PARD NV008 LRF DIGITAL RIFLESCOPE/SPOTTER

Operating Manual

(Rev.1)

BMCP 190831

Important Notes

- ✓ This equipment contains a visible laser and a laser IR emitter. Because of the potential risk to your sight, do **NOT** look directly at either of these light sources, nor point them towards other people, pets, reflective objects, moving vehicles or reflective objects.

- ✓ Keep the IR away from flammable objects, otherwise it may cause fire. Please turn off the light or use sleep mode when not in use.

- ✓ Never remove the battery while the unit is switched (even in sleep mode) as this may cause the unit to fail to start, or function abnormally. If this happens, it may necessary to re-install the firmware from a memory card

Unpacking

The box contains a carry case holding the NV008LRF and picatinny rail mount base,
1 USB charging/download cable, 3 x mount base screws and 1 x allen wrench.
A memory card is not included. A microSD card, (128GB maximum) is required for storage of video.
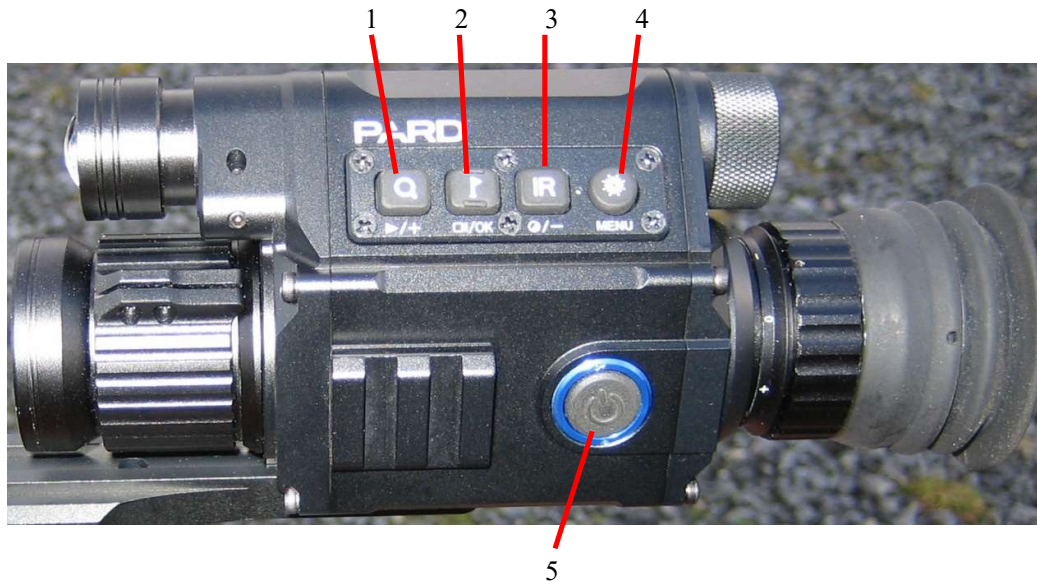
The function(s) of the buttons on the equipment are as follows:

1. Zoom (+)/ play button

Short press to zoom in and out.
Long press: opens video files.
Moves to the right or up when menu is open.

2. Recording/OK button (Note – this button has raised edges to make it easier to find in the dark)

Short press to start/stop rangefinder.
Long press to start/stop recording.
When the menu is open it opens sub-menus and confirms a selection within a sub-menu.

3. IR/mode/ (-) button

Long press to switch between colour mode and black and white (night vision) mode.
In black and white mode, successive short presses cycle the IR illuminator between Off, IR1, IR2 and IR3.
Moves left or down when menu is open.

4. Menu/picture in picture/red dot laser

Short press: switches picture in picture mode on and off.
Long press: opens menu.
Note: When picture in picture mode is disabled in the main menu, a short press of this button switches the visible red dot laser on and off.

