

## SAFETY

The instrument is not to be operated for any purpose other than what it is designed for as described in this manual. Use of the controls, adjustments or performance of procedures other than those specified herein may result in hazardous laser exposure. It is the user's complete responsibility to follow the instructions in the manual.

- The Laser output information is displayed on the warning label. Do not remove safety labels from the instrument.
- Do not look straight at the laser beam. Set up the instrument in a way that prevents laser beam from shooting into people's eyes.
- Do not disassemble the instrument or attempt to perform any internal servicing. Repairs and servicing are to be performed only by authorized service centers.
- Do not operate or calibrate the unit in any other way or use any other tools or procedures different than described in this manual.



# 1. NOMANCLATURE OF PARTS



## 2. FUNCTION OF KEYS



### Power On/Off Button

Press this button and the unit will start automatic leveling.  
Press this button to turn off the unit.



### Left Arrow Button

In grade setting mode, press this button to change digit value from 0-9.



### Right Arrow Button

In grade setting mode, press this button to change digit value from 9-0.



### Right Turn Button

In scan mode, press this button to move the line segment or point clockwise.



### Left Turn Button

In scan mode, press this button to move the line segment or point counter-clockwise.

Scan  
Press



### Mode Button

this button to switch from rotating to line generating mode.



### Slope/Hold Button.

Press this button once after the unit finds its level and the unit will not continue self-leveling, but will hold the established level.

Press this button twice and the unit enters into the grade setting mode.



### Height of Instrument Button

Press this button twice after the unit levels to enter into the height of protection mode. If the instrument is bumped, the unit

will stop rotating and laser beam will blink. In the grade setting mode, press this button to move the cursor. Press this button again to exit.

instrument (HI)

## 3. SETTING UP INSTRUMENT

### 1 Horizontal Applications

You may set your NRL800X laser unit up on a tripod, hang it up on a wall with a wall mount, (a NUCB05 wall mount, sold separately), or simply set it on a solid surface.

### 2. Vertical Applications

With the vertical bracket provided (or NUCB05 wall mount, sold separately), set the instrument on a tripod or solid surface.

Instrument should be set approximately level within  $\pm 5^\circ$ .

## 4. OPERATION

The NRL800X is a true Grade Laser with capabilities for general construction, roadway and landscaping applications. Please refer to the (+) Upgrade Decal when doing grade applications.

### 1. Automatic leveling

Press the power button. The power indicator will be on and automatic leveling will begin. If the power indicator blinks, it means the battery level is low.

When instrument completes automatic leveling, the rotating head will start rotating and solid laser beam will be emitted.


If the instrument is set outside of its automatic leveling range ( $\pm 5^\circ$ ), there will be an alarm beep. Turn off the instrument and set up the instrument again within this range.



### 2. Grade Setting: Please refer to the (+) Upgrade Decal when doing grade applications


**Horizontal applications:** With the NRL800X grade laser, you can directly dial in the grade value you desire and the unit will automatically set up the grade in the X direction.



(1) Adjust your unit so that the X direction (X marked on upper body of your instrument) is aligned to the direction where the grade is to be set.

(2) Press the power button and the instrument LCD panel will display "LEVEL".



(3) Press the  button twice and the unit enters into the grade setting mode. The Slope light will be on and panel will display


"X +0.000%", with the cursor blinking at "+". Press the  or the  button to change it between "+" or "-" based on your setting need.

(4) Press the  button to move the cursor to the digit you want to

change and press the  or the  buttons to change the value of the digit between 0 and 9.

(5) When the setting is complete and the cursor on the panel stops blinking, the unit will start to find the grade you have set.





(6) If you want to clear your input, press the  and the  buttons at the same time and the panel displays "X +0.000%".

(7) Press the  button to exit the grade-setting mode and return to automatic leveling mode.



#### Note:

(1) In the Grade setting mode, you can still select rotating, scan or point.


**Vertical application:** Grade setting mode can be used to set the directions of the beam.

- (1) After the unit has been set on its vertical mount (in its lay down position) and it has completed automatic leveling, press the  button twice. The slope indicator will be on, and the panel displays "VERTICAL".
- (2) Press the  or the  buttons to move the beam to your left or right.
- (3) Press the  button again to exit.

