

ZEON
DISCOVERY™

Portable LED Light System
User Manual

 **Orasoptic**
A KERR COMPANY

OPERATING INSTRUCTIONS

Discovery™ Portable LED Light System

Congratulations on your purchase of the Zeon® Discovery™ portable light-emitting diode (LED) lighting system. The high-capacity illumination unit, which represents the most modern LED technology, was developed especially for use in dental practices.

Please read these instructions carefully before using the unit. Follow the procedures described in order to optimize the lifespan and functionality of the components of the Zeon Discovery illumination system.

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1. Components

Check to see that the following components are included in the packaging:

1. Battery Pack

This unit contains an integrated Lithium Ion battery, an on/off control button (1), and a light intensity control button (2).



2. LED Light Cable

The five components of the LED light cable are as follows:

- Headlamp (3)
- Mounting Jaw Clip (4)
- Gown Clip (5)
- Plug (6)
- Grommet (not pictured)

Note: Temple clips (not pictured) suitable for use with your specific frame are also included.



3. Power Supply/Battery Charger

When plugged into the electrical outlet and the battery pack, the light (7) located on top of the power supply will indicate the charging state of the battery.

The power supply is provided with the following four electrical outlet adapters:

- United States
- United Kingdom
- Europe
- Australia

Insert the appropriate adapter into the power supply based on your geographic region.

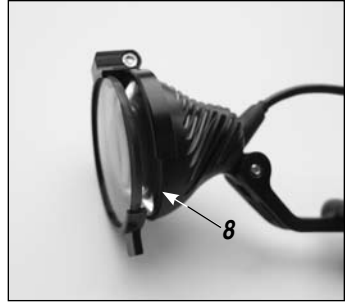


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4. Curing Filter

The curing filter is intended to be used when working with light-cured polymers. When working with these materials, unfiltered light from the headlight could cause premature curing of the polymer. The figure to the right shows the filter installed (8) over a headlight.



2. Zeon Discovery Controls and Connectors

1. On/Off Control Button (1)

Turns the LED on and off.



2. Light Intensity Control Button (2)

Adjusts light output between three intensity settings; LOW (3,000 foot candles), MEDIUM (5,000 foot candles), and HIGH (7,000 foot candles).



3. LED Cable Socket

The LED cable plug (4) fits into the battery pack in this socket (3).



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4. Battery Charger Connection Port (5)

The battery charger connects to this port. The plug is a concentric design that fits in any orientation.



5. Battery Capacity Monitor (6)

Light will turn on, and a short beep will sound when battery life is down to ten minutes. The beep will reoccur every minute until the battery enters a shut-down mode. During shut-down mode, the light will blink, indicating that the battery has depleted its capacity.



3. Charge The Battery

The Zeon Discovery battery is not completely charged on delivery. The battery must be charged for at least 3 hours before its first use. Beyond the initial charge, no battery conditioning is required.

1. Plug the charger into the battery pack.
2. Plug the charger into the electrical outlet.
3. While charging, the light (1) on the charging unit will show red. When the battery is fully charged, the light will be green and the charger will switch to a maintenance mode.
4. Install the correct adapter:
 - United States – 110V
 - Europe – 220V
 - United Kingdom – 240V
 - Australia – 240V

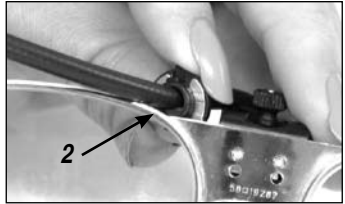
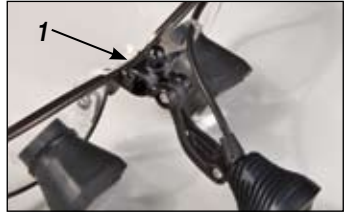


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4. Operate the Zeon Discovery Lighting System

1. Attach the LED headlight to your loupe (1) by tightening the jaws of the mounting hinge to the mounting block on the bridge of your loupe frame. (You may have to first attach the mounting block to your loupe frame if it is not already attached.)
2. Insert the cable grommet through the cable guide (2) and rotate the grommet so that it locks in place.
3. Secure the cable to the temple using the supplied temple clip.
4. Put the loupe/light on and adjust it to a comfortable working position.
5. Secure the cable with the gown clip (3) so that the cable does not hinder the view or the work of the user.
6. Connect the cable to the control unit as previously described.
7. Press the "On" control button on the unit to turn on the light.
8. When using the light, or when storing the unit, never bend the cable tightly to avoid damaging the cable.





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9. Install the curing filter (if needed).
 - a) Slide the filter's frame over the outer rib of the headlight so that the hinged frame can flip down in front of the headlight as shown in the figure to the right.
 - b) Slide the filter into the groove provided in the hinged frame.
 - c) The filter can now be flipped down in a position in front of the headlight.



