

***RUBY® Handheld
Video Magnifier***

User's Guide

Freedom Scientific, Inc.
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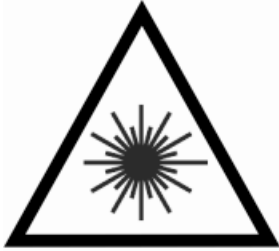
RUBY® is a trademark of Freedom Scientific, Inc. in the United States and other countries.

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.

Regulatory Compliance



Wavelengths:

400 nm to 750 nm

Power:

< 1mW CW

Safety:

UL 60950
CAN/CAS-C22.2 No. 60950
IEC 60950

EMC:

EN 60825-1:2001
FCC (CFR-47, part 15) Class B
EN 55022 Class B
EN 55024

Safety and Maintenance

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

- Read the instructions in this user's guide before attempting to use RUBY.
- Do not attempt to repair RUBY or open its case. This product contains no user serviceable parts.
- 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 attempt to force any connector into the unit's power or video ports. All appropriate connectors fit easily into the port.
- Use only the power adapter that came with your RUBY to charge the NiMH batteries. Other adapters may damage the unit.
- 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 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.

CAUTION:

Risk of explosion if battery is replaced by an incorrect type.

- When cleaning the screen or camera window, turn off the unit, unplug the power cord, and apply a small amount of non-abrasive cleanser, such as the following, to a soft, lint-free cloth (not a paper towel) and gently wipe: Water, Isopropyl alcohol (not ethyl alcohol), or Vinegar mixed with water at a concentration of no more than 10 percent vinegar.

CAUTION:

Do not apply excessive pressure to the screen. Do not spray cleanser directly on the screen. Also, do not use any cleanser that contains the following agents: acetone, ethyl alcohol, ethyl acid, ammonia, or methyl chloride.

- When cleaning the rest of the RUBY, make sure the unit is unplugged. Use a lightly dampened, soft, clean cloth with water or mild detergent. Do not use alcohol, solvents, abrasives, or aerosol sprays.

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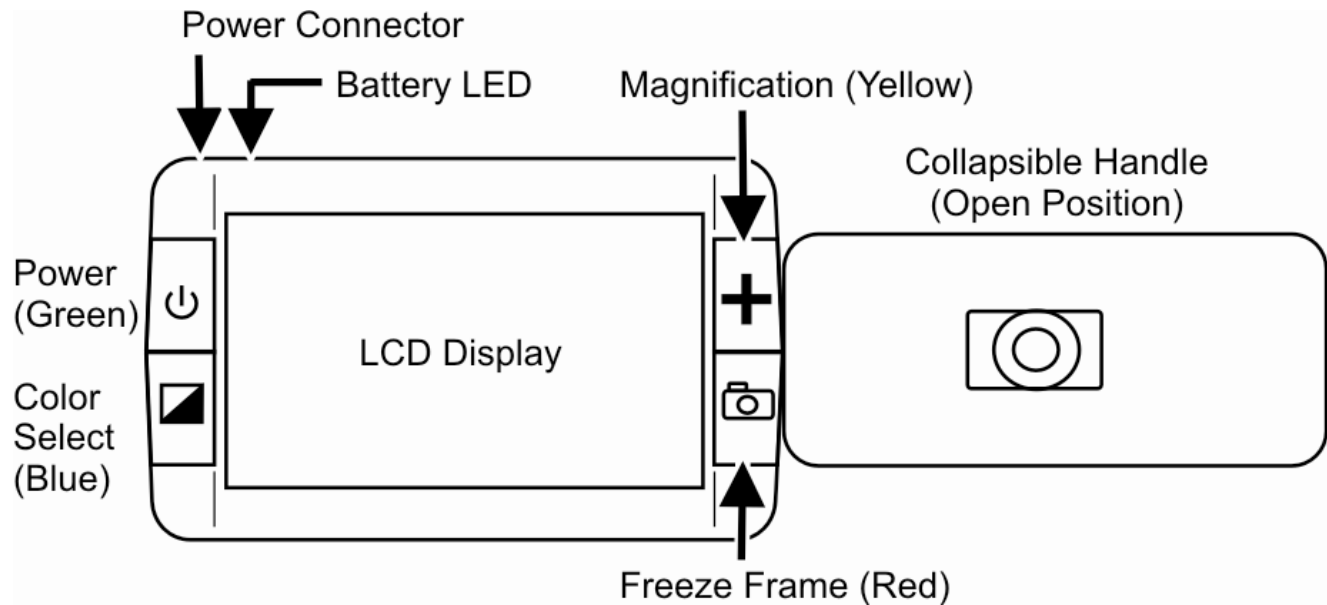
Quick Start