5. Power on/off/sleep

Short press: Power on. With power on, short press to enter/leave sleep mode
Long press: power off

IR illuminator   Power indicator LED   Battery cap (outer end –ve)   Dioptre adjustment
a   c   d   e

Objective lens focus control   Red dot laser   Rail for accessory
b   f

Other controls

a.   IR illuminator – slide forward for spot and back for flood
b.   Red dot laser – adjuster screws for vertical and horizontal alignment
c.   Power indicator – red indicator is lit when power is on and remains on when in sleep mode
d.   Battery holder cap – unscrew to remove or install a battery. Battery cap is negative
e.   Dioptre adjustment – adjust so that reticle is in focus
f.   Rail for accessories such as external illuminator

Cover for micro SD card slot, HDMI interface and USB charging port   rangefinder module
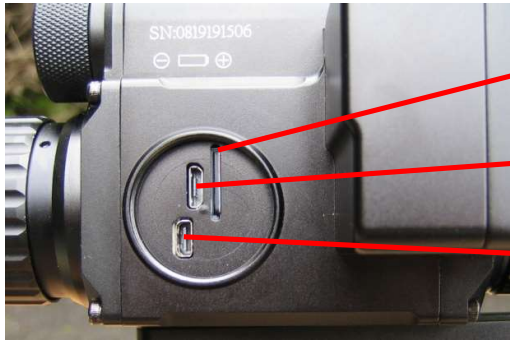
Micro SD card slot

USB port (charging / download video)

HDMI port – (connecting to an HDMI input cuts off the display)

IR illuminator

Red dot visible laser

Laser rangefinder module (transmitter and receiver)

Objective lens

Power requirements, battery installation and charging

- The equipment is powered by one flat top 18650 3.7V rechargeable lithium ion battery.
- Only use genuine high-quality batteries from reputable sources.
- Recommended makes are Panasonic, Samsung, LG and EFEST.
- Higher capacity batteries (3000mah and above) will give longer run times.
- Remove the knurled battery compartment cap and insert the battery positive end first.
- Put the cap back on and screw it until tight.
- The battery can be removed for charging or charged in-situ using the supplied USB cable.
- If charged in situ, a red LED is displayed during charging.
- The LED will go off when the battery is fully charged.
- With a fully charged 3400mah battery, operating time without using WiFi or the IR illuminator will be approximately 8 hours.
- With the WiFi switched on and the illuminator at full power, battery run time will be approximately 2 hours.

Initial adjustments

1. A short press on the power button will turn the unit on.
   After a short delay, the red LED will illuminate to show that the power is on and the screen display will become visible.
2. Look at the screen display and, if necessary, turn the dioptre adjustment ring until the reticle is focused for your eye.
   Once this is done, the dioptre ring should not require adjustment unless someone else uses the equipment or the ring is moved inadvertently.
   Dioptre adjustment can also be done with the menu displayed. In this case, the dioptre ring turns until the menu text is in focus.
3. Adjust the objective lens focus ring until a sharp image of the target is visible on the display.

Mounting the NV008 on a firearm

- Although the NV008 can be used as a hand held spotting device, it is much more likely to be used as a riflescope.
- To use as a riflescope, fit the scope base mount to the underside of the NV008 using the 3 screws and allen wrench supplied.
- Several mounting positions are possible, select that which provides the most comfortable position when the firearm is mounted.
- The scope base mount will attach directly to firearms with picatinny rails, or to firearms with 9-11mm dovetail rails using suitable adaptors.
- Ensure the locking nuts holding the device to the firearm are secure

Instructions for use

1. **Turn On/Off:** Briefly press the power button to turn on. The power indicator light will light-up.
2. **Sleep / Wake-up mode:** With the NV008 switched on, a brief press of the power button will put it into or out of sleep mode.
   This mode dims the display to save power, and switches off the IR illuminator (if it was switched on), but the camera is still working and the red power LED remains illuminated.
   A second brief press of the power button "wakes up" the NV008 and the display resumes full brightness and the IR illuminator turns on.
3. **Eyepiece (dioptre) adjustment**: Eyepiece focusing or dioptre adjustment is designed to help users with different vision to see the display clearly.
   a. Dioptre adjustment is **ALWAYS** performed **BEFORE** the objective lens is focused.
   b. Dioptre adjustment is best done using the selected reticle or the menu.
   c. Adjust the dioptre ring until the reticle or menu text is in focus.

d. Note that the adjusting ring can be quite stiff to turn.

e. This prevents unintended adjustment of the dioptre setting.

4. **Objective lens focusing:** With the dioptre correctly adjusted, rotate the focus collar on the objective lens to bring the target into focus.

Note that even small movements of the objective lens can have a large effect on how well the target is focused.

Refocusing may be required if the range to the target changes significantly.

5. **Camera mode and IR Laser brightness control**

A long press on the IR button changes the camera mode between colour / daylight and mono (B&W) / NV -modes.

The camera will **NOT** automatically change modes according to the ambient light level.

