

RUBY[®] Handheld Video Magnifier User's Guide

440530-001 Rev C

Copyright © 2019 Freedom Scientific, Inc. All Rights Reserved. RUBY® is a trademark of Freedom Scientific, Inc., in the United States and other countries. Information in this document is subject to change without notice. No part of this publication may be reproduced or transmitted in any form or any means electronic or mechanical, for any purpose, without the express written permission of Freedom Scientific.

Technical Support

To contact **Technical Support** by telephone, U.S. customers can call **(727) 803-8600**, Monday through Friday, 8:30 AM to 7:00 PM (Eastern Time).

To contact by e-mail, send questions to **Support@FreedomScientific.com**.

To search the knowledge base, visit **www.FreedomScientific.com** and choose the **Support** link.

Read Me First

- Before using RUBY® for the first time, you must charge the four AAA NiMH (**1000 mAh**) batteries. These batteries are included. A full charge takes approximately **2 hours**. Refer to **Battery LED Descriptions** on page 2 for battery status explanations. You can also use four AAA disposable alkaline batteries to operate the unit.
- Do not mix NiMH batteries with alkaline batteries. Replace all batteries of the same chemistry at the same time. Do not mix new batteries with old batteries. **Replace NiMH batteries with 1000 mAh NiMH batteries.** Failure to follow this precaution can lead to battery failure or leakage. The risk of explosion is possible if batteries are replaced with an incorrect type.
- **Do not use** batteries that specify a MAX Charging Current below 250 mA.
- For a basic overview of RUBY, review the information in this guide first.

Battery LED Descriptions

Green – Solid: Battery charged – power adapter connected.

Green – Flashing: Battery charging – power adapter connected.

Red – Flashing: Battery low.

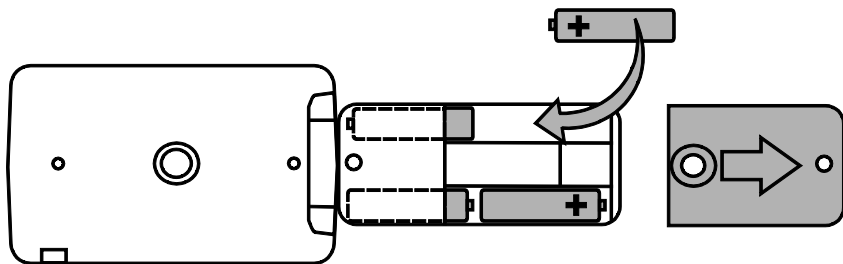
Red – Solid: Error – unplug power adapter, wait a few seconds, and plug in again. If this condition persists, change the batteries.

No LED: Battery charge ok, power adapter not connected; or RUBY is off.

Inserting Batteries

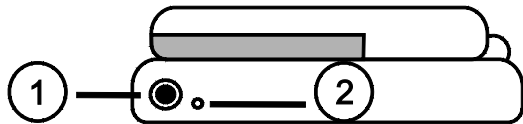
1. Fully extend the handle, and remove the battery cover by sliding it in the direction of the imprinted arrow.
2. Insert the batteries, replace the battery cover, and close the handle.

Make sure that batteries are inserted using the correct polarity.



Charging NiMH Batteries

1. Plug one end of the power adapter into RUBY and the other end into a wall outlet.
2. The battery indicator LED blinks green to show that the batteries are charging. For more, see **Battery LED Descriptions** on page 2.




3. The LED stops blinking and glows a steady green once the batteries are charged. Unplug the power adapter from RUBY. The battery indicator LED turns off.

4. You can now use your RUBY for approximately two hours of continuous use. When the batteries are low, the battery indicator LED flashes red. Connect the power adapter and plug it in to recharge the NiMH batteries.

Note: If you decide to replace the supplied NiMH batteries, replace all four at the same time with **1000 mAh NiMH** batteries.

Turning On RUBY

1. Press the green/yellow button  to turn on RUBY. After a few seconds, the battery status icon displays on the screen.
2. Press the button again to turn off RUBY.

Note: If RUBY is left on and no buttons are pressed, it automatically turns off after 30 minutes to avoid draining the batteries.