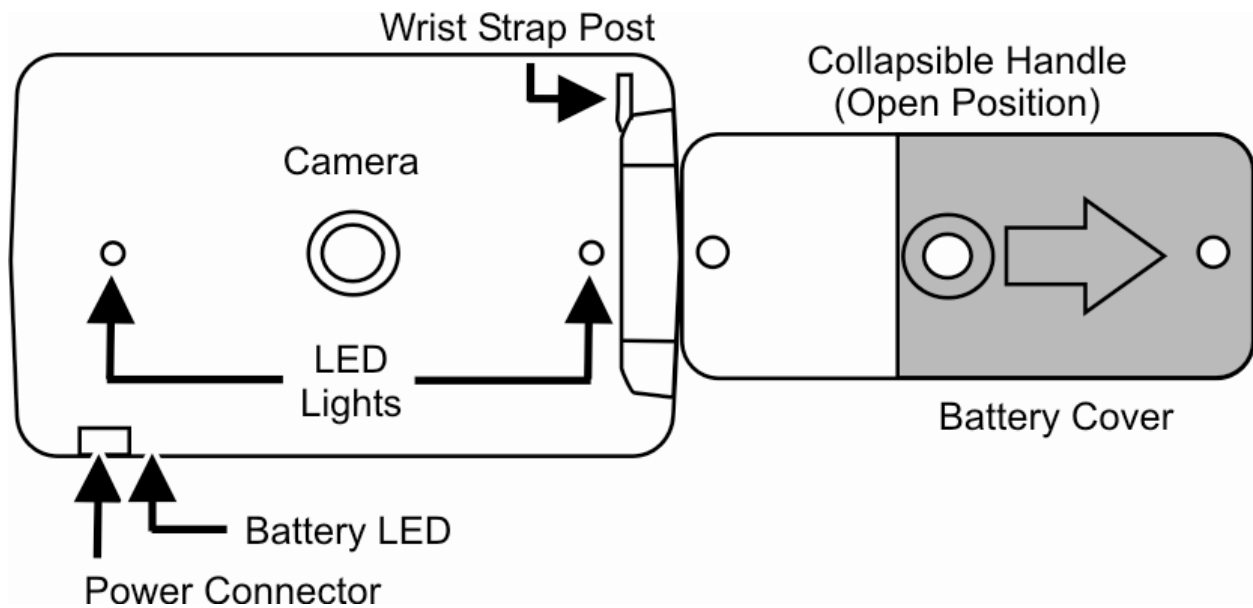
Note: Before using RUBY, you must charge the unit. The batteries charge faster when the unit is off. Allow at least two hours for a complete charge before using the unit for the first time. For more information, go to page 7.

The next three pages identify and describe the location of RUBY® components and battery LED operation.

To turn RUBY on and off, refer to page 15.

To increase magnification, refer to page 18.







Battery LED Descriptions

LED State	Description
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
No LED	Battery charge ok, power adapter not connected; or the unit is off

Overview

Congratulations on your purchase of RUBY! This handheld video magnifier lets you magnify printed text and objects from 2 to 14 times the object's actual size. RUBY features a 4.3-inch, wide-screen (16:9 aspect ratio) LCD display with five video modes, and rechargeable batteries.

The RUBY is easy to use, even for those unfamiliar with assistive technology. You press the green **Power** button  to turn the power on, hold or place RUBY over an object, and adjust the magnification to your preference with the yellow **Magnification** button . The magnified image appears on the unit's display window.

