NEWCON™ OPTIK

Operation Manual

NIGHT VISION MONOCULAR

PHANTOM 150

105 Sparks Ave., Toronto, ON, M2H 2S5, Canada

IMPORTANT INFORMATION

Read prior to activation

You have just purchased a complicated electronic device. To operate it properly, please read this manual carefully. Here are some common Precautions that must be noted.

- **NEVER** expose the opened objective lens of an active unit in daylight. At daytime objective lens must be covered by caps. There is a tiny hole in the cap to provide enough light for day time operation.
- **NEVER** aim active unit at intense light sources (i.e. lights, headlamps, campfires, the Moon, etc.)
- **NEVER** reverse the polarity of a battery
- **NEVER** disassemble the unit
- **NEVER** connect the unit to external power sources
- **ALWAYS** remove batteries when not in use for a long period
- **ALWAYS** keep the objective lenses covered when not in use
- **ALWAYS** store in a warm dry place when not in use

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Thank you for purchasing Phantom 150.
Please read all the instructions carefully prior to use.
Failure to follow the instructions may void the warranty.

1. Overview

Phantom 150 Night Vision monocular is a sophisticated optoelectronic observation device designed to allow observations of personnel and orientation in night time conditions. The unit utilizes an image intensifier which amplifies available moonlight, starlight or man-made light. Waterproof, lightweight and compact – this advanced system is the most affordable Gen 2+ system on the market.

Some of the typical activities where the Phantom 150 will be useful: boating, search and rescue, law enforcement, wildlife observation, security.

Features

- Can be connected to video and photo cameras
- Waterproof
- Rugged body
- High quality wide angle interchangeable lens (m42x1)
- The built in infra red illuminator allows observations in total darkness (e.g. cave)
- The internal lens with focusing mechanism ensures adjustment for sharpness for both near and remote objects;

- The eye piece allows dioptric adjustment
- Soft rubber eye cap blocks disturbing lateral light and protects from lens from occasional impacts
- Standard batteries power the device for at least 10 hours
- Two switch buttons separate switch the night vision device and the IR illuminator, thus saving batteries;
- Original compact design and ergonomic shape make the device handy and comfortable to hold with one hand
- Low battery indicator
- Delayed automatic shut off prevents battery drain

Warning!

After transportation or keeping the device at temperature lower than -25°C (-13°F), the device must be warmed up at ambient temperature from -20°C (-4°F) to +40°C (104°F) during 2-3 hours.

Precautions

Phantom 150 is a precision optical instrument equipped with electronics. Therefore, it should be handled with due care.

- Keep your device away from direct sunlight, impacts, dust, moisture, and sharp changes of temperature.
- Do not touch the optical surfaces with fingers. Doing so may damage the anti-reflection coating.
- Clean optical surfaces with professional camera lens cleaning supplies.
- Clean the device exterior with a soft clean cloth.

- Do not take the cover off the lens unless necessary.
- Keep away from heating appliances and central heating.
- Do not apply excessive force to lens assembly, agile elements and thread connections.
- Due to considerable optical magnification of the eyepiece some small structures inside the tube coating in the form of dark and/or white points may be seen in the field of view; this does not affect the capabilities of the device;
- The device resolution may change from the center towards the perimeter of the field of view. This is an inherent feature of the image tube type utilized in the device.
- Remove the battery during periods of non-operating and when storing the device for a long period of time.

2. Delivery set

Phantom 150 is supplied with the following components:

	Quantity
Phantom 150	1
Carrying strap	1
Case	1
Lens cover	1
Manual	1
Warranty Card	1

Optional accessories

Camera/video adapter

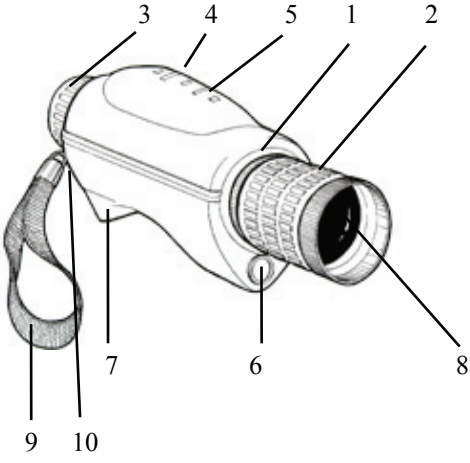
Additional lenses (85/1.5, 300/4.5, 500/5.6, 1000/10)

