

*OPAL™ Portable Video  
Magnifier*

User's Guide

Freedom Scientific BLV Group, LLC

March 2007

Part Number # 440312-001 Rev. E

PUBLISHED BY  
Freedom Scientific  
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St. Petersburg, Florida 33716-1805  
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<http://www.FreedomScientific.com>

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# Federal Communications Commission Notice

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Reorient or relocate the receiving antenna.
- Consult the dealer or an experienced radio or television technician for help.

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# Overview

Congratulations on your purchase of OPAL™! OPAL is a portable video magnifier that lets you magnify printed text from three to six times its actual size. OPAL has been designed with special attention to the practical needs of those with macular degeneration, glaucoma, retinitis pigmentosa, cataracts, and other causes of low vision.

The OPAL is easy to use, even for those unfamiliar with assistive technology. You turn the power on with one button, place it over an object, and adjust the magnification to your preference with the **Magnification** slider. The magnified image appears in the display window.

OPAL features a bright, high-contrast 4-inch LCD screen with scratch-resistant cover, six video modes, rechargeable battery, and writing stand. You can even connect OPAL to a television if you need a larger viewing area. Its ergonomic design makes it easy to use.

## **What's in the Box**

Before using OPAL, take out all the items that are included in the box. Identify and set aside each component. The following items are included with OPAL:

- OPAL ultra-portable video magnifier
- AC power adapter with international adapters
- Video cable (for connection to an NTSC television)

- Carrying case and shoulder strap
- Wrist strap
- OPAL User's Guide

## **Safety and Maintenance**

To keep your OPAL in good condition, observe the following guidelines:

- Read the instructions in this user's guide before attempting to use OPAL.
- Do not attempt to repair OPAL or open its case. This product contains no user serviceable parts.

- Keep OPAL away from wet areas, rain, and other sources of liquids. Do not submerge OPAL.
- Always operate OPAL in a place where the temperature is between 10° and 40° C (50° and 104° F).
- Always store OPAL in a place where the temperature is between -20° and 65° C (-4° and 149° F). Do not store in a parked car, because the temperature often exceeds this range.
- Do not attempt to force any connector into OPAL's power/video port. All appropriate connectors should fit easily into the port.
- Use only the power adapter that came with your OPAL to charge the battery. Other adapters may damage the unit.

- When cleaning OPAL, make sure the unit is unplugged. Use only a damp, soft, lint-free cloth. Do not use alcohol, solvents, abrasives, or aerosol sprays.

## Charging the Battery

Before using OPAL, you must charge the battery. First, you need to configure the power adapter to conform to your country's wall outlet specifications. Select the appropriate plug for your region. Insert the tabbed end of the plug into the slot on the adapter (indicated by a small arrow). Then, press down on the plug until it snaps into place.

**Tip:** To remove the plug from the adapter, press downward on the ridged arrow button just below the plug. The plug snaps out of place and you can remove it to replace it with a different one.

To charge the unit, plug the small end of the power adapter into the power/video port located on the left side of the unit. Then, plug the other end of the power adapter into a standard AC outlet. The battery indicator LED on the front of the unit blinks green to show that the battery is charging.

**Note:** Always turn the OPAL off during charging. The battery will not charge if the OPAL is left on.

When the battery is finished charging, the battery indicator LED will stop blinking and will glow a steady green. Unplug the OPAL. The battery indicator LED will turn off.

You can now use your OPAL almost anywhere, for up to four hours of continuous use. When the battery is low, the battery indicator LED will flash red. Connect the power adapter and plug it in to recharge the battery.

## Reading with OPAL

After you have charged the battery, you are ready to begin reading with OPAL. With OPAL's power magnification features, you'll be able to read or view letters, menus, maps, photos, labels, bus and train schedules, television listings, receipts, ingredients, and much more.

To read with OPAL, do the following:

1. Press and hold the green **Power** button until the screen lights up.

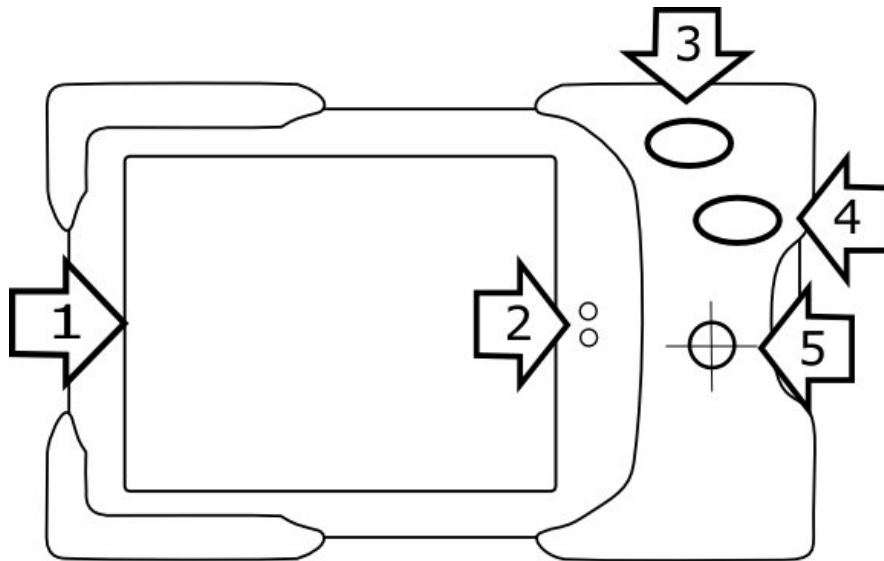
2. Place a book, letter, or other printed item on a flat surface, such as a table or desk.
3. Place OPAL flat against the text you want to read.
4. Position the crosshair that appears just below the **Power** button over the approximate location where you want to start reading. Anything beneath this crosshair is magnified and shown on the screen.
5. Slide the unit gradually to the right to read to the end of the line. Slide the unit down and back to the left to read the next line of text.

6. You can change the level of magnification by moving the **Magnification** slider on the right side of the unit up or down. To change the colors used on the screen, press the yellow **Video Mode** button (located just above the green **Power** button) until you find the mode best suited for your vision needs.

**Tip:** These features are discussed in detail in *Using OPAL* on page 11.

7. Continue reading with OPAL until you feel comfortable using it.

# Using OPAL



Top view of OPAL

## 1▶ **Screen**

OPAL has a 4-inch liquid crystal display (LCD). Text or other items beneath OPAL are displayed on the screen. You can control the magnification level with the **Magnification** slider. In addition, you can change the colors used on the screen by pressing the yellow **Video Mode** button.

## 2▶ **Battery Indicator LED**

The battery indicator LED is located just to the right of the screen. When the battery is low, the LED blinks red. When the battery is charging it blinks green. The LED stops blinking when the battery is fully charged. When you unplug the unit from the power adapter, the LED turns off.

### 3▶ **Video Mode Button (Yellow)**

Press the yellow **Video Mode** button to cycle through OPAL's six different video modes. You can choose from the following:

- Full color
- Black and white
- Enhanced positive image (black on white)
- Enhanced negative image (white on black)
- Blue on yellow
- Yellow on blue.

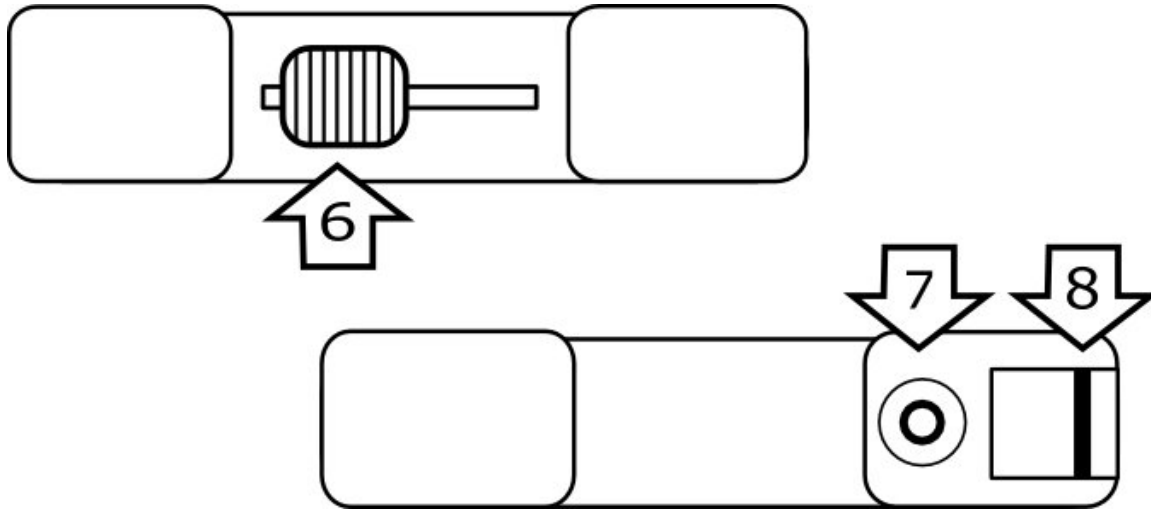
Use the video mode that best suits your vision requirements.

## 4▶ **Power Button (Green)**

Press the green **Power** button to turn the power on. To turn the power off, press the green **Power** button again.