What's in the Box

Before using RUBY, take out and verify all the items that are in the box. The following items are included with RUBY:

- RUBY handheld video magnifier
- AC power adapter and power cord
- Four AAA nickel-metal hydride (NiMH) rechargeable batteries
- Carrying case, shoulder strap, and wrist strap
- Lens cleaning cloth
- RUBY User's Guide

Inserting and Charging the Batteries

Note: Before using RUBY for the first time, you must charge the four AAA NiMH batteries.

Four AAA NiMH rechargeable batteries are included with the RUBY. You can also use four AAA 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. Failure to follow this precaution can lead to battery failure or leakage.

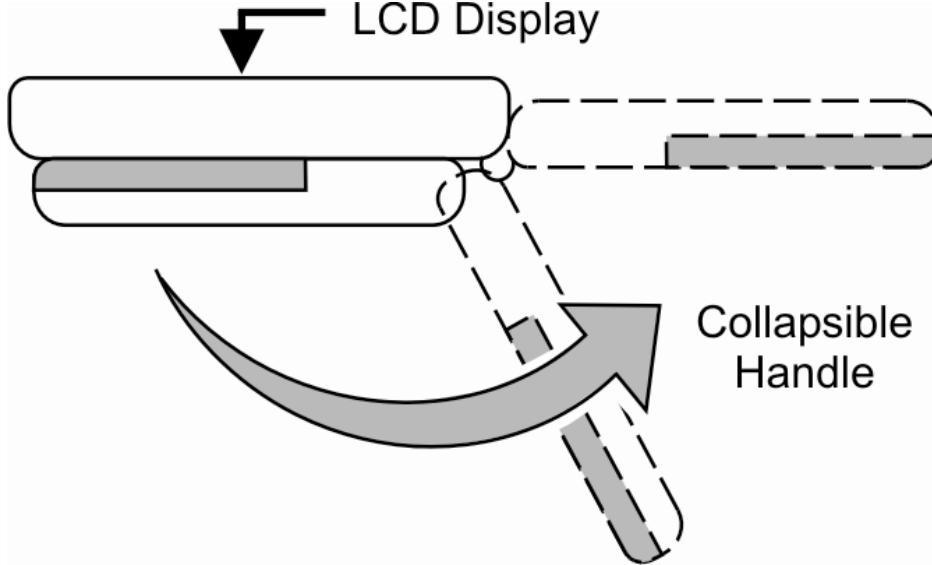
CAUTION:

Risk of explosion if battery is replaced by an incorrect type.

Inserting Batteries

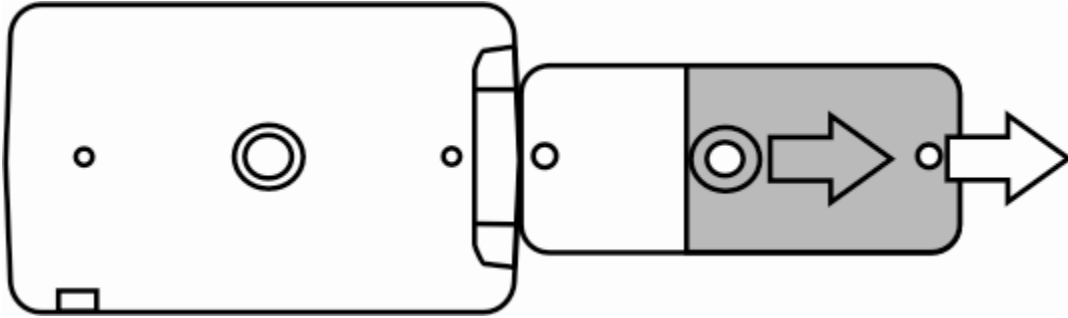
To insert the batteries, do the following:

1. Hold the RUBY in one hand. With the other hand, rotate and swing the handle until it is fully extended as shown in the following illustration.