Button Descriptions



Power (Green/Yellow): Press to turn power on. Press it again to turn power off.



Color Select (Blue): Press to cycle through Normal (color), Black on White, White on Black, Yellow on Blue, and Yellow on Black color displays.



Magnification (Yellow): Press to cycle through three different magnification levels. Magnification varies depending on how far you hold RUBY from an object.

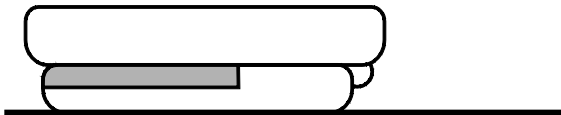


Freeze Frame (Red): Press to freeze the current image. Press it again to turn off Freeze Frame mode.

Magnifying with RUBY

How far you hold RUBY from an object determines the level of magnification.

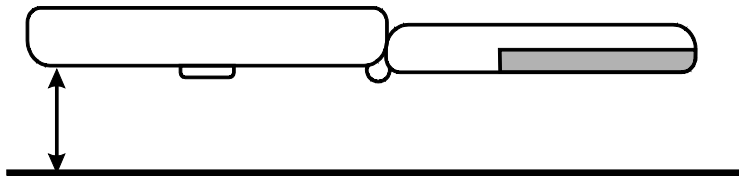
Placing RUBY with Handle Closed on a Document



- The starting magnification is **5X** when you place RUBY directly on a document with the handle folded closed.
- Press the yellow button **+** once to increase to **7.5X** magnification.
- Press again to increase to **10X** magnification.
- Press a third time to return to **5X** magnification.


Holding RUBY with Handle Extended

Unfold and extend the handle, holding it like a magnifying glass. Move RUBY closer to an item to view a smaller area, or farther away to view a larger area.






- From the starting magnification, press the yellow button **+** once to increase magnification.
- Press again to increase to the next magnification level.
- Press a third time to return to the first magnification level.

Changing Color Modes





- Press the blue button  to change the current color combination on the LCD screen. Continue pressing it to cycle through Normal (full color), Black on White (enhanced positive), White on Black (enhanced negative), Yellow on Blue, and Yellow on Black color combinations.

Freezing an Image

- Press the red button  to freeze the image.
- If you like, press the yellow button  to change magnification.
- Press the red button  again to turn off Freeze Frame mode.

Turning LED Lights Off

To avoid glare when viewing reflective surfaces, you can turn off the LED lights.

- Press and HOLD the green/yellow button , and then press the red button . The LED lights turn off.
- To turn the lights on again, press and HOLD the green/yellow button , and then press the red button .

Storage Mode

Storage mode allows you to save up to 15 images on RUBY. When you first store an image, it is saved with the current color settings. When viewing a saved image, you can change the magnification level.

Storage Mode Icons



Save: Press the blue button  to check the check box. The image is saved when you exit Storage mode.




Delete: Press the blue button  to clear the check box. The image is deleted when you exit Storage mode.






Advance: Press the red button  to move to the next image. When you reach the last image, RUBY cycles back to the first image.






Memory Full: Indicates that the maximum of 15 images have been saved on RUBY. You must mark one or more images for deletion  before you can save the current image.


Saving and Deleting an Image




After freezing an image on the screen, you can save it by doing the following.

- Press and HOLD the red button  for six seconds to enter Storage mode.
- In the lower left corner, the Save Image check box is automatically checked. This indicates that the image will be saved after exiting Storage mode.
- The Advance icon  displays in the lower right corner on the screen.
Press the red button  to step to the next image. Pressing the button repeatedly will cycle through all images on RUBY.

