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 focusing 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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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: -|- or □
- 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
2 - Objective lens
3 - Laser emitter lens
4 - Receiver lens
5 - M (Mode) button
6 - A (Action) button
7 - Body of the device
8 - Rubber grip
Fig. 2. Rear view

1 - Eyepiece  
9 - Battery compartment cover  
10 - Tripod socket  
11 - Identification imprint  
12 - Classification imprint, shown below
### 3. DELIVERY SET

**Standard delivery set**

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

<table>
<thead>
<tr>
<th>Qty</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LRM</td>
<td>1</td>
</tr>
<tr>
<td>9V Alkaline battery</td>
<td>1</td>
</tr>
<tr>
<td>Soft carrying case</td>
<td>1</td>
</tr>
<tr>
<td>Neck strap</td>
<td>1</td>
</tr>
<tr>
<td>Operation manual</td>
<td>1</td>
</tr>
<tr>
<td>Warranty card</td>
<td>1</td>
</tr>
</tbody>
</table>
### 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)**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measured speed range</td>
<td>5-400 km/h</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±2 km/h</td>
</tr>
</tbody>
</table>

**Power**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery</td>
<td>9V</td>
</tr>
<tr>
<td>'Low Battery' indicator</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Environmental**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operational range</td>
<td>-25 / +50°C (-13 / +122°F)</td>
</tr>
<tr>
<td>Storage range</td>
<td>-45 / +65°C (-49 / +149°F)</td>
</tr>
</tbody>
</table>

**Mechanics**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tripod thread</td>
<td>¼” x 20</td>
</tr>
<tr>
<td>Weight</td>
<td>445 g</td>
</tr>
<tr>
<td>Dimensions</td>
<td>127 mm x 125 mm x 60 mm</td>
</tr>
</tbody>
</table>
5. OPERATION INSTRUCTIONS

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

1 – Low battery indicator  
2 – Reticle (either \(-\) 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 focusing 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
Web: 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

Serial number

Quality Inspector

Purchase date