3. Specifications

Generation	2+
Magnification, x	2.3 ± 0.2
Field of view, degrees	16
Focus range, m	1 - ∞
Objective lens diameter, mm	42
Objective F number	1,2
Eye relief, mm	25
Eyepiece focal length, mm	15
System resolution, mrad	1
Dioptric correction	± 4
Tube resolution, standard high definition, lp/mm	36-40 45-64
Camera/video adapter connector, mm	52x1/37x1
Battery	3V Lithium CR2
Battery life, hours:	
Without IR	25
With IR	10
Allowed illumination, lx	$5x10^{-3}$ - $1x10^{-1}$
Operating temperature, °C	-25 ÷ +40
Dimensions, inches	7.3x3.3x2.6
Dimensions, mm	185x85x65
Weight, viewer only	18 oz; 0.535 kg

NOTE : As the design is being continuously improved some specifications may differ from those given above.

4. Design



1- Body
2- Lens focusing ring
3 - Eyepiece
4 - Power switch button
5 - IR illuminator switch
6 - IR Illuminator
7 - Battery compartment cover
8 - Lens cap
9 - Carrying strap
10 - Low battery indicator

5. Operation Instructions

WARNING!

Never operate your night vision device at daylight without the lens cover on! Never direct the lens to bright light!

5.1. Prior to use

Unpack the device. To install/replace battery unscrew battery compartment cover (7) and install/replace the battery observing the polarity; close cover (7).

Make sure the lens cap (8) is closed. Check the functioning of the device by switching it on (switch 4) and looking through the eyepiece (3). If the Unit works you will see greenish lit screen. If the screen is not lit, check the battery. Replace the battery if necessary.

5.2. Testing of operation

Turn on the device using power switch (4). Lens cap (8) must be on. Direct the device on an object within 40-50 m away. Rotating the eyepiece (3) and objective lens (2) achieve the sharpest image.

5.3. Operation at night

Unscrew the lens cover (8). Turn on the device using switch (4). Turning the eyepiece (3) achieve the most clear image on the screen. Then obtain the most clear-cut image by rotating the objective lens (2). Repeat focusing steps if necessary.

If ambient light is insufficient an IR illuminator can be activated by pressing switch (5).

Note: After a while the Unit will shut itself off to prevent battery drain.

5.4. Using the camera/video adapter.

Prior to installing the adapter, carefully remove the eye cup.

The adapter consists of 2 rings:

a) Camera adapter is 52x1 mm size. It will fit the filter thread of lenses of many consumer cameras, like Nikon etc.

b) Video adapter is 37x1mm. It will fit most Sony cameras and some other as well.

If none of the provided adapters fits your camera check local camera store and camera manufacturer for proper step up/step down rings.

5.5. Using interchangeable lenses.

The unit is equipped with PENTAX "screw type" removable lens F 50/1.2, M 42x1. It will fit most Pentax screw type lenses or, using proper adapters, many other lenses.

Note: When putting back on the original lens, make sure to screw the lens on all the way to prevent humidity penetration.

6. TROUBLESHOOTING

6.1. The monocular does not work.

Check that the battery is installed properly.

Check the battery charge. Replace if it is weak.

6.2. The image does not appear in focus.

Bring the inspected object to the center of the image. Turning the eyepiece focusing lever (3) adjust to achieve the clearest image on the screen. Then obtain the most clear-cut image of the object.

The image doesn't appear in focus. Bring the inspected object, if the view still does not seem in focus, clean the lenses; they could be foggy or dusty.

6.3. Image flashes

It is normal for the unit to flash within the first 2 minutes of activation.

Continued flashing may be caused by bright light environment (even with the cap closed).

