LUNA OPTICS®

QUALITY YOU CAN SEE...
EVEN IN THE DARK.®

LN-DM50-HRSD

HIGH-RESOLUTION DIGITAL
NIGHT VISION VIEWER/RECORDER

INSTRUCTION MANUAL

*<u>IMPORTANT:</u> Please read this manual in its entirety
prior to using this device!*

DIGITAL NIGHT VISION

1. Your night vision viewer operates with batteries. Unlike a daylight binocular, where you see the image due to light traveling through the glass and the prisms, the digital night vision device works by projecting the image onto an LCD screen. While the CCD and the LCD are the crucial components of your viewer, the optical parts of the unit are also very important, as they gather the light into the CCD and bring the projected image from LCD screen to your eye. Since the image is projected on the screen, just like any TV, it has certain limited resolution, so your digital night viewer cannot provide the same crystal clear image, as you see through your daylight binoculars – after all, you are using this device in the dark environment, where normally your vision would be very limited.

2. **Another important point** – your digital night vision viewer has color image during the day and monochrome (black & white) image during the night – why? Because color CCD are generally not as light sensitive as black & white, the color CCD will not be as effective as black & white during nighttime conditions. The color transition is automatic and you may notice some image flickering during this transition. This is normal and does not affect the unit.

3. Your digital viewer is intended for nighttime operation however it is also possible to use it during daylight hours. Please note that during daylight you will have to reduce the brightness level of the unit to prevent the image from becoming totally washed out.

4. For more details on how to operate your viewer, please read this manual completely to ensure proper operation.
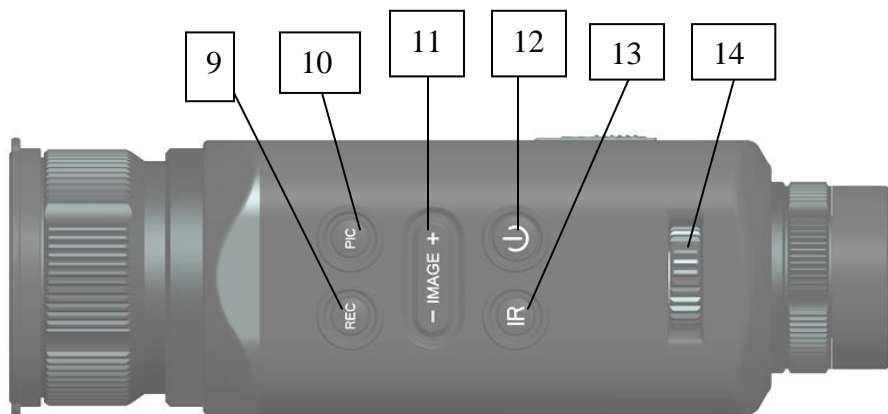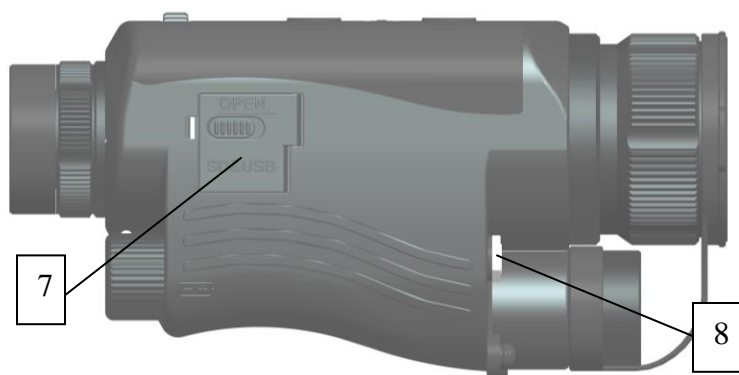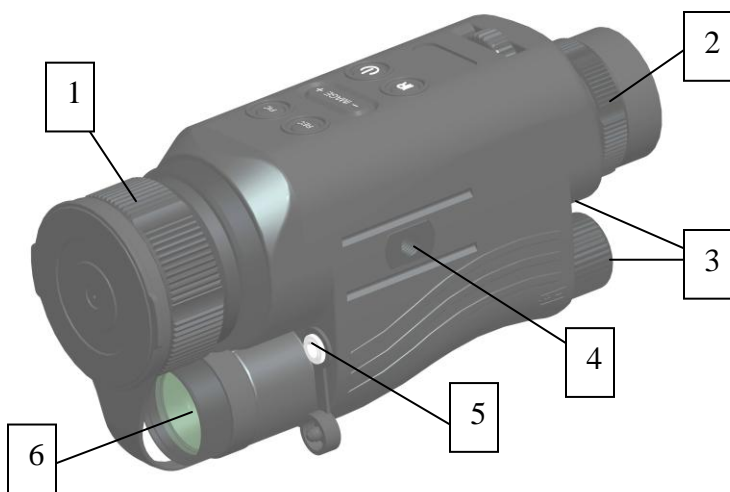
YOUR SYSTEM INCLUDES THE FOLLOWING:

1. LN-DM50-HRSD High resolution Digital Night Vision Viewer/recorder
2. 4GB Micro SD-card (installed into the SD-card slot)
3. Carry case
4. DC adapter with US plug (EU plug adapter included for International customers)
5. Video Cable
6. USB Cable
7. Wrist Strap (installed onto the viewer)

OPERATION:

Now that we've covered some of the basics of the technology behind the night vision, let's learn how to operate your new device:
Please look at the next page to identify all the parts of the unit.