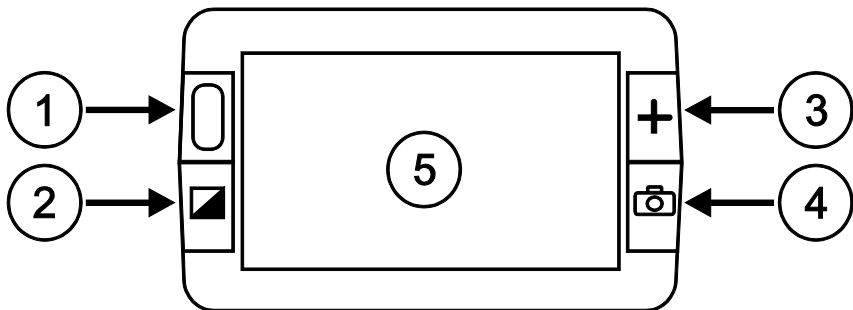
- To delete an image, press the blue button  to clear the check box . When you exit Storage mode, the image is deleted.
- Press and HOLD the red button  for three seconds to exit Storage mode.
- To review saved images, press and HOLD the red button  for six seconds to enter Storage mode. You can then advance and step through the images as previously described in this section.

Saving an Image when Memory is Full

RUBY can store a maximum of 15 images. If you try to save another image, the Memory Full icon  displays in the lower left corner of the screen. To add another image, you must remove one or more saved images from memory.

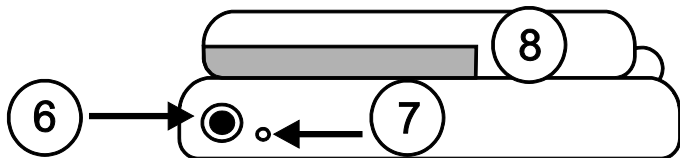
- Press the red button  to step to an image that you want to delete, and then press the blue button  to clear the check box .
- Press and HOLD the red button  for three seconds to exit Storage mode. The new image is saved, and all unchecked images are deleted.

Hardware Description

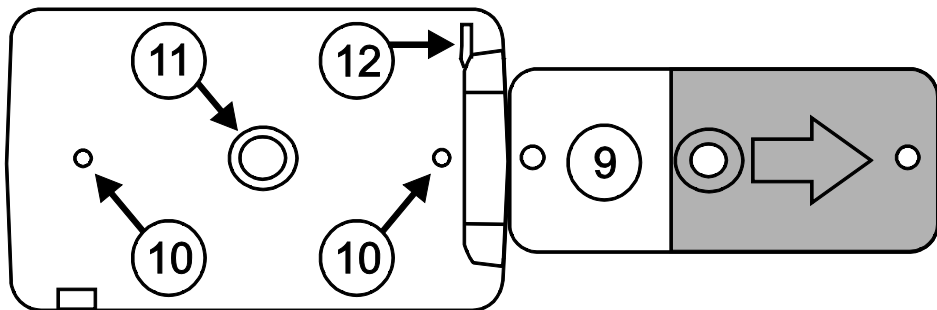


1. Power button (green and yellow)
2. Color Select button (blue)

3. Magnification button (yellow)
4. Freeze Frame (red)
5. LCD display



- 6. Power connector
- 7. Battery LED
- 8. Handle and battery compartment in closed position



- 9. Handle and battery compartment in opened position
- 10. LED lights
- 11. Camera window
- 12. Wrist strap post

Troubleshooting

The unit does not turn on.

- Press the green/yellow **Power** button. If RUBY does not turn on, charge or replace batteries.
- Make sure the batteries are inserted correctly. See page 3.
(Do **not** replace batteries while the power adapter is connected.)

The screen is blank.

- Turn RUBY off and then on again.
- Turn on the LED lights.
- Verify that the item you want to magnify is positioned correctly under the camera window.

- Press the yellow **Magnification** button to step through the magnifications levels.
- Press the blue **Color Select** button to step through the color modes.

The battery indicator LED is flashing red.

- Charge the NiMH batteries, or replace the AAA alkaline batteries. (Do not mix battery chemistries.)
- If you replace the rechargeable batteries, be sure to use **1000 mAh NiMH** batteries.

The battery LED is solid red while the power adapter is connected to RUBY.

- A battery error has occurred. Unplug the power adapter from RUBY and plug it in again.

- Charge the NiMH batteries for at least **2 hours**, or replace with AAA alkaline batteries. Do not charge alkaline batteries.
- If the problem continues, disconnect the power adapter and call Freedom Scientific Technical Support as mentioned earlier in this document.

The battery indicator LED does not flash green, even though the power adapter is connected and plugged into a wall socket.