## 5▶ **Crosshair**

The crosshair located below the **Power** and **Video Mode** buttons indicates where the camera on the bottom of OPAL is pointing. You can use this crosshair as a guide to help you determine where you should position OPAL while reading.



Side view of OPAL

## 6▶ Magnification Slider

The **Magnification** slider is located on the right side of the unit. This control allows you to increase or decrease the level of magnification. A high level of magnification can help you see small text or detailed illustrations. A low level of magnification allows you to see more on the screen. Move the **Magnification** slider up to increase the magnification level. Move the **Magnification** slider down to decrease the magnification level.

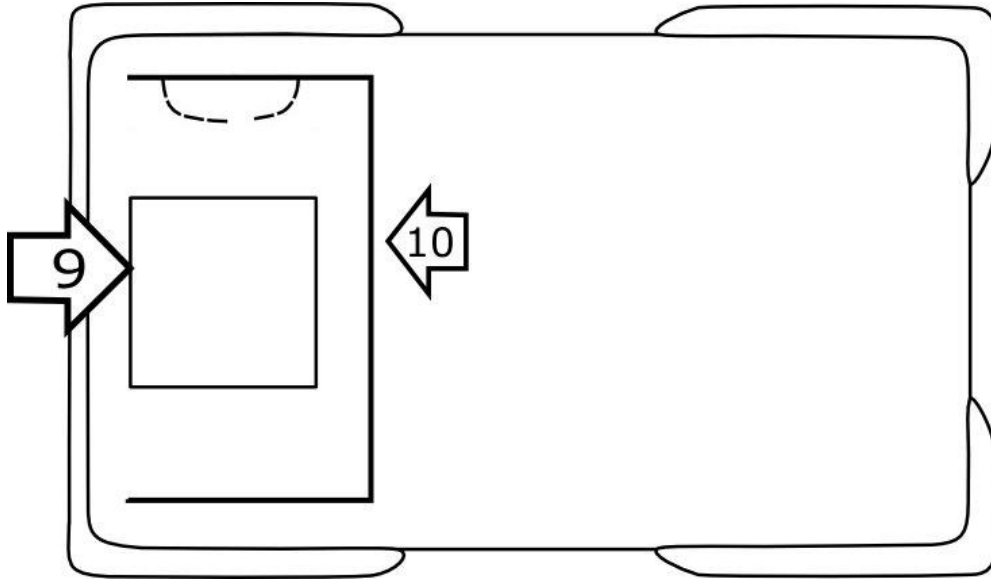
**Note:** At OPAL's lowest magnification setting some reflected light will be apparent at the very top and bottom of the display, as would occur had you lifted the unit off the paper to reduce magnification. However, the text will still be clearly readable in the center of the display.

## **7► Power/Video Port**

The small, circular port on the left side of OPAL is where you plug in the supplied video/power cable or battery charger. Only connect approved accessories and cables to this port. For information on charging the battery, see page 6. For information on connecting OPAL to a television, see page 24.

## **8► Wrist Strap Attachment**

This metal bar allows you to attach a wrist strap to your OPAL. For more information, see *Carrying OPAL* on page 22.



Bottom view of OPAL

## 9► Camera Window

This window protects OPAL's camera lens, which magnifies items beneath it. You can use the crosshairs on the opposite side of OPAL to determine the position of the camera.

## 10► Writing Stand

Flip down the writing stand to write on or work with items that you are magnifying. For more information about using this stand, see *Writing with OPAL* on page 20.

## Writing with OPAL

OPAL can help you write as well as read. Use OPAL to sign checks and other documents, complete forms, balance your checkbook, write brief notes, and more. You can even use it to help you work on small craft projects.

If you want to use OPAL while writing, there is a writing stand located on the underside of the unit. This stand elevates part of the unit, leaving enough space for your fingers and a pen, pencil, or other small tool. As you write or work, you can see what you are doing on OPAL's screen. You can change the magnification or video mode, just as you can when reading.

To use the writing stand, do the following:

1. Turn the unit over. The writing stand is located in a recessed area near the camera window.
2. Place your thumb in the well adjacent to the writing stand.
3. Flip up the stand and swing it out until it snaps into position.
4. Turn the unit back over and set it down on a flat surface. You can now write on or work with the item that is being magnified.
5. When you want to read with OPAL, push the stand back down into the recessed area.

