

**LRM 1500M / LRM 1800S**  
**LASER RANGEFINDER MONOCULAR**

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



## IMPORTANT INFORMATION

### Read prior to activation

You have just purchased a sophisticated electro-optical device that emits invisible laser radiation. To operate it properly, please, read this manual carefully.

- **NEVER** direct laser beam at the eyes of people or animals
- **NEVER** aim the unit at the Sun or bright sources of light
- **NEVER** subject the unit to impacts
- **NEVER** transport the unit without the case
- **NEVER** disassemble the unit. This may be hazardous for you due to high voltage currents in the system
- **ALWAYS** keep the unit out of the reach of children
- **ALWAYS** remove the battery when the device is not in use for a long period
- **ALWAYS** store the unit in a dry place
- **Caution** - use of controls or adjustments, or performance of procedures other than those specified herein may result in hazardous radiation exposure
- **Caution** - use of optical instruments such as binoculars, loupes, mirrors, lenses, etc. with this product increases eye hazard

- Avoid eye exposure to direct laser beam or its close reflection
- Prevent bright light from focussing through the eyepiece
- **Never** aim the unit at highly reflective objects like mirrors and retroreflective surfaces, which are in close proximity to the laser rangefinder. This can lead to the permanent damage of the photoreceiver incorporated into the device.

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## **CAREFULLY READ ALL THE INSTRUCTIONS BEFORE USING THE UNIT!**

**FAILURE TO OBEY THE INSTRUCTIONS WILL  
VOID THE WARRANTY AND MAY CAUSE  
INJURY!**

### **1. BRIEF DESCRIPTION**

**LRM 1500M / 1800S Laser Rangefinder Monocular** is an advanced laser range finder system that enables instant distance and speed (1800S modification only) measurement.

The unit complies with CFR 21, Part 1040.10.

An outstanding fully multi-coated optics coupled with an original circuitry design creates a system that outperforms any other product in its class and price range.

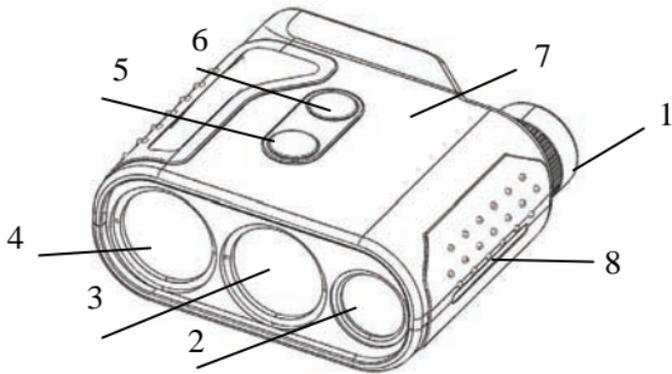
#### **Principle of operation**

The unit sends invisible, eye safe laser beam pulses to the target. The pulses reflected from the target are captured and processed by the digital circuitry. The time-of-flight delay between the sent and received pulses allows calculating the distance to the target.

## Key Features

- Distance is displayed in meters or yards
- Original digital circuitry allows ranging through most types of glass, bushes and other obstacles
- Three channel optical solution (optical, laser and receiver) provides high accuracy
- Two reticle shapes:  $\text{-|}$  or  $\square$
- Target quality display indicator assures that results are reliable
- On-board memory keeps results of last 10 measurements, that can be recalled to the LCD
- The unit automatically turns off when no button is pressed for 16 seconds

## 2. DEVICE APPEARANCE



**Fig. 1.** Front view

1 - Eyepiece

3 - Laser emitter lens

5 - M (Mode) button

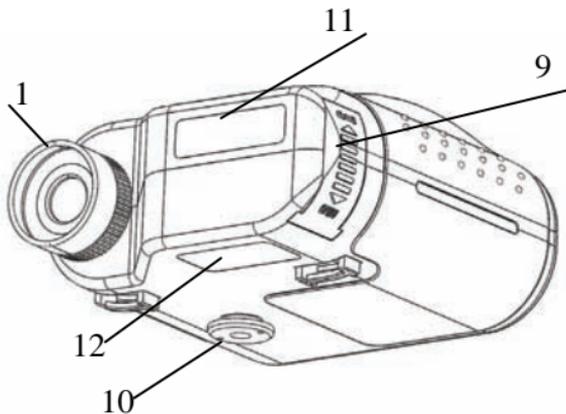
7 - Body of the device

2 - Objective lens

4 - Receiver lens

6 - A (Action) button

8 - Rubber grip



**Fig.2.** Rear view

1 - Eyepiece

9 - Battery compartment cover

11- Identification imprint

10 - Tripod socket

12 - Classification  
imprint, shown below

Newcon Optik

105 Sparks Ave. Toronto, ON Canada M2H 2S5  
This product complies with CFR 21 1040. 10 1040, 11

Made in Canada

N XXXXXXXX

### 3. DELIVERY SET

#### Standard delivery set

LRM 1500M / 1800S is supplied in the following assembly:

	Qty
LRM	1
9V Alkaline battery	1
Soft carrying case	1
Neck strap	1
Operation manual	1
Warranty card	1

## 4. SPECIFICATIONS

### Optics

Magnification	7x
Objective lens diameter	25 mm
Exit pupil diameter	3.6 mm
Field of view	8°
Type of coating	Fully multi-coated optics

### Range Finder

Laser	Class 1, eye safe, 905 nm
Measuring range, LRM 1500M	10 m – 1,500 m
Measuring range, LRM 1800S	10 m – 1,800 m
Accuracy	± 1 m
Meters/Yards display	Yes
Last 10 readings recall	Yes
Reticle	- - or □
Target quality indicator	Yes

## **Speed Detector (LRM 1800S only)**

Measured speed range	5-400 km/h
Accuracy	±2 km/h

## **Power**

Battery	9V
'Low Battery' indicator	Yes

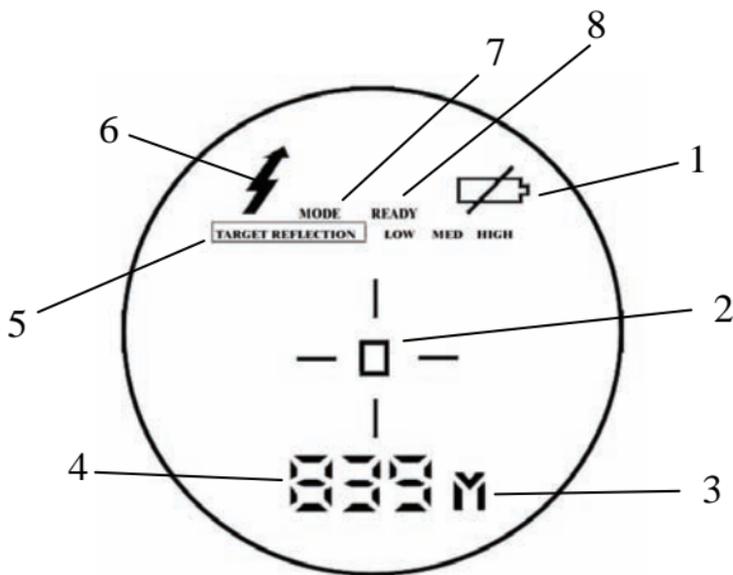
## **Environmental**

Operational temperature range	-25 / +50°C (-13 / +122°F)
Storage temperature range	-45 / +65°C (-49 / +149°F)

## **Mechanics**

Tripod thread	¼" x 20
Weight without battery	445 g
Dimensions	127 mm x 125 mm x 60 mm

## 5. OPERATION INSTRUCTIONS



**Fig. 3.** Liquid Crystal Display as seen through the eyepiece

- |                              |   |
|------------------------------|---|
| 1 – Low battery indicator    | 2 – Reticle (either $\text{— —}$ or $\square$ ) |
| 3 – Units of measurement     | 4 – Measurement result                          |
| 5 – Target quality indicator | 6 – Laser active indicator                      |
| 7 – Setup mode indicator     | 8 – Ready mode indicator                        |

## Changing battery

### To install a battery:

- Slide the battery compartment cover down (9, Fig. 2)
- Install the battery observing polarity
- Don't apply superfluous strength while pushing the battery inside the compartment.
- Close the compartment cover

If the battery does not fit the compartment easily, it means that polarity was reversed

### To take a battery out:

- Slide the battery compartment cover down (9, Fig. 2)
- Shake the rangefinder gently towards the open end of the battery compartment
- Pull out the battery

The unit is fully operational when battery voltage is higher than 7V. A '**LOW BATTERY**' warning is displayed when battery voltage falls below 7.2V.

Ni-MH rechargeable or other 9V batteries capable to sustain current drain up to 150 mA could be used to power the System.

## **Measuring procedure**

To start the measuring procedure, remove the lens cover. Look through the eyepiece (1, Fig. 1, 2) and adjust the focus by its rotating.

When the Rangefinder is off the LCD is blank. To activate it press and hold A button (6, Fig. 1) for half a second. At start the unit comes into Ready to Measure mode indicated by the word 'READY' on the display visible through eyepiece. You may need to adjust the focus again so that both the display and distant objects are seen sharp through the optical system.

Pressing A button (6, Fig. 1) in *Ready to Measure* mode initiates measurement. The result of measurement is displayed in a form that depends on the measurement parameters (see Setup Mode).

If measurement is unsuccessful four dashes ('----') will be displayed in the area (4, Fig. 3). For successful measurement the target must be at least 10 m away.

The unit will switch off automatically after 16 seconds of inactivity.

## **Maximum distance**

Though maximum measurement distance depends on target reflectivity, weather conditions and other conditions, for most relatively large targets the unit will provide accurate ranging for up to 1500 (LRM 1500M) or 1800 (LRM 1800S) meters.