5. Technical Data

Weight of the reflector lamp	Approximately 0.7 ounces (20 grams)
Weight of control unit	Approximately 8.5 ounces (240 grams)
Diameter of the reflector lamp	Approximately 1.0 inch (26 mm)
Dimensions of control unit	Height approximately 3.8 inches (97 mm) Width approximately 2.5 inches (64 mm) Depth approximately 1.0 inch (26 mm)
Equipment class	II 
Ingress of water	(ordinary equipment) IXPØ
Battery type	Li-Ion battery, 7.4 V/ 2,400 mAh
Battery charge time	3 hours
Battery life	Low – approximately 17 hours Medium – approximately 10 hours High – approximately 7 hours
Light intensity	Measured at a distance of 12 inches: Low – 3,000 foot candles Medium – 5,000 foot candles High – 7,000 foot candles
Operation mode	Continuous
EMC	IEC60601-1-2, Class B, EN55011
Safety	IEC 60601-1
Protection from shock	Type BF  Internally powered
Temperature for operation and storage	32° to 95° F (0° to 35° C)




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Technical Data – Continued

Relative Humidity:	10% to 85% (non-condensing)
Atmospheric Pressure	0.5atm to 1.0atm (500-hPa to 1060-hPa)

Symbols Key:

The Waste Electrical and Electronic Equipment (WEEE) Directive symbol. Do not dispose of this product as normal trash.	
Equipment class 1	II 
Electric shock class	Type BF 
Alternating current	~
Direct current	- - -

6. Safety Precautions/Warnings

1. Only Orascoptic-supplied power supplies (part number AL-DISCOVERY-CHG) are to be used to power the Zeon Discovery LED battery.
2. In order to avoid the risk of permanent eye damage, do not look directly into the headlight or aim the headlight directly into someone's eyes. Consider providing patients with protective eyewear.
3. The control unit and the battery must be used exclusively for the purpose described.
4. Under no circumstances should you open the housing of the charger or the control unit. Never take the devices apart or undertake modifications.

Misuse of the battery can cause the battery to become hot, explode, or ignite and may cause serious injury. Make sure that the following safety precautions are expressly followed:

- Never open the battery charger or control unit.
- Never make any changes/modifications to the battery charger or control unit.
- Do not bring the battery charger or control unit into contact with fire or severe heat (over 158°F or 70°C).
- Do not use outside.
- Do not short circuit (do not connect via a conductor or reverse polarity).
- Protect from fluids and damp environments.
- Do not use a damaged device.
- Maintain storage and operational temperature of 32°F to 95°F (0° to 35°C).

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5. Never try to use non-Orascoptic-supplied charger units or control units.
6. The charger must never be used outside.
7. Do not use the control or charger units if the housing or plugs are damaged.
8. If you determine that the charger or control unit is hot, emits an odor, or changes color or shape, turn it off immediately and disconnect from the power network. The device may not be used again and must be immediately returned to Orascoptic.
9. Do not store within reach of children.

7. Disposal Instructions

We are certain that you will receive many years of exceptional service from the Discovery product. But, it is inevitable that at some time in the future you will need to dispose of it. When that time comes, we encourage you to return it to Orascoptic in its original packaging for environmentally sound recycling. Orascoptic will be glad to bear the cost of the return shipping. Please contact your sales rep for details. The Waste Electrical and Electronic Equipment (WEEE) Directive forbids the disposal of waste electrical and electronic equipment as unsorted municipal waste and requires that they should be collected and recycled or disposed of separately. Hazardous substances are present in electrical and electronic equipment and present potential risks to human health and the environment if disposed of in municipal landfills that are not designed to prevent migration of substances into the soil and groundwater. By properly disposing of this waste, you will be contributing to the advancement of reuse, recycling and other forms of recovery, as well as the prevention of pollution at a very local level.



8. Clean the Headlight

The headlight is manufactured using only high-quality components. This is an optical precision instrument that must be cleaned and handled with the greatest care. Basic contaminations may only be removed with a soft, clean, dry cloth in order to avoid scratching the lenses.

- Do not immerse the headlight in water, sterilization fluid or ultrasound cleaning solutions. The product is not waterproof.
- Only use disinfection cloths for severe contamination. Disinfection spray must not be used under any circumstances to avoid severely damaging the light.
- Only clean the headlight with a disinfection cloth, such as CaviWipes™.
- Do not use gasoline, cleaning solutions or aggressive solvents for cleaning.