LN-DM50-HRSD DIGITAL VIEWER / RECORDER

Glossary:

1 – Objective Lens Focusing Wheel
2 – Ocular Focusing Wheel
3 – Battery Compartments
4 – Accessory / Tripod Mount
5 – Video Output
6 – Infrared Illuminator
7 – SD-Card / USB Compartment
8 – DC Output

9 – Video Recorder Button
10 – Still Image Button
11 – Image / Zoom Button
12 – Power ON/OFF Button
13 – Infrared / Menu Button
14 – Brightness Wheel
15 – SD-Card Slot
16 – USB Output

INSTALLING THE BATTERIES:

Your night vision unit operates on two 3V Lithium type batteries, known as CR123 type commonly available in Electronics/Camera/Convenience stores. **NOTE: if using rechargeable batteries make sure each battery voltage is less than 3.3V**

To install the batteries, unscrew the battery compartment covers (3), located on the back of the unit (one on each side below the ocular (2) and install one battery into each compartment inserting the positive (+) end first. Once the batteries are inside, replace the covers.

TURNING THE UNIT ON AND OFF:

Your night vision unit has one-touch push-buttons. To turn the unit ON, first remove the objective lens cover (1) and press the power button (12) once and immediately release it. The green light indicator located on the back of the unit should light up. Look through the ocular – you should see the Welcome screen for a few seconds, followed by image. Even if the image is not yet sharp, the unit is operating. To turn the unit OFF, press and hold the power button for 2 seconds. The image will disappear if you turn the unit off correctly. Always replace the objective lens cover after the unit is turned off and no longer is in use.

IMPORTANT: When turning the unit ON it is normal to see some image flickering, as the components warm up to display the image. This is normal and does not affect the unit. If the flickering continues after 5-10seconds, please try to decrease the brightness of the image by gently rotating the Brightness Wheel (14)

Your digital viewer can also operate from a common wall outlet with the use of the plug adapter (included). Remove the batteries and Insert the adapter cord into the DC Output (8)

SETTING UP DATE AND TIME:

As your viewer has capability to take images and record video, time and date is automatically stamped onto each image and video recording. To set the correct date and time, please follow this procedure:

Turn the unit ON. After image appears, press IR Button (13) and hold it for 2 seconds. Menu will appear on the image screen. Default date format is MM/DD/YYYY. To adjust the numbers, press Image Button (11) either in + or – direction. To switch between date/month/year, press Power button (12). After Date is set, adjust the time. Time is in 24hr format, so 13:00 is 1pm; 17:30 is 5:30pm and so on. As with the date, changing hours and minutes is done with Image button (11) either + or – and moving between hours and minutes is done via Power button (12). Once the time is adjusted you may choose to change the date format from the factory setting MM/DD/YYYY to DD/MM/YYYY or YYYY/MM/DD according to your preference. Once you are finished setting date and time, you must confirm your setting by pressing PIC button (10).

FOCUSING THE UNIT:

To obtain the sharp image, you must first rotate the objective lens (1) in either direction, until you notice in which position the image is at its best. After that, rotate the ocular (2) also until the image is at its best. You may have to repeat the process again, until the image is sharp and clear. Once the clear image is obtained, you no longer need to adjust the ocular, just rotate the front objective lens to adjust the distance to the object you are viewing.

BRIGHTNESS ADJUSTMENT:

Your digital viewer is equipped with dual brightness control. An automatic brightness control sensor adjusts the image brightness according to the available ambient light. In addition a smooth brightness adjustment wheel (14) allows you to fine-tune the image brightness depending on the ambient light conditions. Please note that during daylight you will need to tone the brightness down to avoid image flickering and to preserve the battery life. During nighttime you could increase the brightness all the way up, however when utilizing built-in or external IR illuminator, you may need to tone the brightness down a bit.

ELECTRONIC IMAGE MAGNIFICATION ZOOM:

Your unit is also equipped with electronic zoom function, which allows you to change image magnification from 5x to 20x. Please note the electronic zoom function is different from the "digital zoom", found on many other digital

viewers, as it preserves the optical image quality and even at 20x the image is not pixilated as with the digital zoom. To increase the image magnification press the IMAGE button (11) on the + side and look into the ocular – you will see the image magnification increase. At the minimum level (1.00) the image magnification is 5x; at the maximum level (4.00) the image magnification is 20x. You can see the zoom level in the right lower corner of the image screen once you start pressing the IMAGE button on the + side. To decrease the image magnification, press the IMAGE button on the – side.
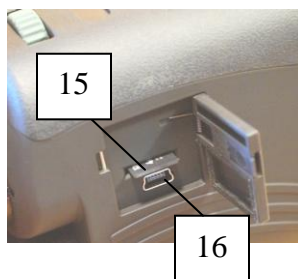
USING INFRARED ILLUMINATOR:

Your digital viewer is equipped with a built-in powerful Infrared illuminator light (10). This light operates in a spectrum, which is normally invisible to a human eye, however with the help of the CCD sensor, located inside the unit, you will see a beam of light when looking though the ocular lens. Since the CCD does not actively amplify the available light, you will need to utilize the IR illuminator often in the nighttime conditions.