The IR illuminator only operates when the camera is in black and white mode.

In either mode, insufficient light will cause significant lag and fuzziness to become visible on the display.

With the camera in black and white mode, the **IR OFF** icon will be displayed.

A brief press of the IR button will switch on the IR illuminator at it's lowest power and **IR1** will be displayed.

A further press of the IR button will increase the IR power and **IR2** will be displayed.

A further press of the IR button will increase the IR power to it's maximum and **IR3** will be displayed.

A further press of the IR button will switch the IR off and **IR OFF** will be displayed.

Further presses of the IR button will cycle the IR through the **IR Off** position and the 3 brightness levels.

The tightness of the IR beam can be adjusted by sliding the front collar of the illuminator in and out. The beam is at its tightest when the front of the illuminator is fully extended.

<u>**DO NOT LOOK DIRECTLY AT THE LASER AND DO NOT POINT IT AT OTHER PEOPLE, PETS, MOVING VEHICLES OR REFLECTIVE SURFACES**</u>

6. **Visible red dot laser**

The visible red dot laser can only be used when **Shortcut key OFF** is selected in the Picture in Picture menu.

A short press on the Menu button will switch on the red laser.

A laser icon appears on the display as a reminder that it is switched on.

The horizontal and vertical direction of the laser beam can be adjusted using the screws above, and to the side of the laser emitter.

A further short press on the Menu button will switch the laser off.

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7. **Zoom**

A short press on the zoom button will apply x2 of digital magnification to the image seen on the display.

A further press of the zoom button will remove the digital magnification.

A very slight loss of sharpness may be noted when digital magnification is used.

8. **Video recording**

A long press on the record/OK button will start video recording.

A recording timer will be visible in the upper left corner of the display.

A further long press of the record/OK button will stop recording

9. **Menu**

A long press on the **MENU** button brings up the on-screen menu.

Use the **+** and **–** buttons to move through the menu and the **OK** button to select an item. Use the + and – buttons to move within the sub menus and the **OK** button to select a value.

A short press of the **MENU** button removes it from the display.

Many of the selections made within the menu control how the device sets itself up when switched on.

The menu contains the following items and selections/adjustments within those items.

a. **Picture in Picture (PiP)**

   a. PiP OFF.
   b. PiP ON.
   c. Shortcut key OFF (only this option allows the red dot laser to be used).
   d. Shortcut key ON (short press on **Menu** key switches PiP on and off).
      Note: The reticle in PiP is either a simple cross or no reticle, if no reticle is selected in reticle menu.

b. **Reticle Adjustment** (see the section on zeroing on how to use this menu to zero and to save and delete saved profiles)

   a. Current magnification (6.5x or 13x)
   b. Profile select (A, B ,C, D or E)
   c. X: value (range is +/-300 with 0 at the centre of the screen)
   d. Y: value (range is +/-300 with 0 at the centre of the screen)
   e. Style (choice of 6, including no reticle)
   f. Colour (red or yellow)
   g. Save (Yes or No)

c. **Default magnification**

   a. 6.5x
   b. 13x

d. **Default colour**
    a. Colour
    b. Black and white

e. **Brightness of IR**
    a. OFF
    b. 1
    c. 2
    d. 3

f. **Brightness** (of display screen)
    a. Level 0
    b. Level 1
    c. Level 2
    d. Level 3
    e. Level 4

g. **Range unit selection**
    a. Meter
    b. Yard

h. **Auto Recording**
    a. Off
    b. On

i. **Loop recording**
    a. Off
    b. 3 minutes
    c. 5 minutes
    d. 10 minutes

j. **Date Stamp**
    a. Off
    b. On

k. **Record Audio**
    a. Off
    b. On

l. **Beep Sound**
- a. Off
- b. On

m. **WiFi**
- a. On
- b. Off

n. **EV Exposure**
- a. Select from +2 to -2 in 1/3 steps - use more negative numbers to reduce white out

o. **Language**
- a. English
- b. French
- c. Spanish
- d. Portugese
- e. German
- f. Italian
- g. Russian
- h. Chinese
- i. Czech

p. **Date/Time**
- a. Set date, time and date/time format.

q. **Format**
- a. Internal memory (select this at your peril!!!)
- b. Memory card

r. **Default setting**

Return menu settings to defaults
- a. Cancel
- b. OK

s. **Version**
- a. Displays version of installed firmware

10. **Using the reticle adjustment menu and zeroing the NV008 when fitted to a firearm**
    **All usual safety precautions must be followed before, during and after the zeroing
    procedure**

To move around within the menu and make selections and adjustments (including zeroing), all 4 buttons on the unit will be used.

