

# freedom

## **Portable LED Light System User Manual**





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## OPERATING INSTRUCTIONS

Freedom™ Cordless LED Light System

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# OPERATING INSTRUCTIONS

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# OPERATING INSTRUCTIONS

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## 1. Welcome to Freedom

Congratulations on your purchase of the Freedom™ Cordless LED Light System. This high-capacity headlight was developed especially for use in dental practices. All the necessary Freedom components attach directly to your existing through-the-lens (TTL) loupes.

Freedom's streamlined design frees up your hands for dental work. There are no long cables or external battery packs to get in your way. The lighting control pads are conveniently located on the loupe frames.

The Freedom system includes these components:

- Light emitting diode (LED) headlight with controls and clip assembly
- Curing filter
- Two battery pods
- Four removable, rechargeable batteries
- Battery charger with power supply



For your convenience, Freedom comes fully assembled with the headlight unit, curing filter, battery pods, and battery cables already attached.



Accessories include:

- Loupe/light storage case
- Screwdriver
- Two temple clips
- Headstrap



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### 2. Setting Up Freedom

1. Slide the headstrap loops onto the temple arms of your TTL loupes.



2. Slide the battery pods onto the temple arms just behind the headstrap loops.



3. Clip the headlight assembly onto the bridge of the loupe frames.



4. Flip the headlight into an upright position and use the screwdriver to tighten the screw on the front of the headlight control clip. It will click when in place.



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- Slide the batteries into the battery pods until they click. Each pod takes one battery.

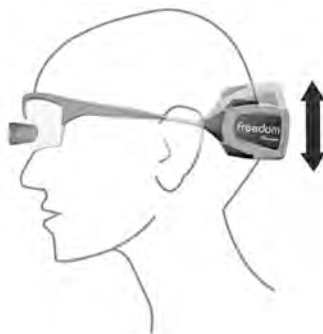
**NOTE:** Batteries are keyed to ensure correct insertion



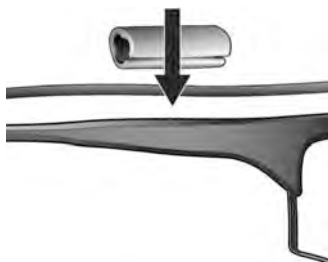
- Put on Freedom, tighten the headstrap, then adjust the battery pods and temple arms until they fit comfortably.

Freedom was designed with a unique counter-balance feature to alleviate pressure on the nose caused by the telescopes and headlight. You may make any of the following adjustments to ensure a custom-comfort fit:

- Want to relieve weight from your nose?**  
Slide the battery pods further down, toward the end of the temple arms and/or bend the pods slightly downward.
- Want to add forward weight to bring the headlight down on your nose?**  
Slide the battery pods further up, toward the front of the temple arms and/or bend the pods slightly upward.
- Looking for a more secure, snug fit?**  
Tighten the headstrap and/or bend the battery pods inward, toward each other so that they "cup" the back of your head



- Place a temple clip over the battery cord on each temple arm.





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### 3. Operating Freedom

Freedom has two lighting control pads, conveniently located on the right and left sides of the headlight. The lighting control pads are easy to use – just touch a pad with any part of your hand to turn the system on and off, or to change the brightness of the headlight. There are three light intensities, ranging from 2,000 to 5,000 foot-candles.



**CAUTION:** Point the headlight away from your eyes because the light beam is strong.

When working with light-cured polymers, flip the filter down in front of the headlight. Unfiltered light from the headlight can cause premature curing of the polymer.

1. To **TURN ON** Freedom, **touch and hold** the control pad.
2. To increase the brightness, quickly tap the control pad. With each tap, the brightness increases 1,500 foot candles until the highest setting is reached. Then the light returns to the lowest setting by tapping the pad again.
3. To **TURN OFF** Freedom, **touch and hold** the pad.



### 4. Replacing the Curing Filter

The curing filter is for light-cured polymers. When applying those materials, unfiltered light from the headlight can cause premature curing of the polymer.

Freedom comes with the curing filter installed on the headlight. You can remove the curing filter to replace it with a new one.

#### Removing the Curing Filter

1. Using the screwdriver provided, loosen the screw at the bottom of the curing filter frame.
2. Slide the filter off the headlight.



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### Installing the Curing Filter

1. Using the screwdriver provided, loosen the screw at the bottom of the curing filter frame if necessary.
2. Slide the filter over the headlight. Position it so that the filter can flip down in front of the headlight.
3. Tighten the screw until the filter fits snugly on the headlight.