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- Make absolutely sure that your disinfection cloth:
 - is suitable for alcohol-sensitive surfaces and for medical facilities, such as a dentist's chair.
 - contains no type of 1-propanol, Aldehyde, phenol or a quaternary ammonium bond.
 - has a broad-spectrum effect against bacteria, fungi and viruses.
- Sterilization is not to be done with an autoclave or the following chemicals: glutaraldehyde or agents containing iodide. To avoid damaging the headlight, do not use cleaning methods other than those prescribed.

Do not pull on the cable during cleaning!

9. Troubleshooting

Problem	Solution
1. The operational unit is turned on, but the headlight does not light up.	<ul style="list-style-type: none">- Make sure that the headlight is properly connected to the control unit.- Charge the battery.
2. The headlight does not light up or no longer lights up enough.	<ul style="list-style-type: none">- The battery is too weak.- Charge the battery.
3. Power to the charger is interrupted before the end of the charge cycle (such as a power outage).	As soon as power has been restored, the charge cycle will start again.
4. The charger display stays red (even after 3 hours of charging) and does not change to green.	Send the lighting system with the charger to Kerr Corporation/Orasoptic for evaluation.
5. Battery capacity monitor is blinking.	<ul style="list-style-type: none">- Battery capacity has been depleted.- Charge the battery.

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10. Replacement Parts

AL-DISCOVERY-BAT	Zeon Discovery battery pack
AL-DISCOVERY-CAB	Zeon Discovery cable with headlight
AL-LCFZZ-DIS-1-AL	Zeon Discovery complete curing filter
AL-DISCOVERY-CHG	Zeon Discovery universal charger

11. Limited Manufacturer's Warranty

This limited manufacturer warranty from Kerr Corporation applies for all countries to the extent that no other warranty exists at that location. Pursuant to the following contractual provisions, Kerr Corporation guarantees material, construction and design to be free of deficiencies from the time of first purchase.

1. This limited liability applies for the end purchaser of the product (Client). Legal claims by the client or claims by the client against the seller/dealer of the device are neither excluded nor limited.
2. The guarantee is for 12 months from the time of purchase by the original purchaser. In the event of subsequent sale or other change of ownership, the warranty will run for the remainder of the twelve month period. It remains otherwise unchanged.
3. During the warranty period, defective units (according to unilateral decision by Kerr Corporation), will be repaired or replaced either by Kerr Corporation or by authorized customer service. The client will receive either the repaired unit or a comparable replacement unit from Kerr Corporation. Exchanged parts or accessory parts become the property of Kerr Corporation.
4. There is no extended or renewed warranty period for repaired or replaced parts.
5. This limited warranty does not apply for painted or otherwise personalized parts.
6. For expendable parts (such as Li-ion batteries) the warranty is for 12 months from the time of sale.

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7. This limited warranty does not apply to abnormal signs of use. In addition, this limited warranty does not apply if
 - a) The deficiency has been caused by misuse of the instructions for operation, inappropriate use, contact with fluids or moisture or extreme heat or climatic conditions and/or short term variations in relevant influences or to corrosion, oxidation, unauthorized intervention or attempts at connection, unauthorized opening or repair, repair attempts with unacceptable replacement parts, abnormal installation, accidents, forces majeure, spillage of food or drinks, chemical influences or other influences over which Kerr Corporation has no control (including deficiencies to operational parts such as batteries that only have a limited lifespan, as well as damage to cables), unless the deficiency is caused by a material, construction or fabrication error.
 - b) The client does not report the deficiency within 30 days after it was discovered within the Kerr Corporation warranty period or to an authorized customer service agent.
 - c) The serial number has been removed, scratched off, crossed out, changed or is illegible.
 - d) The deficiency was caused by the fact that the device was used with a part not approved for use by Kerr Corporation, was connected to such a part or was otherwise used inappropriately.
 - e) The deficiency was caused by the short circuit of the battery or the breakage of the seal of the battery housing or manipulation of it or by the fact that the battery was used to an inappropriate end.
8. This limited warranty is the only legal remedy of the client against Kerr Corporation as well as Kerr Corporation's only and exclusive liability to the client for deficiencies and functional disruptions of the device. This limited warranty replaces all other warranties and declarations of liability, whether in written or oral form, or other (not urgently enforceable) legal provisions, contractual provisions or non-allowed negotiations. Kerr Corporation is in no way liable for ancillary, causal or collateral damage, costs or expenses. If the client is a legal person, Kerr Corporation assumes no liability for collateral damages, costs or expenses.
9. For assertion of a warranty claim, the original purchase receipt with purchase date is to be enclosed.
10. Changes to this limited warranty require the previous written approval of Kerr Corporation.

U.S. Technical Support: 800-369-3698

Outside the U.S. Call Your Local Distributor



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