Extending the RUBY handle

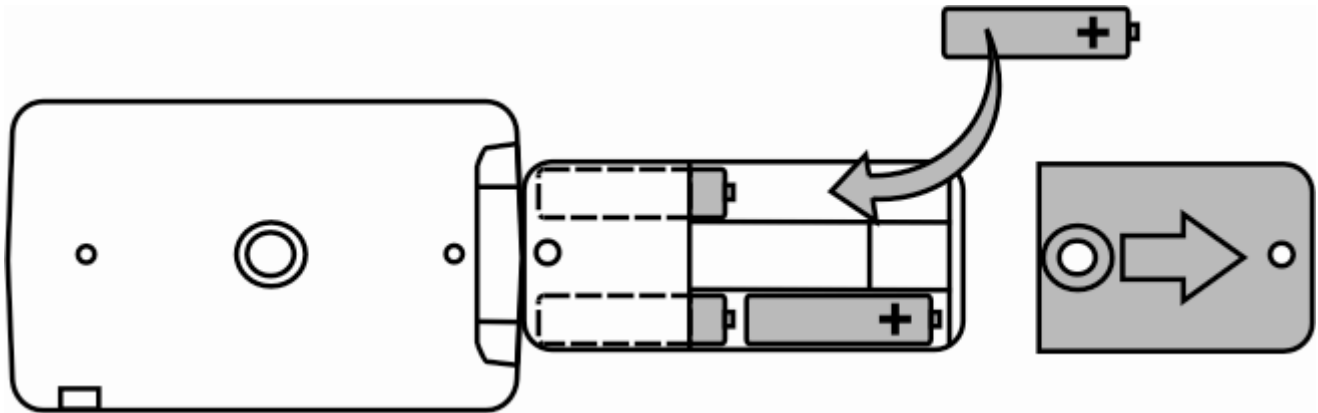
2. With the LCD display facing away from you, slide the battery cover in the direction of the arrow that is imprinted in the plastic cover as shown in the following illustration.



Removing Battery Cover

3. Insert the batteries as shown in the following illustration and replace the battery cover.

Note: Do not mix NiMH batteries with alkaline batteries. Replace all batteries of the same chemistry at the same time. Failure to follow this precaution can cause battery failure or leakage.



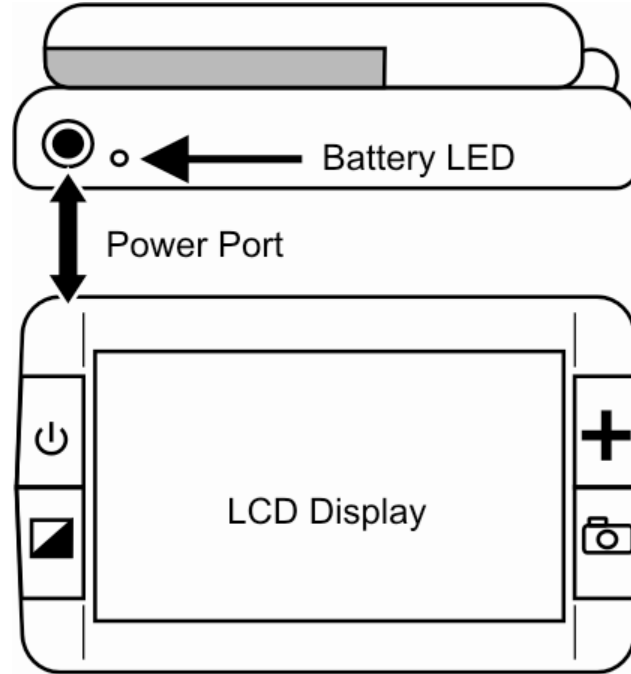
Inserting Batteries

4. Close the handle after inserting the batteries.

Charging Batteries

To charge the NiMH batteries, do the following:

1. Plug the small end of the power adapter into the Power port. The port is located on the left top-edge of the unit next to the battery LED as shown in the following illustration.



RUBY Power port location


2. Plug the other end of the power adapter into a standard AC outlet.

The battery indicator LED, which is next to the Power port, blinks green to show that the batteries are charging. For more about the different LED states, go to *Battery LED Descriptions* on page 4.