OK – Confirms a selection and moves from item to item in the left to right direction.

Note that the OK button has raised edges making it easy to find when looking through the scope.

Menu – Opens and closes the menu and, when open, moves from item to item in the right to left direction
+ Changes a value in one direction
- Changes a value in the other direction
The menu is shown below, note that the active menu item is highlighted with a blue box.


ZEROING AND SAVING PROFILES
1. Observe all relevant safety precautions
2. Fire a shot at the target and observe the point of impact (POI)
3. From within the reticle adjustment menu select a profile. **A** is the default profile and unless it is changed to another letter from **B** to **E**, any values saved as a result of following this procedure will be saved as profile **A**
4. Press the **OK** button and **X:0** will be highlighted
5. While keeping the reticle positioned on the point of aim (POA) press either the **+** or **–** buttons.
6. This will cause the screen to freeze, but allow the position of the reticle to be moved.
7. Using the **+** and **–** buttons as necessary, move the reticle horizontally until it is directly above or below the POI

8. Press the **OK** button and the **Y:0** item will be highlighted

9. Using the **+** and **–** buttons, move the reticle vertically until the centre of the reticle is at the point of impact. One press of the + or – button will change the X and Y values by one unit when the 008LRF is in 13x magnification and by two units when the 008LRF is in 6.5x magnification. A change in X or Y value of one, moves the reticle by one pixel.

10. If the reticle is not in exactly the correct position, use the **Menu** button to move from **Y:** to **X:** and the **OK** button to move from **X:** to **Y:** so that the X and Y values can be adjusted until the centre of the reticle is in exactly the desired position. The screen will remain frozen until **STYLE** is selected

11. Press **OK** again and the screen will unfreeze and **STYLE** will be highlighted.

12. Another shot can now be fired to check that the scope is correctly zeroed. If it is not, then use the **Menu** button to move back to **X:** and/or **Y:** as necessary to change their values.
    Once a satisfactory zero is achieved, press **OK** until **STYLE** is highlighted and, if desired, change the reticle style. The centres of all the reticles are coincident, so if one reticle is zeroed, all other reticles will also be zeroed.

13. Press **OK** again and **COLOR** is highlighted. If desired, the colour of the reticle can be changed between red and yellow

14. Press **OK** again and **SAVE** is highlighted.

15. If you want to **SAVE** the settings (i.e. the zero position of the reticle, and the style and colour of the reticle) then press the **+** button. This will cause **SAVE** to change to **YES**. Press the **OK** button to save the settings

16. If you do not want to save the settings (or want to delete a previously saved setting) then press the **–** button and **SAVE** will change to **NO**.
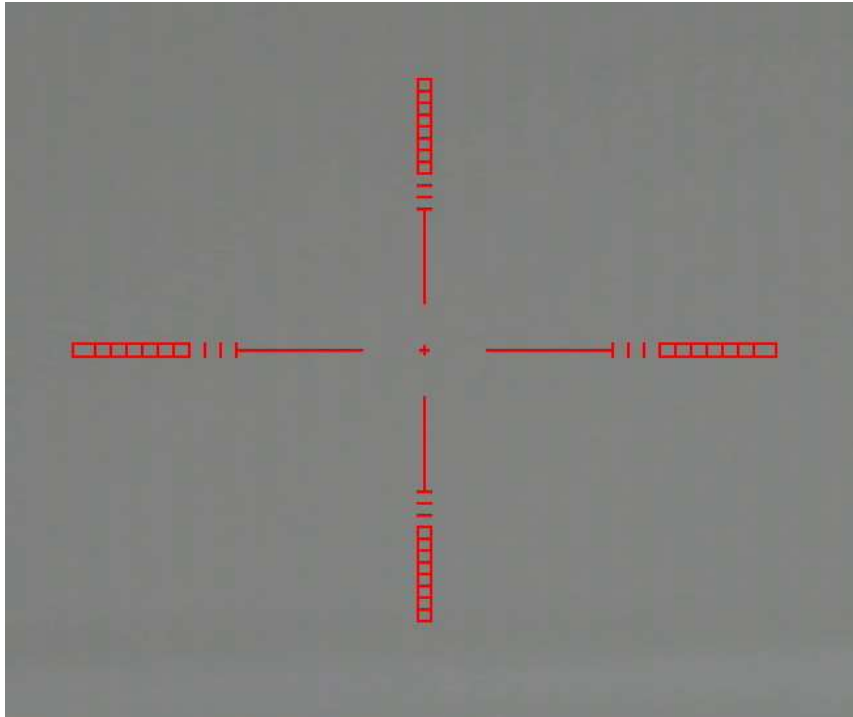
17. Press the **OK** button to discard the settings