### 3. HOLD Function

- (1) After the unit finds its leveling position, press the  button once and the unit will not make any further automatic leveling, but hold the established level. **CAUTION:** When the unit is in the HOLD mode, it will not automatically level even if it is bumped.
- (2) Press the  button again, and the unit returns to the automatic leveling mode.

### 4 Height of Instrument Protection

- (1) By pressing the  button twice, the unit will enter into the height of instrument protection mode and 3 indicators will light up. In this mode, if the instrument is bumped, it will stop rotating and the 3 indicators as well as the laser beam will blink, warning you that the height of instrument may have been changed.
- (2) Press this button again to exit.

### 5 Battery

The NRL800X grade laser is equipped with rechargeable batteries and a charger. The charging receptacle is located on the battery pack.

When the charging starts, the red charging light is on, indicating charging is in process. When the green charging light is on, it indicates charging is completed.

#### Note:

- (1) It takes about 4 hours to fully charge the batteries.
- (2) Rechargeable batteries can be charged while the instrument is in operation.
- (3) Batteries should be removed from the instrument when the instrument is not being used for an extended period of time.
- (4) For a new battery or a battery not used for a long time, it is necessary to carry out 3 to 5 complete discharging/charging cycles and the charging time must be 4 hours at least each time. This will help extend the battery life capacity.

### 6 Remote Control

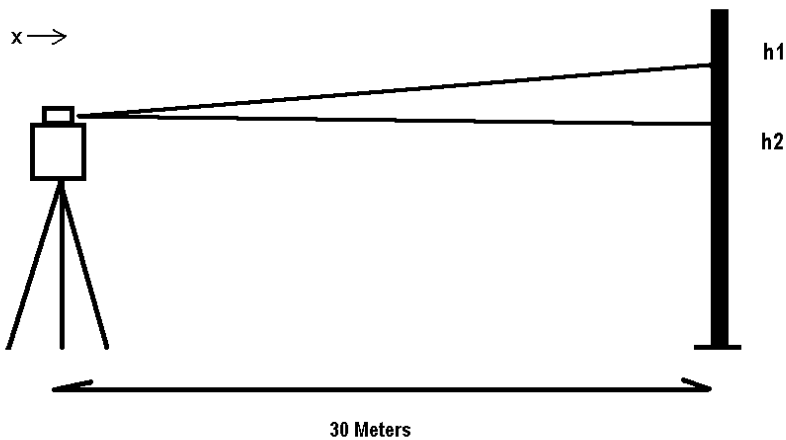
The NRL800X grade laser can be operated by the infrared remote control. The receiver windows are located around the base of the unit.

## 5. CHECKING CALIBRATION

ALTHOUGH EACH INSTRUMENT IS CALIBRATED BEFORE SHIPPING FROM NWI, IT IS THE USER'S RESPONSIBILITY TO CHECK THE CALIBRATION OF THE INSTRUMENT BEFORE USE TO AVOID COSTLY MISTAKES.

### 1 Checking Horizontal Calibration

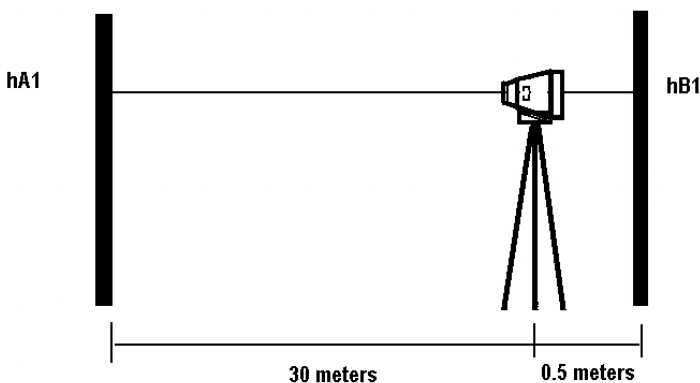
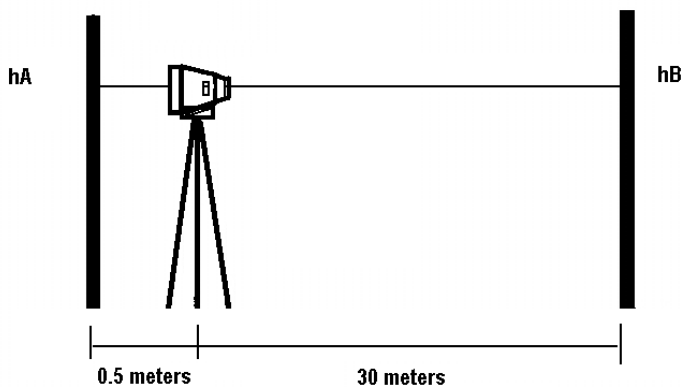
- (1) Set up the instrument at about 30 meters from a wall (or a grade rod), with the X mark facing the direction of the wall (or grade rod).
- (2) Turn the power on and let the instrument find its level. Find the laser line on the wall and mark it h1. If you have difficulty seeing the laser line, a laser detector can be used.
- (3) Rotate your instrument 180 degrees with (the other) X facing the same wall or grade rod. Find the laser line and mark it h2.
- (4) The height difference between h1 and h2 should be within 4 mm.
- (5) Check the Y directions with the same process.
- (6) If the height difference between h1 and h2 is larger than 4 mm, the instrument needs to be sent to an authorized service center for calibration. Call NWI at 1-888-247-1960 for a service center near you.