**Warning:** Pressing down on OPAL while using the writing stand may damage the stand and/or the unit.

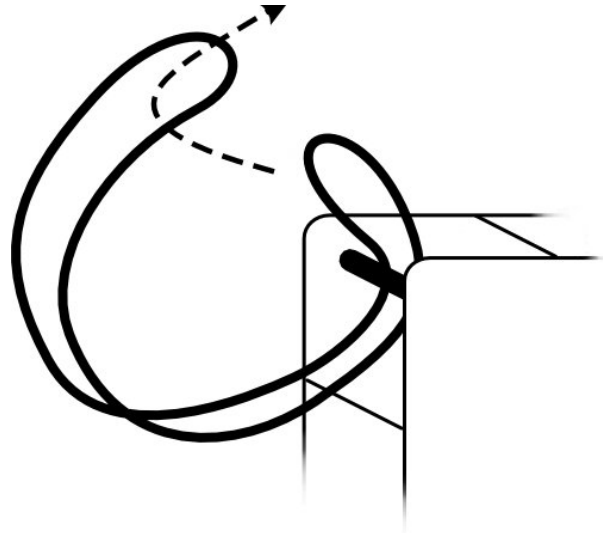
## Carrying OPAL

You can use the supplied carrying case to protect your OPAL while you are traveling. The case has a detachable shoulder strap and a belt loop which you can use to carry OPAL with you wherever you go.

In addition, OPAL has a wrist strap that you can use to help ensure that you do not drop the unit during use. To attach this strap, push the small end underneath the post located on the upper left corner of the unit as far as it will go. Then, loop the other end through the smaller end of the wrist strap. Pull the strap tight.

**Tip:** Refer to the illustration on the next page to see how to attach the wrist strap.

When using OPAL, you can now place your hand in the wrist strap. This helps prevent damage to the unit if it falls or is dropped.



Attaching the wrist strap to OPAL

## Connecting OPAL to an NTSC TV

If you would like greater magnification than OPAL's 4-inch screen, you can connect the unit to an NTSC television using the supplied video cable. To connect your OPAL to a television, do the following:

**Note:** When using OPAL with a TV, you can only use the full color video mode. The other modes are not available.

1. Insert the 1/8-inch plug on one end of the supplied Y-shaped video cable into the unit's power/video port.

2. Insert the RCA plug on the video cable into one of your television's yellow video input connectors. Refer to your television owner's manual for more information on locating these connectors.
3. Turn on the television. If necessary, switch your television to the appropriate input channel. Items that you magnify appear on the television screen.

**Tip:** If you want to charge OPAL while it is connected to a television, connect the power adapter to the connector on the free end of the video cable.

## Service and Support

You can contact Freedom Scientific Technical Support to receive technical assistance with your OPAL. Before contacting Technical Support, it is recommended that you refer to *Troubleshooting* on page 27 to try to resolve your problem quickly.

If you cannot resolve your issue, you can visit [www.FreedomScientific.com](http://www.FreedomScientific.com). Choose the **Support** link to search the Knowledge Base. The Knowledge Base contains articles that address many common questions and technical issues concerning Freedom Scientific products.

To contact Freedom Scientific Technical Support by telephone, customers in the United States can call (727) 803-8600, Monday through Friday, from 8:30 A.M. to 7:00 P.M. EST. Alternatively, you can receive support by e-mail. Send your questions and problems to [HardwareSupport@FreedomScientific.com](mailto:HardwareSupport@FreedomScientific.com).

## Troubleshooting

<b>Problem</b>	<b>Solution</b>
The screen is blank.	Ensure that the power is on. Charge the battery. Reduce the magnification level.

<b>Problem</b>	<b>Solution</b>
	Verify that the item you want to magnify is positioned correctly under the crosshairs.
The unit does not turn on.	Charge the battery.
The image on the screen is dark and/or distorted.	Ensure that OPAL is positioned flat on the page your reading.
The battery indicator LED is flashing red.	Charge the battery.
The battery indicator LED does not flash green, even though the	Ensure that the small end of the power adapter is properly

<b>Problem</b>	<b>Solution</b>
<p>power adapter is connected and plugged into a wall socket.</p> <p><b>- or -</b></p> <p>The battery is not charging.</p>	<p>plugged into the OPAL's power/video port.</p> <p>Ensure that the outlet has power and is not malfunctioning. If the outlet is connected to a wall switch, make sure that the switch is on.</p>
<p>There are smudges or blemishes on the screen.</p>	<p>Clean the screen and camera window (located on the bottom of the unit).</p>

<b>Problem</b>	<b>Solution</b>
Text is too small to read.	Move the <b>Magnification</b> slider up to increase the magnification level.  Connect OPAL to a television using the supplied video cable. The text should be easier to read on the larger screen.
Text is too large to read.	Move the <b>Magnification</b> slider down to decrease the magnification level.

<b>Problem</b>	<b>Solution</b>
<p>OPAL is connected to a television, but no magnified image appears on the television screen.</p>	<p>Ensure that the television is on.</p> <p>Switch to the appropriate video input channel on your television.</p> <p>Ensure that the video cable is securely connected to the OPAL power/video port and plugged into the correct video input on your television.</p>