To turn the Infrared illuminator ON, press the Infrared illuminator button (4) once. To turn the IR illuminator OFF press the same button again once. A red light indicator located in the back of the unit will light up indicating the IR Illuminator is on.

When using the infrared illuminator it is important to remember that like a flashlight, it is brightest when used in short distances. As the distance increases, the intensity of the infrared light fades away.

TAKING PICTURES AND RECORDING HD VIDEOS:

Your digital viewer has the ability to take pictures and record videos onto the external Micro-SD card. 4GB card is included with your unit and it is already installed into the SD-card slot. The Micro-SD card can be upgraded up to 32GB, which is especially useful if you plan to record a lot of videos. To change the SD-card, open the SD-card/USB compartment (7) by sliding the latch to the right. The door will pop open as you see on this image. Remove the included 4GB card by pressing onto its end. It will pop out of its slot (15) as shown on the image. Gently remove the card and replace it with the new one by pressing it forward until it is securely locked in the slot. Close the compartment door and lock it by sliding the latch to the left.

To take a picture, focus the unit onto the object you are viewing and with a steady hand press the PIC button (10) once. The image is automatically stored onto the SD card.

To record a video, focus the unit onto the object and press REC button (9) once. The system will start recording. Please note that the video is being recorded in High Definition (720p) and in the Widescreen format (16x9). To pause video recording press PIC button (10) once. To resume video recording press PIC button again. To stop recording, press Power button (12) once. During recording it is still necessary to re-adjust the focus if you wish to record different objects, located at different distances.

VIEWING PICTURES AND RECORDED VIDEOS:

It is possible to view the images and videos directly on the unit's LCD screen. To do so, while the unit is operating press the Power button (12) briefly just once. You will be able to switch between images and videos by pressing IMAGE button (11) in either + or – direction. To play the recorded video, press PIC button (10) once. To stop playing video press PIC button again. To exit picture/video viewing mode and to come back to the active image mode, press Power button (12) briefly just once. Please note – if you press and hold Power button, your unit will shut down and would need to be reactivated again by pressing Power button once.

CONNECTING TO EXTERNAL SOURCES:

You can connect your device to a computer via the USB cord (included with your device) or to the TV/VCR/DVR via the RCA-type video cord (included with your device). Connect the small end of the Video cable to the Video Output (9) and then connect to the TV/Recorder.

TROUBLESHOOTING:

1. Unit does not turn on and the light indicator is off:
    a) please check if the batteries are inserted correctly
    b) please make sure the batteries are fresh
2. The light indicator is working, but you cannot see the image:
    a) you may be turning the unit on in a dark area with the lens cover still on the unit
    b) You may need to turn on the infrared light
3. Unable to obtain sharp and clear image:
    a) you may need to repeat the process of rotating the ocular and objective lens several times until you get a good feel of it
    b) You may be viewing an object that it too close – the minimum focusing distance is approximately 50cm or 1.6ft
4. I switch from active image to photo/video review and the unit shuts off:
    a) You are holding the Power button. To activate photo/video review (or to get back to active image viewing) you must only press the Power button once and immediately release it.

5. Image freezes during operation or during initial turn on:
    a) Open at least one battery compartment and it will re-set the unit.
    b) If this situation continues – call or e-mail our technical support: 718-556-5862 / info@lunaoptics.com
6. I'm trying to turn the IR illuminator on and instead I see the date/time menu:
    a) You are holding the IR button for more than 1 sec. In order to turn the IR illuminator on, you must press the IR button once and immediately release it.

IMPORTANT INFORMATION:
NEVER:
1. Try to disassemble the unit by yourself or by anyone who is not our authorized technician. Doing so may result in injury and will void any warranty claims
2. Leave the batteries inside the unit for a long period of time – the battery may overheat and leak, which will render the unit inoperable and will void the warranty
3. Submerse the unit into water or use it during heavy rain.

TECHNICAL SPECIFICATIONS:

CCD Resolution / Sensitivity _____ 1,920x960 / 0.3lux (day) / 0.03lux (night)
LCD _____ 0.24" TFT 320x240
Still Image resolution _____ 1.3MP (equivalent to 70lp/mm) JPEG
Video resolution _____ HD 720p (1,280x720) AVI
Signal Output _____ PAL / NTSC
Image Magnification _____5x-20x
Focusing Distance_____ 50cm (1.6ft) - ∞
Viewing Distance_____ 250m (820ft)
Field Of View_____ 6°x4°
Memory _____ Micro SD card (up to 32GB)
Power_____2 x 3V Lithium (CR123)
Operating Time _____ 5hrs
Dimensions_____170mm x 80mm x 63mm (6.7"x3.1"x2.5")
Weight_____ 400g (14 oz)
Warranty _____ 1yr

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