18. The following reticles can be selected (not to scale)
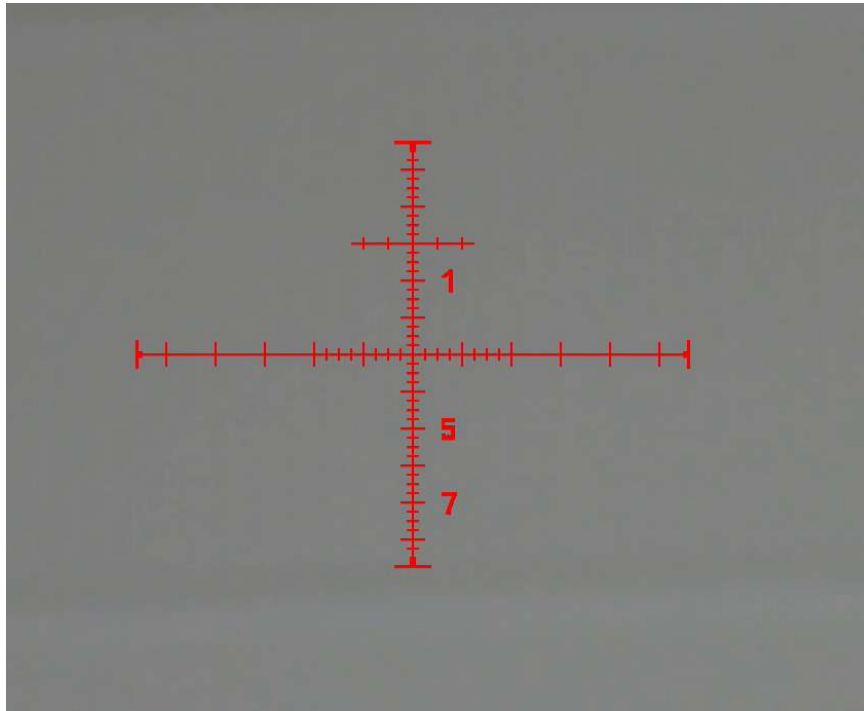
It is believed, but not confirmed, that at 6.5x, the angle between small sub-tensions is ¼ mil and 1 mil between large sub-tensions
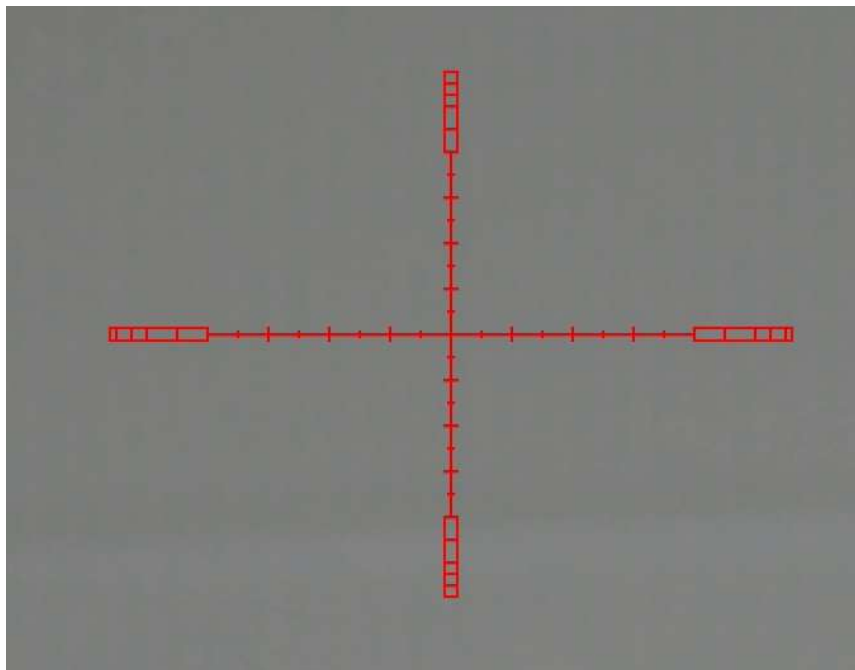
It is believed, but not confirmed that at 6.5x, the angle between small and large sub-tensions is ½ mil

