

**RUBY<sup>®</sup>+**

**Handheld Video Magnifier  
User's Guide**

440928-001 Rev. A

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## Technical Support

To contact Technical Support by email, send questions to **[support@vfogroup.com](mailto:support@vfogroup.com)**.

To contact by web, visit **[www.FreedomScientific.com/Forms/TechSupport](http://www.FreedomScientific.com/Forms/TechSupport)**, and complete the form to submit questions.

To contact by telephone, U.S. customers can call **(727) 803-8600**, Monday through Friday, 8:30 AM to 7:00 PM (Eastern Time). Please have your questions ready and be prepared to provide the following information: product name, serial number, what you were doing when the problem occurred, and how you tried to solve the problem.

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## Read Me First


- Before using RUBY<sup>®</sup>+ 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.

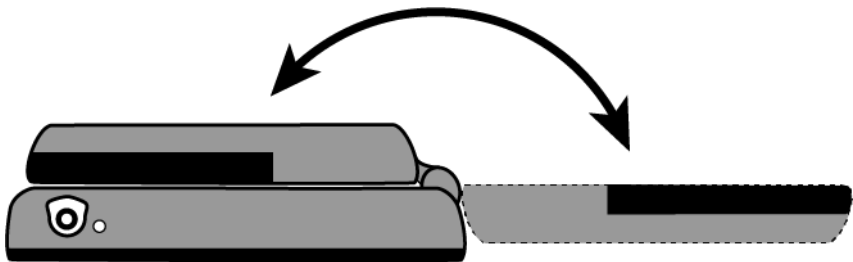
**Note:** Do not mix NiMH batteries with alkaline batteries. Replace all batteries of the same chemistry at the same time. Do not mix new batteries with old batteries. Replace NiMH batteries with 1000 mAh NiMH batteries. Failure to follow this precaution can lead to battery failure or leakage. The risk 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.





- Refer to **Charging NiMH Batteries** on page 10 for battery charging procedures.
- Refer to **Battery LED Descriptions** on page 8 for battery status descriptions.
- For the basics to help you get started using RUBY+, read **Quick Start** on page 3.
- For an overview of RUBY+ and its operation, review the information in this guide first.
- Visit **[www.FreedomScientific.com/Forms/ProductRegistration](http://www.FreedomScientific.com/Forms/ProductRegistration)** to register your product and validate your warranty.

## Quick Start

Below are steps to quickly set up and use RUBY+ for the first time.

1. Make sure the unit is fully charged.
2. Press the **Power** button  to power on the unit. Refer to page 11.
3. Do one of the following.
  - Unfold the handle to hold and use the unit like a magnifying glass. This is useful when it's necessary to magnify and read objects such as labels or details on cans, packages, pill bottles, and more.
  - With the handle folded closed, place the unit on a flat document such as a newspaper or magazine, a bill or receipt, a letter, and so on.



4. Change magnification using the **Plus** button . Refer to page 13 .
5. Select a color mode  for contrasting colors that best suit your vision needs. Refer to page 14.
6. Freeze the image  on the LCD screen so that you may take your time reading details in the image. Refer to page 14.
7. Save the image or return to live view . Refer to page 17.



## Hardware Description



1. Power button

2. Color Mode button

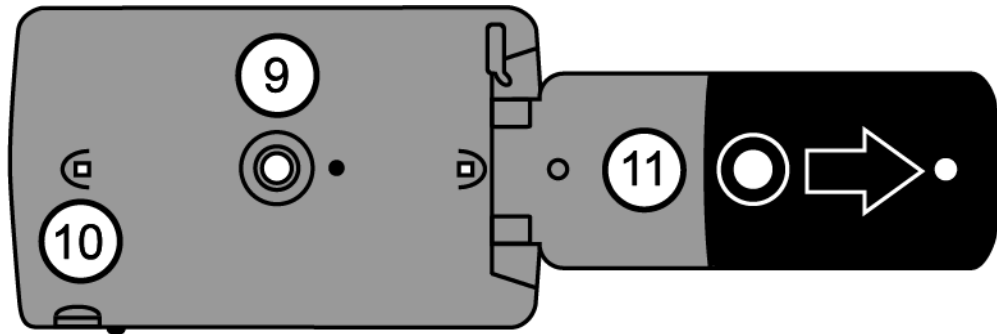
3. Magnification button

4. Freeze Frame

5. LCD display



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



9. Camera window

10. LED lights

11. Handle and battery compartment in opened position

## Battery LED Descriptions

**Green – Solid:** Battery charged

**Green – Flashing:** Battery charging

**Red – Flashing:** Battery low

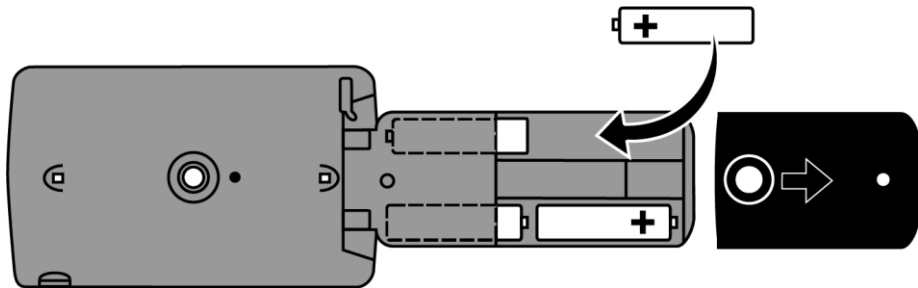
**Red – Solid:** Battery error. Refer to **Troubleshooting**, page 20.