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

You can now use your RUBY for at least 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 batteries.

Turning RUBY On and Off


1. Make sure the RUBY is charged as previously described in *Charging the Batteries* on page 7.
2. Press and hold the green **Power** button  on the left side of the unit.
3. After a few seconds, the LCD displays the current view as seen through the camera window.



Using RUBY

After charging the batteries, you are ready to begin reading with RUBY. With the unit's powerful magnification features, you can read or view letters, menus, maps, photos, labels, bus and train schedules, television listings, receipts, ingredients, and much more.

Reading with RUBY

To read documents with RUBY, do the following:

1. Press the green **Power** button  to turn on the RUBY.
2. If you are reading a book, letter, or other printed item, place it on a flat surface, such as a table or desk.

3. Next, you can hold the RUBY by its handle, the same way as you would a magnifying glass, or you can fold the handle under the unit and place the RUBY directly over the text or object that you want to read or view. Anything under the unit is magnified and shown on the screen.
4. Adjust the zoom using the yellow **Magnification** button , located on the right side of the LCD screen, and select a color mode by pressing the blue **Color Select** button , located on the left side of the screen.
5. Move or 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. Continue reading with RUBY until you feel comfortable using it.

Magnifying an Image

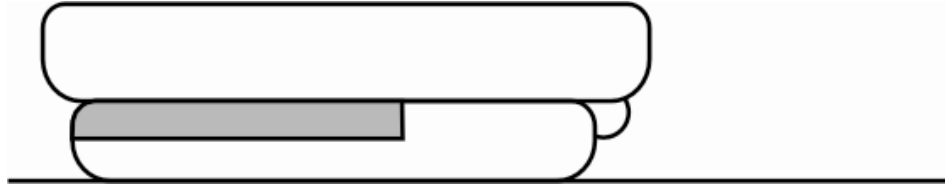
RUBY has two digital Zoom modes, and, depending on the position and placement of the unit, supports screen magnification levels from 2X to 14X.

1. To increase screen magnification, press the yellow **Magnification** button **+**.
2. To step up to the next level of magnification, press the yellow **Magnification** button **+** again.
3. Pressing the button a third time returns the RUBY to its initial magnification level.

For more information about using RUBY at different magnification levels, refer to the following sections.

Magnification Level with Handle Collapsed

When the RUBY is in this position and placed on a document, the starting magnification is **5X**.



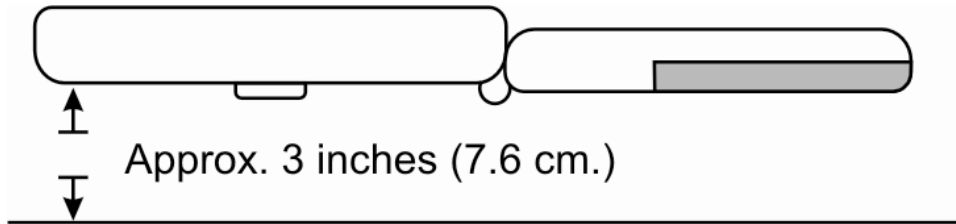
RUBY with handle collapsed

- Press the yellow **Magnification** button **+** once and the magnification increases to **7.5X**.

- Press the yellow **Magnification** button **+** again and the magnification increases to **10X**. Press the button again, and the magnification level returns to 5X.

Magnification Level While Holding Handle

When the RUBY is in this position and placed on a document, the starting magnification is **2X**.



*Magnification level while holding RUBY
approximately 3 inches (7.6 cm) above item*

- Press the yellow **Magnification** button **+** once and the magnification increases to **3X**.
- Press the yellow **Magnification** button **+** again and the magnification increases to **4X**. Press the button again, and the magnification level returns to 2X.

Magnification Level with Handle Expanded

When the RUBY is in this position and held slightly above a document with the image in focus, the starting magnification is **7X**.