It is believed, but not confirmed that at 6.5x, the angle between the centre of the floating cross and the edge of the horizontal and vertical lines is 1 mil
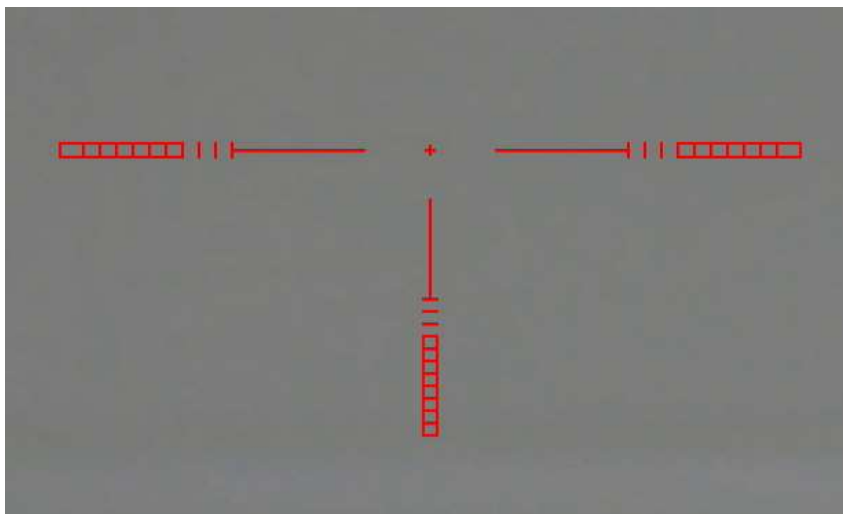
It is believed, but not confirmed that at 6.5x, the angle between the centre of the floating cross and the edge of the horizontal and vertical lines is 1 mil
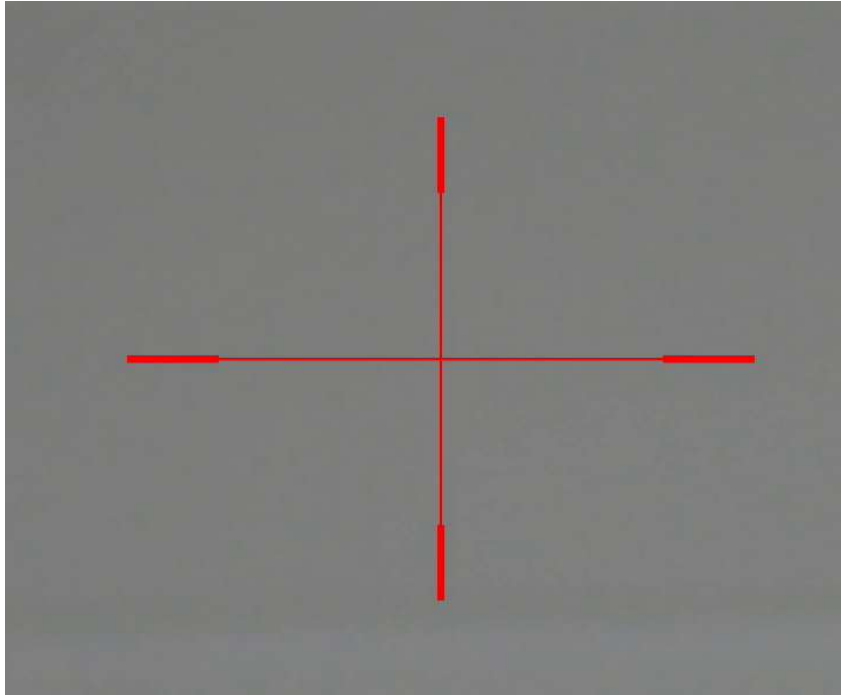
Using the laser rangefinder (LRF)

The LRF is switched on and off with a short press of the **OK** button
The point at which the range is being measured is shown on the display by a small yellow targeting box with a cross at its centre.
Note that the measuring point of the laser is NOT the centre of the reticle.
The measured range will be displayed in yards or metres immediately to the right of the box
In use, place the yellow box over the desired target and read the range.
The laser beam is not visible on the screen when the 008LRF is in color mode, but can be seen in low light and dark conditions when the 008LRF is in night vision mode.

