Distance from the device to which the virtual image ^a of the lamp filament is adjustable			$ \leq 450 \text{ mm}$	
Length of s	treak image ^b		$\geq 30 \text{ mm}$	
Width of str	reak image ^b		≤ 1.5 mm	
Deviation from linearity of the streak image at the focus ^b .			$e \leq 2 \text{ mm}$	
Rotation decentring of centre of streak image ^b .			$\leq 10 \text{ mm}$	
a All distances are measured from the light exit of the deviceb When focus at 500 mm				
Electrical Specifications				
bulb		3.5 V 2.7 W		
Operation mode		Intermittent, on-time should not exceed 2 min with off-time not less than 5 min		
Environment Requirements				
Operation	Environment Temperature		+10 °C −+35 °C	
	Relative Humidity		30% - 75%	
	Atmospheric Pressure		700 hPa – 1060 hPa	
Shipping	Common Conveyance			
Storage	Environment Temperature		-40 °C −+55 °C	
	Relative Humidity		10% -90%	
	Atmospheric Pressure		500 hPa – 1060 hPa	

3.5V Coaxial Ophthalmoscope User's Guide



Thank you for purchasing the 3.5V coaxial ophthalmoscope. To prevent damage to the 3.5V coaxial ophthalmoscope or injury to yourself or to others, read the following safety precaution in their entirety before using this device. Keep these safety instructions where all those who use the device will read them.



Attention. Read user's guide for cautions and instructions for operating.

Warnings and Cautions

Warning: This product must not be used in the presence of flammable gases.



Warning: This product should not be immersed in

Warning: Use 3.5V Coaxial Ophthalmoscope only with all approved 3.5V power.

Warning: Federal law restricts this device to sale or order of a physician.

1. Part list



Fig. 1

- 1. Polarizing filter / red-free filter switch;
- 2. Aperture selection dial;
- 3. Diopters selection disc;
- 4. Bulb;
- 5. Dowel pin of bulb;
- 6. Illuminated Diopters indicator;
- 7. Peep hole;
- 8. Rubber brow rest;

2. Operating Instructions

- a) Connect the 3.5V Coaxial Ophthalmoscope to the power.
- b) For examination of the right eye, sit or stand at the patient's right side.
- c) Select "0" on the illuminated lens disc of the ophthalmoscope and start with the small aperture.
- d) Take the ophthalmoscope in the right hand and hold it vertically in front of your own right eye with the light beam directed toward the patient and place your right index finger on the edge of the lens dial so that you will be able to change lenses easily if necessary.
- e) Dim room lights. Instruct the patient to look straight ahead at a distant object.
- f) Position the ophthalmoscope about 6 inches (15 cm) in front and slightly to the right (25°) of the patient and direct the light beam into the pupil. A red "reflex" should appear as you look through the pupil.
- g) Rest your left hand on the patient's forehead and hold the upper lid of the eye near the eyelashes with the thumb. While the patient is fixating on the specified object, keep the "reflex" in view and slowly move toward the patient. The optic disc should come into view when you are about 1 to 2 inches (3-5 cm) from the patient. If it is not focused clearly, rotate lenses with your index finger until the optic disc is as clearly visible as possible. The hyperopic, or far-sighted, eye requires more "plus" (green numbers) lenses for clear

focus of the fundus; the myopic, or nearsighted, eye requires minus" (red numbers) lenses for clear focus.

- h) Now examine the disc for clarity of outline, color, elevation and condition of the vessels. Follow each vessel as far to the periphery as you can. To locate the macula, focus on the disc, then move the light approximately 2 disc diameters temporally. You may also have the patient look at the light of the ophthalmoscope, which will automatically place the macula in full view. Look for abnormalities in the macula area. To examine the extreme periphery, instruct the patient to:
 - Look up for examination of the superior retina
 - Look down for examination of the inferior retina
 - Look temporally for examination of the temporal retina
 - Look nasally for examination of the nasal retina.
 This routine will reveal almost any abnormality that occurs in the fundus.
- To examine the left eye, repeat the procedure outlined above but hold the ophthalmoscope in red-free filter facilitates viewing of the center of the macula.