Magnification level approximately 0.5 inches (1.3 cm) above item

- Press the yellow **Magnification** button **+** once and the magnification increases to **10.5X**.
- Press the yellow **Magnification** button **+** again and the magnification increases to **14X**. Press the button again, and the magnification level returns to 7X.

Selecting a Video Mode




A video mode is a pre-defined color combination (for example, yellow text on a blue background) that you can select when viewing items with the RUBY. Five different video modes are available: Normal (full color), Black on White (enhanced positive), White on Black (enhanced negative), Yellow on Blue, and Yellow on Black.

1. Press the blue **Color Select** button  to change the current video mode.
2. Continue to press the button until you find the best color combination for you.

Freezing an Image


Freezing an image on the LCD screen can be useful for reading labels on items on a store shelf. By holding the RUBY close to the item and capturing the image, you can then hold the unit close enough for you to read.

To freeze the current image on the LCD screen, do the following:

1. Press the red **Freeze Frame** button  on the front panel.
2. If you like, you can change the magnification of the image by pressing the yellow **Magnification** button .
3. Press the red **Freeze Frame** button  again to turn off Freeze Frame mode.

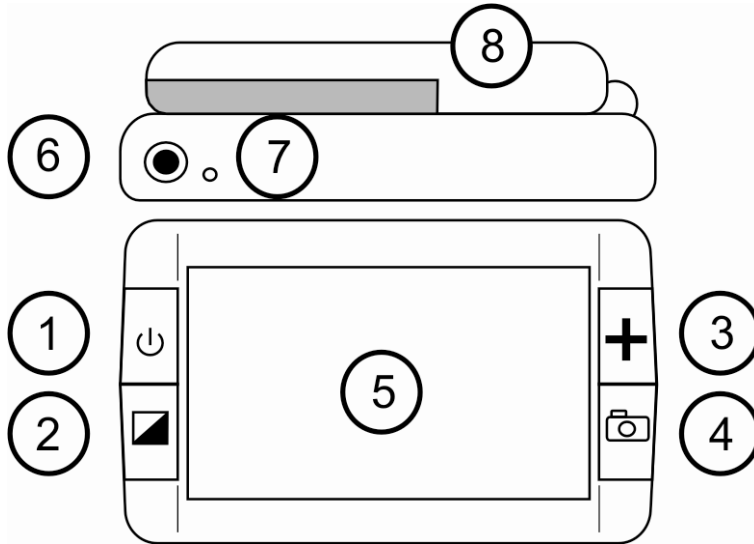
Turning LED Lights Off

When you turn on your RUBY, the two LED lights are on by default. To avoid glare when viewing reflective surfaces, turn off the LED lights as described below:

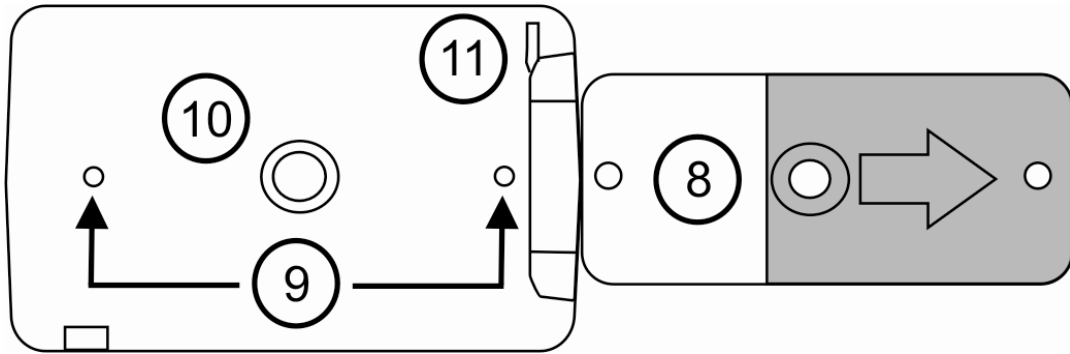
1. Press and hold the blue **Color Select**  and red **Freeze Frame**  buttons for three seconds. The LED lights turn off.
2. To turn the lights on again, press and hold the blue **Color Select**  and red **Freeze Frame**  buttons for three seconds.