- Ensure that the small end of the power adapter is firmly plugged into RUBY's power port.
- Ensure that the outlet has power and is not malfunctioning. If the outlet is connected to a wall switch, make sure the switch is on.

The NiMH batteries are not charging.

- Make sure the batteries are inserted correctly. See page 3.
(Do **not** replace batteries while the power adapter is connected.)
- Make sure the small end of the power adapter is firmly plugged into RUBY's power port.
- Ensure that the outlet has power and is not malfunctioning. If the outlet is connected to a wall switch, make sure the switch is on.
- Some batteries have low charge rates and specify a "MAX Charging Current". **DO NOT USE** batteries that specify their MAX Charging Current as being below 250 mA.

There are smudges or blemishes on the screen.

- Clean the LCD screen as described in **Cleaning Procedures** on page 26.

Text is too small or too large to read.

- Press the yellow **Magnification** button to cycle through different magnification levels.

LED lights produce glare against a reflective surface.

- Press and HOLD the yellow/green **Power** button, and then press the red **Freeze Frame** button to turn off the LED lights.

RUBY turns off after reading for 30 minutes.

- This is expected behavior. RUBY turns off after 30 minutes if no buttons are pressed. This extends battery life.

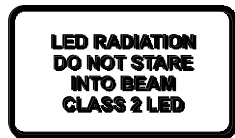
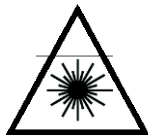
Federal Communications Commission Notice

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.
- This Class B digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Regulatory Compliance

- **Safety:** IEC 60950-1 ed2.0, UL 60950-1:2007, CSA C22.2.60950-1:2007, EN 60950-1:2006 + A11:2009 + A1:2010, EN 60825-1:2001
- **EMC:** FCC (CFR-47, part 15) Class B; ICES-003; EN 55022 Class B; EN 55024
- **Wavelengths:** 400 nm to 750 nm
- **Power:** < 1mW CW



Safety and Maintenance

- Do not attempt to repair RUBY or open its case. This product contains no user serviceable parts. Any unauthorized attempt to service or replace internal components will void the product warranty.
- Keep RUBY away from wet areas, rain, and other sources of liquids. Do not submerge RUBY.
- Always operate RUBY in a place where the temperature is between 10° and 35° C (50° and 95° F).
- Do not store in places subject to temperature extremes such as a parked car.
- Do not force any connector into RUBY's power port. The power connector fits easily into the port.
- Use only the power adapter that came with RUBY to charge the NiMH (**1000 mAh**) batteries. Other adapters may damage the unit.

- Some batteries have low charge rates and specify a “MAX Charging Current”. **DO NOT USE** batteries that specify their MAX Charging Current as being below 250 mA.
- Dispose of NiMH and alkaline batteries properly. Check with your local government for disposal and recycling procedures.
- Do not mix NiMH batteries and alkaline batteries in RUBY. Replace all batteries of the same chemistry at the same time. Do not mix new batteries with old batteries. Failure to follow this precaution can lead to battery failure or leakage. Risk of explosion is possible if batteries are replaced with an incorrect type.

Cleaning Procedures

LCD Screen

- Turn off and unplug RUBY before cleaning the LCD screen.
- Always use a clean microfiber cloth.
- Very gently wipe the cloth across the screen. Do not press hard on the cloth or screen.

- If you use a cleaning liquid, use an appropriate LCD cleaning liquid. You can also use distilled water, isopropyl alcohol, or vinegar mixed with water at a concentration of no more than 10 percent vinegar. Note that tap or mineral water may cause spotting on the screen. Do not leave any liquid on the screen. Repeat this procedure for hard to remove smudges.
- **Do not** spray any cleaning solutions directly on the LCD screen.
- **Do not** use a cleanser that contains acetone, ethyl alcohol, ethyl acid, ammonia, or methyl chloride.
- **Do not** use a paper towel to clean the LCD screen.

Cleaning the Rest of RUBY

- Make sure RUBY is unplugged. Use a lightly dampened, soft, clean cloth with water or mild detergent. Do not use alcohol, solvents, abrasives, or aerosol sprays.