3. Maintenance

3.1 Replacing the illumination bulb

Turn off the main power switch, remove the 3.5V coaxial cphthalmoscop from the power . grasp end of bulb and pull out. Insert replacement bulb, Push bulb in firmly.

The specification of bulb for the 3.5V Coaxial Ophthalmoscop is 3.5V/2.7W.



3.2 Cleaning

The cleaning of the 3.5V Coaxial Ophthalmoscope is easily accomplished by wiping the external surface with a cloth dampened with a mild detergent and water solution, or a 70% isopropyl alcohol, or a 10% bleach solution (by volume). Do not immerse.

NOTE: Solution entering the assembly could damage internal components. Use caution to ensure cloth is not

saturated with solution

Optical Specification			
Diopter		0D, ±1D, ±2D, ±3D, ±4D, ±5D, ±6D,±7D, ±8D, ±9D, ±10D, +12D, ±15D, ±20D,-25D,+40D	
Aperture		Large aperture, small aperture, Micro aperture, Slit aperture, Cobalt blue aperture, Fixation aperture.	
Filter		Red free filter / Polarizing filter	
Bulb		3.5 V 2.7 W	
Operation mode		Intermittent, On-time should not exceed 2 mins with Off-time not less than 5 mins	
Environment requirements			
	Environment Temperature		+10 °C…+35 °C
Operation	Relative Humidity		30%75%
	Atmospheric Pressure		700 hPa1060 hPa
Shipping	Common Conveyance		
Storage	Environment Temperature		-40 °C+55 °C
	Relative Humidity		10%90%
	Atmospheric Pressure		500 hPa1060 hPa

Caution: The 3.5V Coaxial Ophthalmoscope

should never be placed in municipal waste.

Li-ion battery handle **User's Guide**



Thank you for purchasing the Li-ion handle. To prevent damage to the Li-ion handle or injury to yourself or to others, read the following safety precaution in their entirety before using this equipment. Keep these safety instructions where all those who use the device will read them.

Symbols:



internal electrical power source



Attention: Read user's guide for warning and cautions and instructions for operating.



Warnings and Cautions



Warning: This device must not be used in the presence of flammable gases.



Warning: This device should not be immersed in fluids.



Warning: Use Li-ion handle only with approved devices and chargers.



Warning: Federal law restricts this device to sale or order of a physician.



Fig. 1

2. **Operating Instructions**

- 1. Connect instrument head to the handle.
- 2. Depress On/Off Button on Rheostat Section while rotate the Light Intensity Control Ring clockwise (CW) Tointensify light, continue to rotate until the end . (show as Figure 1).
- 3. To turn off, rotate counter clockwise (CCW). Button will click when fully off.

Charging Instructions 3.

- 1. Insert the handle into the desk charger for 24 continuous hours to charge a dead battery.
- 2. Fully charged handle may remain in the charger if desired.
- 3. Charging the battery after partial discharge does not negatively affect overall battery memory (unlike Ni-Cad cells)

4. Cleaning

The cleaning of the power handles and chargers is easily accomplished by wiping the external surface with a cloth dampened with a mild detergent and water solution, or a 70% isopropyl alcohol, or a 10% bleach solution (by volume). Do not immerse.

NOTE: Solution entering the assembly could damage internal components. Use caution to ensure cloth is not saturated with solution.



Caution: The battery should never be placed in municipal waste. Please check local regulations for disposal of batteries.