Hardware Description

To learn more, refer to the descriptions that begin on page 28.




RUBY front and top view




RUBY rear view

1 – Power Button (Green)


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

2 – Color Select Button (Blue)


Select the contrasting colors that best suit your vision needs for reading text.

Press the blue **Color Select** button  to cycle through the various choices. There are five default video modes: Normal, Black on White, White on Black, Yellow on Blue, and Yellow on Black.

3 – Magnification Button (Yellow)

Press the yellow **Magnification** button , located on the right side of LCD screen to cycle through and increase magnification. High levels of magnification can help you see small text or detailed illustrations. Low levels of magnification allow you to see more on the screen.

4 – Freeze Frame Button (Red)

Press the red **Freeze Frame** button , located on the right side of the LCD screen, to freeze and capture the current image that appears on the screen. Press it again to turn off Freeze Frame mode. See *Freezing an Image* on page 24 for more about freeze frame operation.

5 – LCD Screen

The unit has a flat, 4.3-inch, wide-screen (16:9 aspect ratio) liquid crystal display (LCD). Text or other items placed in front of the camera window display on the screen.

6 – Power Port

Plug in the supplied power cable adapter into the small, circular port on the left top-edge of the unit. Only connect the supplied power adapter to this port. For information about charging batteries, see page 7.

7 – Battery Indicator LED



The battery indicator LED is located next to the power connector on the left top-edge of the unit. When the batteries are low, the LED blinks red. When the NiMH batteries are charging, the LED blinks green. The LED stops blinking when the NiMH batteries are fully charged. When you unplug the unit from the power adapter, the LED turns off. For more about LED operation, refer to *Battery LED Descriptions* on page 4.

8 – Handle and Battery Compartment

The collapsible handle extends so that the RUBY can be held like a magnifying glass. The handle also holds four AAA NiMH rechargeable batteries (supplied) or four AAA alkaline batteries (not provided). Do not mix NiMH and alkaline batteries.

9 – LED Lights

The unit has two small LED lights that help illuminate the text you are reading and the object you are viewing. The lights are on by default.

To turn off the lights, press and hold the blue **Color Select**  and red **Freeze Frame**  buttons for at least three seconds.

10 – Camera Window

This window protects the camera lens, which magnifies items that appear in front of it.

11 – Wrist Strap Post

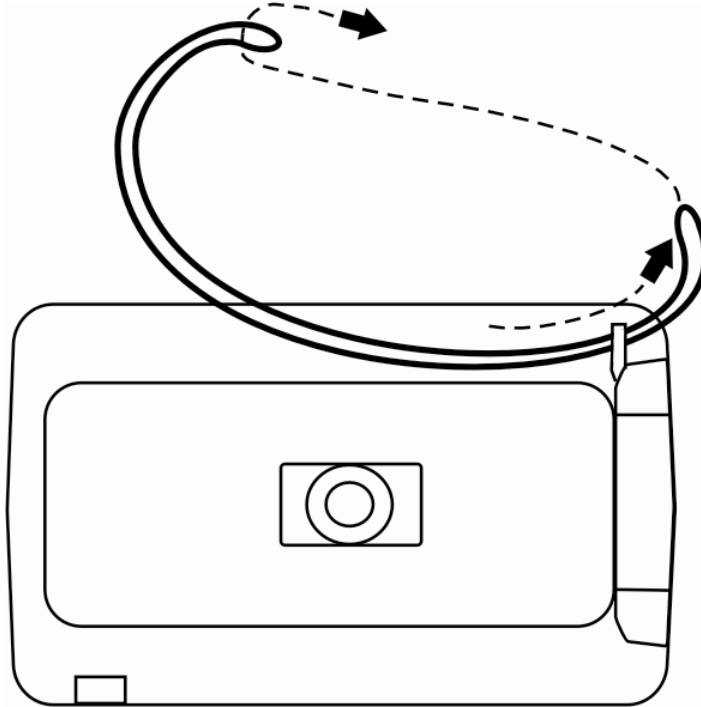
This lets you attach a wrist strap to the RUBY.