The laser is visible as a flashing vertical line
If the targeting box is not aligned with the laser flash, the position of the targeting box can be adjusted as follows:
1.   Select Night vision mode
2.   Switch on range-finding
3.   Open the main menu (no items need to be selected)
4.   A long press on the + button will open the targeting box sub menu with X and Y values displayed.
5.   Use the + and – buttons to change the values and move the targeting box to the desired position, and the OK button to move between X and Y.
6.   When the targeting box is in the desired position, a short press on the MENU button will close the menu
The LRF measures the distance to the first reflection it receives which is strong enough to allow the electronics to calculate range. This can cause ranging errors, e.g. when the

position of a target is such that something in front of the target produces a stronger reflection than the target itself.

Knowledge of the ground over which shooting is being carried out is vital for safety and a reasonable estimate of the range at which a shot is to be taken should be known. If the distance displayed on the rangefinder is very different from the estimated distance, then no shot should be taken until the cause of the difference is established and the correct distance verified

Connecting to the WiFi and viewing on a remote device

To connect to the WiFi, allow your device (phone, tablet etc) to scan for WiFi hotpsots. The NV008LRF should appear as PARDxxxxxx (where xxx is a random series of numbers and letters). Connect to the hotspot using the password 12345678. Real time images from the camera or video recorded onto a memory card in the NV008 can be viewed on a tablet or smartphone using a free app such as PPshow or RoadCam.

Recording and playback

With a formatted micro SD card (max 128GB) installed and the NV008LRF switched on, a long press on the **OK** button starts video recording with a flashing red dot and a time elapsed display in the upper left corner of the display. A second long press of the **OK** button stops the recording. A long press on the **ZOOM** button brings up the playback facility. Use the + and – buttons to move through the saved images and recordings. Press the **OK** button to start playback, and press it again to stop playback. Use the + and – keys to speed up or slow down playback (up to +/- x8). A long press of the **MENU** button closes the playback facility and returns the screen to displaying what the camera sees.

Firmware Installation

If it becomes necessary to re-install the current version of the firmware or install a new version of the firmware, the following procedure should be used.

1. Download the appropriate firmware file onto a computer. The file is normally in the form of a word document with the title FWPLD008.bin
   Note that it is not possible to tell the version or date of issue of the file either in the name or by opening the file.
2. Use a high-quality micro SD card (e.g. Sandisk) purchased from a reputable supplier (there are loads of fake micro SD cards in circulation). Recommended card capacity is 16Gb
3. If possible, format the card in the 008LRF. If that is not possible, format the card in any suitable computer
4. Copy the file onto the card – there should be no other files or folders on the card
5. Place the card into the SD slot in the 008LRF – make sure it is the right way round and goes into the slot and not into the space alongside the slot

6. Switch on the 008LRF – the red power indicator should flash for a few seconds while the file is loaded into the 008LRF and after a few seconds the PARD introduction screen should appear in the normal way
7. Switch off the 008LRF and remove the card
8. If the card is going to be used for recording from the 008LRF, then delete the firmware file, otherwise the file will try to load every time the 008LRF is switched on.

Specifications

Model No.	NV008LRF	Sleeve size	N/A
Magnifying power	6.5x/13Xx 13x/26x with PiP	Video resolution	1920x1080
Photo resolution	N/A	Eyepiece resolution	800x600
Transmission Method	WiFi	Focusing	2m-∞
IR power	500mW	Storage type	Micro SD Card
IR wave length	850nm	Output type	HDMI
IR illuminator range	200m	Battery	18650 x1
Laser rangefinder	Up to 600m	Rangefinder wavelength	905nm
Voltage	3.7V	Battery life	> 8h
Frame rate	30fps	Dimension	160x80x80
Weight C/W Mount	680g	Lens	55mm

Warranty

This product is warranted against defects in materials and workmanship for a period of one year from the date of purchase.

This warranty is for the original purchaser only!

Notice：

Operation of this device in direct daylight or view any strong radiation source like the Sun, welding and Laser directly to the lens can cause permanent damage to internal parts of this device and this is not covered by the Warranty.

.PDF format downloadable from: https://tinyurl.com/PARD-NV008-LRF-manual-R1-BMCP