**Off:** Power adapter not connected

## 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 the unit (1) and the other end into a wall outlet.
2. The battery LED (2) flashes green to show that the batteries are charging. For more, see **Battery LED Descriptions** on page 8.




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

4. You can now use your RUBY+ for approximately two hours of continuous use. When the batteries are low, the battery 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.

## Powering On RUBY+

1. Press the **Power** button  to power on the unit. After a few seconds, the battery status icon displays on the screen.
2. Press the button again to power off the unit.

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

## Button Descriptions



**Power:** Press to power on. Press it again to power off.



**Color Mode:** Press to cycle through Normal (color), Black on White, White on Black, Yellow on Blue, and Yellow on Black color modes.



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



**Freeze Frame:** Press to freeze the current image. Press again to turn off Freeze Frame mode and return to live view.






## Magnifying with RUBY+


You can unfold the handle and hold RUBY+ like a magnifying glass. In this position, magnification ranges from 2x to 14x.

With the handle closed and RUBY+ placed on a flat document, magnification ranges from 5x to 10x.




To magnify an object, do the following:

1. From the starting magnification, press the **Magnification** button  once to increase magnification.
2. Press  again to increase to the next magnification level.
3. Press  a third time to return to the first magnification level.

## Changing Color Modes




1. Press the **Color Mode** button  to change the current color combination on the LCD screen.
2. Continue pressing the button to cycle through Full Color, Black on White (high-contrast positive), White on Black (high-contrast negative), Yellow on Blue, and Yellow on Black color combinations.

## Freezing an Image

1. Press the **Freeze Frame** button  to freeze the image.
2. If you like, press the **Plus** button  to change magnification.
3. Press the **Freeze Frame** button  again to turn off Freeze Frame mode.

## Turning Off LED Lights

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


- Press and HOLD the **Power** button , and then press the **Freeze Frame** button . The LED lights turn off.
- To turn on the lights again, press and HOLD the **Power** button , and then press the **Freeze Frame** button .

## Storage Mode


Storage mode allows you to save up to 15 images. 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 **Color Mode** button  to check the check box. The image is saved when you exit Storage mode.




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






**Advance:** Press the **Freeze Frame** button  to move to the next image.






**Memory Full:** Indicates that the maximum of 15 images have been saved. 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 **Freeze Frame** button  for six seconds to enter Storage mode.
- In the lower left corner, the Save Image check box  is automatically selected. This indicates that the image will be saved after exiting Storage mode and returning to live view.
- The Advance icon  displays in the lower right corner on the screen. Press the **Freeze Frame** button  to step to the next image. Pressing the button repeatedly cycles through all images on the unit.

- To delete an image, press the **Color Mode** button  to clear the check box . When you exit Storage mode, the image is deleted.
- Press and HOLD the **Freeze Frame** button  for three seconds to exit Storage mode.
- To review saved images, press and HOLD the **Freeze Frame** 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 **Freeze Frame** button  to step to an image that you want to delete, and then press the **Color Mode** button  to clear the check box .
- Press and HOLD the **Freeze Frame** button  for three seconds to exit Storage mode. The new image is saved, and all unchecked images are deleted.

## Troubleshooting



### The unit does not power on.

- Press the **Power** button . If RUBY+ does not power on, charge or replace batteries.
- Make sure the batteries are inserted correctly. See page 9. (Do **not** replace batteries while the power adapter is connected.)

### The screen is blank.

- Power off RUBY+ 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 **Magnification** button  to step through the magnifications levels.
- Press the **Color Mode** button  to step through the color modes.

### **The battery 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 Technical Support as mentioned earlier in this document.

**The battery 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 unit'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 9.  
(Do **not** replace batteries while the power adapter is connected.)

- Make sure the small end of the power adapter is firmly plugged into the unit'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 29.

**Text is too small or too large to read.**

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

## **LED lights produce glare against a reflective surface.**

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

## **RUBY+ powers off after reading for 30 minutes.**

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

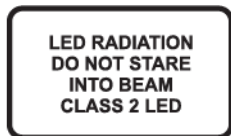
## Federal Communications Commission Notice

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 the unit 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 the unit away from wet areas, rain, and other sources of liquids. Do not submerge the unit.
- Always operate the unit 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 the unit's power port. The power connector fits easily into the port.
- Use only the power adapter that came with the unit 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 the unit. 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 the LCD Screen

- Power off and unplug the unit 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 RUBY+ Body

- 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.

## Warranty and Registration

Congratulations on your purchase of the RUBY+ Handheld Video Magnifier.

The unit and its accessories come with a 2-year warranty against manufacturing defects.

**Note:** These devices have no user-serviceable components. Any unauthorized attempt to service or replace internal components by opening the case will void the product warranty.

Please call Technical Support at (727) 803-8600 for assistance in troubleshooting any problems. If necessary, the technical support specialist will issue a Return Materials Authorization (RMA) number that must be referenced on the outside of the package containing your returned unit. Your unit or its accessory will then be exchanged or repaired as needed.

## Product Registration

Visit [www.FreedomScientific.com/Forms/ProductRegistration](http://www.FreedomScientific.com/Forms/ProductRegistration) to register your product and validate your warranty.