## 5. Troubleshooting Freedom

Problem	Solution
Freedom is turned on, but the headlight does not light up or no longer lights up.	<ul style="list-style-type: none"><li>• Make sure the headlight is properly connected.</li><li>• Charge the batteries because they may be low.</li><li>• Check the battery connections.</li></ul>
LOW battery indicator light (red LED) on top of the headlight is lit.	<p>Indicates the headlight is turned on and battery is low:</p> <ul style="list-style-type: none"><li>• Make sure the corresponding battery is installed correctly.</li><li>• Charge the corresponding battery.</li></ul>
LOW battery indicator light (red LED) on top of the headlight is flashing.  NOTE: The flashing is very slow. It flashes every 5 seconds for 200 milliseconds in length.	<p>Indicates the headlight is turned off and the battery is either low or not installed:</p> <ul style="list-style-type: none"><li>• Install the corresponding battery if necessary.</li><li>• Charge the corresponding battery.</li></ul>
No change occurs after touching a lighting control pad.	In three seconds the control pad should reset. If it doesn't, remove the batteries and reinstall them to reset the system.
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.

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### 5. Troubleshooting Freedom - Continued

Problem	Solution
The charger display light stays amber and does not change to green even after 90 minutes of charging.	Contact Customer Service.  See the back cover of this manual for contact information.
The charger display light is blinking amber, indicating a fault condition.	<ul style="list-style-type: none"><li>• Remove the battery from the charger.</li><li>• Make sure the battery is at room temperature before reinserting it in the charger.</li><li>• If the light continues to blink, replace the battery and contact Customer Service</li></ul>
Headlight is “bobbing” up off of your nose.	Slide the battery pods further up, toward the front of the temple arms and/or bend the pods slightly upward.
Headlight is putting pressure on your nose.	Slide the battery pods further down, toward the end of the temple arms and/or bend the pods slightly downward
System feels too loose on your head	Tighten the headstrap and/or bend the battery pods inward, toward each other so that they “cup” the back of your head.

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### 6. Using Freedom Batteries

Freedom comes with four rechargeable lithium polymer batteries.

When the Freedom batteries become low, the corresponding LOW battery indicator on the headlight will turn on. The LOW battery indicator – red LED – on the right side of the headlight is for the right battery pod and the one on the left side is for the left pod.

A steady on LOW indicator means the battery is low. A flashing LOW indicator means the headlight is turned off and the battery is either low or not installed.



### Removing Freedom Batteries

You can remove a battery from its pod to recharge it:

1. Squeeze the two push buttons on the sides of a battery pod. This releases the battery, partially popping it out of the pod.
2. Remove the battery from the pod.
3. Insert a fully charged battery into the pod until it clicks.

**NOTE:** Batteries are “hot swappable,” meaning they can be replaced while the headlight is running.



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### Charging Freedom Batteries

The 2-bay Freedom battery charger holds two batteries at a time.

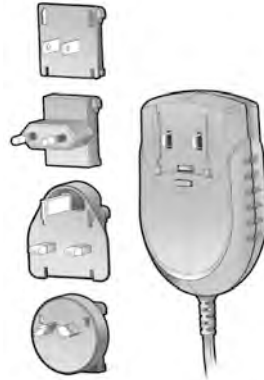
1. Choose the appropriate adapter for your geographic region:

**United States – 110V**

**Europe – 220V**

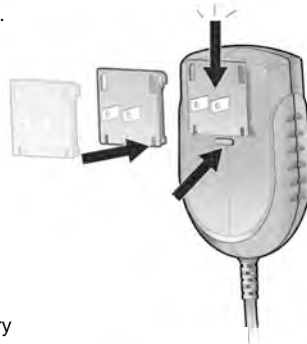
**United Kingdom – 240V**

**Australia – 240V**



NOTE: To remove the adapter, push the button on the power supply, located below the adapter.

2. Insert the adapter into the power supply.



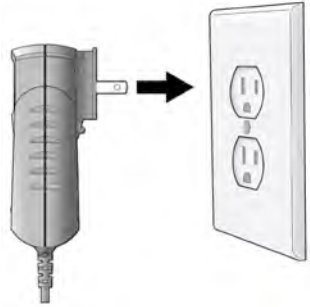
3. Plug the power supply connector into the battery charger.



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4. Plug the power supply into the electrical outlet.



5. Insert the Freedom batteries in the charger and charge for up to 90 minutes.

While charging, the battery light on the charger turns amber (orange). If the light does not come on, make sure the batteries are inserted correctly. If they are inserted backwards, the batteries will not charge and the light will not come on.

When the batteries are fully charged, the light turns green and the charger switches to a maintenance mode.

**NOTE:** A blinking yellow light on the charger indicates a fault condition. Please contact Customer Service. See the back cover of this manual for the phone number.



## 7. Cleaning and Disinfecting Instructions

### Cleaning Freedom Components and Your Loupes

Freedom and your loupes are precision optical instruments that must be cleaned and handled with the greatest care. Remove basic contaminations only with a soft, clean, dry cloth in order to avoid scratching either the headlight or the lenses.