Target reflectivity depends on its color, surface finish, size, shape, position in relation to the laser beam, etc. Bright target colors are more reflective than darks. A polished surface is more reflective than a rough one. Larger targets reflect better than small ones. Ranging a target perpendicular to the laser beam provides better results than the one positioned under a sharp angle to the beam.

Weather conditions that influence air transparency (rain, fog, snow, mist) reduce maximum range. Bright sunny days will reduce performance as well, as IR sun radiation may interfere with reflected laser impulses.

While the unit will measure through many glass types, measuring through glass may reduce accuracy.

Natural hand tremor decreases the accuracy of long distance ranging. Using of a tripod is recommended to measure distant targets.

### **Mode selection**

By pressing the Mode button (5, Fig.1), you can sequentially scan the Modes. The Mode under selection is indicated on the Display by flashing of the selectable feature. The "flashing" feature can be selected by pressing the Action button (6, Fig.1). The System operates in the setting Modes that are displayed as follows (refer to Fig.3):

**Y/M:** units of measurement: yards or meters (3, Fig.3).

**KMH/MPH:** units of speed measurement: km/hour or miles/hour (3, Fig.3) (LRM 1800S only).

**Shape of the reticle:** cross shape or rectangular shape (2, Fig.3).

**rEC1:** Data Recall mode. It returns results of the last 10 measurements on the display.

Measurement results are saved in on-board memory. When you enter the *Data Recall* mode, first measurement set number (display name: **rEC 1**) will appear.

Pressing M button moves the unit along the list of measurement set numbers and measurement results:

**rEC 1, rEC 2, ..., rEC 0.**

If distance was not measured, it will not appear in the list.

Measurement sets are numbered in reverse order: first recalled set is the result of the last measurement.

Pressing A button at any moment within the list of recalled results (or pressing M button at the end of the list) brings the unit to *Ready to Measure* mode.

**Clr:** clear data function: upon pressing the Action button (6) (fig.1) the entire data from all previous measurements will be erased.

## **Additional display information**

Distance measuring procedure includes instant statistical processing of the package of single measuring sessions. If there is more than one measured target in the field of view, the embedded software estimates the most probable one by calculating the number of reflected pulses multiplied by the target statistical weight. This mechanism allows automatic mitigation of the influence of obstacles like rain, flakes, trees, wires and so on.

Qualitative result of the statistical processing is presented on the Display as a message **TARGET REFLECTION** (5, Fig 3). There are three statistical qualifications of the reflected signal: Reliability of ranging depends on the number of impulses that reflect from the target and reach the unit. The unit informs the user:

**TARGET REFLECTION LOW** – ranging results have low statistical reliability,

**TARGET REFLECTION MED** – ranging results have medium statistical reliability,

**TARGET REFLECTION HIGH** – ranging results have high statistical reliability.

## 6. STORAGE AND MAINTENANCE

The unit is a sophisticated precision optical instrument equipped with laser and electronics. Therefore, it should be handled with due care.

- Keep away from direct sunlight.
- Avoid impacts, jolts, dust, moisture, and sharp changes of temperature.
- Do not use the device at temperatures higher than 50°C (122°F).
- Prevent unit from direct sunlight
- Do not touch optical surfaces. Doing so may damage the anti-reflection coating.
- Clean optical surfaces only with professional camera lens cleaning supplies.
- Clean the exterior of the unit with a soft clean cloth.
- Keep away from heating appliances and central heating.
- Remove the battery when storing the device for long time.
- All repair works must be performed only by an authorized service.
- Prevent bright light from focussing through the eyepiece

## 7. TROUBLESHOOTING

*The ranging does not work. The display is transparent.*

Check the charge of the battery. Replace it if it is weak.

*Black dots are visible on LCD.*

Liquid Crystal Display may have small black dots, scratches and other blemishes inherited from the manufacturing process. These flaws are strictly regulated by number, area and location and do not degrade the product's measurement capabilities.

*Range measurement cannot be obtained.*

- Make sure that neither your hand nor finger is blocking objective lens, laser emitting lens or receiver lens.
- Hold the unit firmly (avoid hand tremor) while pressing the Action button.
- Check that the target is within measuring range of the device.

## 8. WARRANTY

NEWCON warrants this product against defects in material and workmanship for one year from the date of the original purchase. 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 US\$15.00 to cover handling and return shipping.

## 9. CUSTOMER SUPPORT

Should you experience any difficulties with your NEWCON OPTIK product, consult this manual first. 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: +1(416) 663-6963 Fax: +1(416) 663-9065

Email: [newconsales@newcon-optik.com](mailto:newconsales@newcon-optik.com)

Web: [www.newcon-optik.com](http://www.newcon-optik.com)

The defective products should be shipped to:

### **US customers:**

2498 Superior Ave. Cleveland, OH 44114

### **all other countries:**

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

## 10. QUALITY CERTIFICATE

**LRM 1500M**

**LRM 1800S**

The unit indicated above has passed the quality inspection.

Production date

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Serial number

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Quality Inspector

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Purchase date

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R.I.T.S - 02.12

NEWCON OPTIK™

Printed in Canada