5. Technical Specifications

Electrical Specifications				
Charge Time		\leq 3 hours		
Discharge Time		≥ 3 hours		
Operation mode		Intermittent, on-time should not exceed 2 mins with off-time not less than 5 mins		
Electrical Safety		Complying with EN60601–1 EN60601–1–2 Protection: Internal electrical power source		
Environment	t requirements	;		
Operation	Environment Temperature		+10 °C − +35 °C	
	Relative Humidity		30% - 75%	
	Atmospheric Pressure		700 hPa – 1060 hPa	
Shipping	Common Conveyance			
Storage	Environment Temperature		-40 °C - +55 °C	
	Relative Humidity		10% - 90%	
	Atmospheric Pressure		500 hPa – 1060 hPa	

Charger User's Guide



Thank you for purchasing this changer. To prevent damage to your changer or injury to yourself or to others, read the following safety precaution in their entirety before using this equipment. Keep these safety instructions where all those who use the device will read them.

Symbols:



Class II



Attention: Read user's guide for warnings and cautions and instructions for operating.

Warnings and Cautions



Attention. Read user's guide for cautions and instructions for operating.



Warning: This device must not be used in the presence of flammable gases.



Warning: This device should not be immersed in fluids.



Warning: Please use special certificated power adapter.



Warning: Federal law restricts this device to sale or order of a physician.

1. Purpose and features of the device

1.1 Purpose

The charger is only intended to charge the rechargeable Li-ion battery handle.

1.2 Features

- Power-on indicator. Charging state indicator. •
- Automatic charging when inserting the handles to • charging port.
- When take the handle away, the charging state indicator automatically turns off.
- 3.7V Li-ion battery.
- Pre-charge CC CV Operation model.
- Circuit short, reverse-voltage ,over-voltage protection.
- Low battery indicator.
- 2. Operating Instructions
- 2.1 The lithium battery charger external diagram is as follow:



1	Power indicator	The green led lit indicate that the charger is powered
2	Charge indicator	The yellow led lit indicate the charging The green led lit indicate charging is completed
3	Power line	Connect the power adapter
4	Charging port	Insert the rechargeable Li-ion battery handle
5	Rechargeable	Pay attention to the direction of the handle
	lithium battery	inserted.

- 2.2 Connecting power adapter to mains and the charger, When the green Power led is lit that indicates that the charger is powered and ready to charge the battery.
- 2.3 Place the rechargeable lithium battery handle into the charging port of the charger. When the charging indicator shows yellow that indicate charging is carry on, the charge indicator shows green that indicates charging is complete.
- 2.4 Take the handle from the charging port. The lithium battery charger will stop charging, charging indicator light turn off.
- 2.5 Power adapter output: 5VDC, 2A.
- 3. Maintenance
- **3.1 Cleaning Recommendations**
 - Wipe all external surfaces with cloth dampened with a mild detergent and water solution, a mild detergent and water solution, a solution of 70% isopropyl alcohol and water solution, or a solution of 10% Clorox and water. DO NOT immerse. Wring out the cloth to prevent excess

moisture from entering the assembly.

Clean instrument windows with a cotton swab dipped in alcohol.



Caution: Be careful to prevent the solvent into the instrument.

4. Technical Specifications

Electrical Specifications				
Input voltage		5 VDC		
Input powe	er		2A	
Li-ion batt	ery sp	ecifications	3.7 V	
Charging port		1		
maximum	charge	e time	≤ 3.5 h	
Power adapter specifications				
Input	100	$VAC - 240 VAC$ 50 Hz / 60 Hz $\leq 14 VA$		$/ 60 \text{ Hz} \leq 14 \text{ VA}$
Output	9 VI	DC – 12 VDC 800 mA –1250 mA		
Electrical Safety		Complying with EN60601-1, EN60601-1-2 Protection : Class II		
Environment requirements				
Operation		Environment Temperature		+10 °C -+35 °C
		Relative Humidity		30% - 75%
		Atmospheric Pressure		700 hPa – 1060 hPa
Shipping		Common Conveyance		
Storage		Environment Temperature		-40 °C -+55 °C
		Relative Humidity		10% -90%
		Atmospheric Pressure		500 hPa - 1060 hPa