6.4. Condensation accumulates on the parts.

When the unit is brought from cold into a warm environment, it has to warm up for up to 5 hours. Only then it is allowed to turn it ON again.

6.5. Visibility decreases and / or disappears.

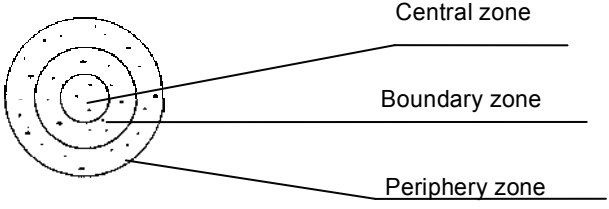
Bright light sources (moon, projectors or headlights) may result in visibility degradation or even complete disappearance. If this happens move the scope away from the light source immediately. The image should be restored in within 2 minutes.

Poor atmospheric conditions such as fog, haze or extremely dark environments, will decrease the visibility distance as well.

6.6. Visible spots

Image quality of the object, which is being observed when an image intensifier is functioning, depends mainly on operating characteristics of this image intensifier.

Due to this fact black spots, which are inherent in the image intensifier, may be seen in the field of view of a viewing device. Field of view is shown below.



Acceptable defects, which may be seen in the field of viewing device, are given in the table

Type of black spots	Zone	Size of black spots, mm	Number of spots
Immovable	Central (circle of diameter 5.5 mm)	Up to 0.073 From 0.073 to 0.150 From 0.150 to 0.294	Not limited 5 1
	Boundary (circle of diameter 5.5-9.0 mm)	From 0.073 to 0.150 From 0.150 to 0.294 From 0.294 to 0.400	10 3 1
	Periphery (circle of diameter 9.0-11.0 mm)	Not limited	Not limited
Moving	Entire field (circle of diameter 11.0 mm)	From 0.150 to 0.294	1

7. WARRANTY

NEWCON warrants this product against defects in material and workmanship for one year from the date of the original purchase, but no more than 18 months from the date of manufacturing. Longer warranty is available, subject to the terms of the specific sales contract. Should your Newcon product prove to be defective during this period, please deliver the product securely packaged in its original container or an equivalent, along with the proof of the original purchase date, to your Newcon Dealer.

Newcon will repair (or at its option replace with the same or comparable model), the product or part thereof, which, on inspection by Newcon, is found to be defective in materials or workmanship**.**

*What This **Warranty Does Not Cover**:*

NEWCON is not responsible for warranty service should the product fail as a result of improper maintenance, misuse, abuse, improper installation, neglect, damage caused by disasters such as fire, flooding, lightning, improper power supply, or service other than by a NEWCON Authorized Service.

Postage, insurance, and shipping costs incurred while presenting your NEWCON product for warranty service are your responsibility.

If shipping from North America, please, include a cheque or money order payable to NEWCON OPTIK for the amount of $15.00 to cover handling and return shipping.

8. CUSTOMER SUPPORT

Should you experience any difficulties with your NEWCON OPTIK product, consult the enclosed manual. If the problem remains unresolved, contact our customer support department at (416) 663-6963 or toll free at 1-877-368-6666. Our operating hours are 9am-5pm, Monday - Friday, Eastern Standard Time. At no time should equipment be sent back to Newcon without following the instructions of our technical support department.

NEWCON OPTIK accepts no responsibility for unauthorized returns.

To locate NEWCON Authorized Dealer call:

Tel: (416) 663-6963 Fax: (416) 663-9065

Email: newconsales@newcon-optik.com

Web: www.newcon-optik.com

The defective products should be shipped to:

From the USA only:

2331 Superior Ave. Cleveland, OH 44114

From all other countries:

105 Sparks Ave., Toronto, ON

M2H 2S5, CANADA

9. ACCEPTANCE CERTIFICATE

NIGHT VISION DEVICE PHANTOM 150

Serial number: _____

Complies with all technical specifications and has passed the inspection.

Date of production: _____

Quality Inspector: _____

Quality Assurance Seal

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