Carrying RUBY

RUBY has a wrist strap that you can use so that you do not drop it during use. To attach the strap, refer to the illustration on the next page and do the following:

1. Push one end of the strap through the hole in the wrist strap post that is located on the rear of RUBY.
2. Loop one end of the wrist strap through the other end of the wrist strap, and then pull the strap tight.

When using RUBY, 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

Cleaning Procedures

When cleaning the screen or camera window, turn off the unit, unplug the power cord, and apply a small amount of non-abrasive cleanser, such as the following, to a soft, lint-free cloth (not a paper towel) and gently wipe:

- Water
- Isopropyl alcohol (not ethyl alcohol)
- Vinegar mixed with water at a concentration of no more than 10 percent vinegar

CAUTION:

Do not apply excessive pressure to the screen. Do not spray cleanser directly on the screen. Also, do not use any cleanser that contains the following agents: acetone, ethyl alcohol, ethyl acid, ammonia, or methyl chloride.

- When cleaning the rest of the RUBY, make sure the unit is unplugged. Use a lightly dampened, soft, clean cloth with water or mild detergent. Do not use alcohol, solvents, abrasives, or aerosol sprays.

Service and Support

Note: This device has no user-serviceable components. Any unauthorized attempt to service or replace internal components will void the product warranty.

You can contact Freedom Scientific Technical Support to receive technical assistance with RUBY. Before contacting Technical Support, it is recommended that you refer to *Troubleshooting* on page 39 to try to resolve your problem quickly.

If you cannot resolve your issue, visit www.FreedomScientific.com, choose the **Support** link, and search the Knowledge Base. It 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. (Eastern Time). Alternatively, you can receive support by e-mail. Send your questions and problems to Support@FreedomScientific.com.

When you call, have your documentation ready and be prepared to provide the following information:

- Product name
- What you were doing when the problem occurred
- How you tried to solve the problem

Troubleshooting

Problem	Solution
The screen is blank.	<p>Ensure that power is on.</p> <p>Verify that the item you want to magnify is positioned correctly under the camera window.</p> <p>Reduce the magnification level.</p> <p>Charge the NiMH batteries.</p> <p>If using AAA alkaline batteries, replace the alkaline batteries. (Do not mix with NiMH batteries.)</p>

Problem	Solution
The unit does not turn on.	Charge the NiMH batteries. If using AAA alkaline batteries, replace the alkaline batteries. (Do not mix with NiMH batteries.)
The image on the screen is dark or distorted.	Make sure that RUBY is positioned flat on the page you are reading.
The battery indicator LED is flashing red.	Charge the NiMH batteries, or, if using AAA alkaline batteries, replace the alkaline batteries. (Do not mix battery chemistries.)

Problem	Solution
<p>The battery LED is solid red while the power adapter is connected to the RUBY.</p>	<p>A battery error has occurred. Unplug the power adapter from the RUBY and plug it in again.</p> <p>Charge the NiMH batteries for at least 2 hours.</p> <p>If using AAA alkaline batteries, replace the alkaline batteries.</p> <p>If the problem continues, disconnect the power adapter and call Freedom Scientific Technical Support – see page 37.</p>

Problem	Solution
<p>The battery indicator LED does not flash green, even though the power adapter is connected and plugged into a wall socket.</p>	<p>Ensure that the small end of the power adapter is properly plugged into the unit's power 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>

Problem	Solution
The NiMH batteries are not charging.	<p>Ensure that the small end of the power adapter is properly plugged into the unit's power 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>
There are smudges or blemishes on the screen.	Clean the LCD screen and camera window as described in <i>Cleaning Procedures</i> on page 35.

Problem	Solution
Text is too small to read.	Press the yellow Magnification button to increase the magnification level.
Text is too large to read.	Press the yellow Magnification button to cycle through to a lower magnification level.
LED lights produce glare.	Press and hold the blue Color Select and red Freeze Frame buttons for at least three seconds to turn off the LED lights.