**CAUTION:** Do not pull on the Freedom cables during cleaning!

Clean all lens surfaces with an optical lens cleaning cloth that is formulated for use with coated lens surfaces. You may purchase these cleaning cloths at major retail chains, optical stores, and drug stores.

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If your loupes are heavily soiled, first remove Freedom and then rinse the telescopes and frames under fast-running water to avoid scratching the telescope lenses. Be sure to dry your loupes thoroughly before reinstalling Freedom.



CAUTION: Do not submerge Freedom components, the battery charger, or your loupes in any liquid or an ultrasonic cleaner, or damage may result. Freedom and the battery charger are not waterproof.



CAUTION: Do not use gasoline, cleaning solutions, or aggressive solvents for cleaning.

### Disinfecting Freedom Components and Your Loupes

Disinfect Freedom components, the battery charger, and your loupes using a disinfection cloth, such as CaviWipes™. Use disinfection cloths only for severe contamination.



CAUTION: Do not use an autoclave, chemiclave, glutaraldehyde, iodophor or any other sterilization method, or damage may result.



CAUTION: Disinfection spray must not be used under any circumstances to avoid severely damaging the Freedom components, the battery charger, or your loupes.



CAUTION: 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 Aldehyde or phenol.
- has a broad-spectrum effect against bacteria, fungi, and viruses.

If there are any questions, call Customer Service at the number listed on the back cover of this manual.

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### 8. Safety Precautions/Warnings



1. Only Orascope-supplied power supplies (part # 921960-1) are to be used to power the Freedom 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 batteries 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.
5. Misuse of the batteries can cause them 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 headlight 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).
6. Never try to use non-Orascope-supplied charger units or control units.
7. The charger must never be used outside.
8. Do not use the control or charger units if the housing or plugs are damaged.
9. If you determine that the charger or headlight 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 Orascope.
10. Do not store within reach of children.



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### 9. Disposal Instructions

All models have been designed to meet worldwide electrical safety standards, including U.S., Canada, and Europe, to be both safe and effective for all dental applications.



**Waste Electrical and Electronic Equipment (WEEE):** When you plan to dispose of the product and/or the battery pack, please return it to Kerr for environmentally sound recycling. Contact your sales representative for details. The Waste Electrical and Electronic Equipment (WEEE) Directive forbids the disposal of waste electrical and electronic equipment as unsorted municipal waste, requiring that it 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 which are not designed to prevent migration of substances into the soil and groundwater.

**Battery Disposal:** Freedom uses lithium polymer batteries. Recycle or dispose of these batteries according to national, state and local regulations.

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### 10. Specifications

Weight of the reflector headlight	0.7 ounces (20 grams)
Weight of the headlight with controls and clip assembly	1.4 ounces (40.5 grams)
Diameter of the reflector headlight	1.0 inch (26 mm)
Dimensions of the headlight with controls and clip assembly	Height 3.8 inches (97 mm) Width 2.5 inches (64 mm) Depth 1.0 inch (26 mm)
Equipment class	 <b>Class II</b>
Ingress of water	IPXØ (ordinary equipment)
Battery type	LiPolymer, 3.7VDC/ 570mAh
Battery charge time	90 minutes
Light intensity modes	Typical foot-candles measured at a distance of 12 inches: 2,000 3,500 5,000
Battery life	Typical runtime: 7.5 hours at 2,000 foot-candles 4 hours at 3,500 foot-candles 3 hours at 5,000 foot-candles
Operation mode	Continuous
EMC	IEC60601-1-2, Class B, EN55011
Safety	IEC 60601-1
Protection from shock	<b>Type BF</b>  Internally powered
Operation and Storage Environment	32° to 95° F (0° to 35° C) 10% to 85% relative humidity (non-condensing) 0.5atm to 1.0atm (500-hPa to 1060-hPa) atmospheric pressure

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### 11. Replacement Parts

To order replacement parts, contact Customer Service at the number listed on the back cover of this manual.

Part Number	Part Name/Description
<i>Replacement Parts</i>	
921958-1	Freedom Headlight with Controls and Clip Assembly, Standard Length
921958-2	Freedom Headlight with Controls and Clip Assembly, Long Length
921957-1	Freedom Battery Pods (Set of 2)
921956-1	Freedom Batteries (Set of 2)
921959-1	Freedom 2-Bay Battery Charger
921960-1	Freedom Power Supply
<i>Accessories</i>	
921961-1	Freedom Loupe/Light Storage Case

### 12. 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 standard limited warranty for this product is 24 months from the time of purchase by the original purchaser. The standard limited warranty applies to the Batteries, Battery Pods, and Headlight Assembly. The warranty for the battery charger is 12 months. These warranties are non-transferable and shall only apply to the original purchaser of the Product, as exclusively contained in Kerr's records.
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.

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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. 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 majeures, 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.
7. 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.
8. For assertion of a warranty claim, the original purchase receipt with purchase date is to be enclosed.
9. 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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