### 2. Checking Calibration of Plummet

- (1) Set up the instrument between 2 walls (or 2 grade rods) about 30m from each other. First set it closer to one wall than the other as shown below (fig a).
- (2) Lay down the instrument as shown. Press the Power button and the instrument will find its level position. Mark the laser position on the wall as hA and hB.
- (3) Then re-set the instrument to be closer to the other wall as shown below (fig b), repeat step (2) and mark the points as hA1 and hB1.

$\Delta 1 = hA - hB$ ;  $\Delta 2 = hA1 - hB1$ . The difference between  $\Delta 1$  and  $\Delta 2$  should be within 8 mm. If it is not, the instrument needs to be sent to an authorized service center for calibration. Call NWI at 1-888-247-1960 for a service center near you.



## 6. SPECIFICATIONS

Accuracy:	Horizontal	1/16 in. @ 100 ft
	Vertical	1/8 in. @ 100 ft
Self-leveling Range:		±5°
Working Range:		1000 ft Radius with detector
Rotation speed:		100-500 rpm.
Grade setting range:		±8° (single axis)
Scan mode		Wide and Narrow line segments
Laser Diode wavelength		635nm
Remote range:		Approx. 50 ft
Operating temperature:		20 – 105 F
Power:		Re-chargeable battery (included with charger)
Continuous operating time:		Approx. 15 hours
Dimensions:		155(L)×155(W) ×175(H) mm
Weight:		12 lb.

**Specifications subject to change without notice.**

## MAINTENANCE AND CARE

- 1 Handle instrument with great care. Avoid shock and vibration. Always store and transport instrument in its carrying case.
- 2 Keep instrument dry and clean after use and before packing it in the carrying case.
- 3 Check and calibrate the instrument regularly to maintain accuracy.
- 4 Keep the lenses of laser aperture clean. Use soft cloth and glass cleaner to clean it.

## **Standard Warranty Terms**

The warranty period for the NRL800X grade laser is 12 months from the date of purchase.

Northwest Instrument, Inc. (Seller) warrants this instrument made by Northwest Instrument to be free from manufacturing defects in materials and workmanship. For claims to be made under this warranty the instrument must be inspected by Northwest and the defect must be proven to Seller's satisfaction. At the time that it is proven to the Seller's satisfaction that the instrument is defective, it shall be repaired or replaced, at the Seller's option and returned to the original purchaser at no cost to them, including transportation charges. Seller's sole obligation and the Buyer's sole remedy are limited strictly to repair or replacement with these provisions below:

- A. The instrument is returned to Northwest, properly packaged with the transportation charges prepaid and insured and accompanied by proof of ownership. Receipt and previous registration is required.
- B. Except for ordinary wear and tear resulting from normal usage, the instrument, upon inspection by the Seller is determined to be defective in material and/or workmanship.

Under no circumstances shall the Seller be liable for any consequential, incidental or contingent damages whatsoever.

## **Limitations and Exclusions**

- A. This warranty does not apply to instruments subject to negligence, abuse, accident, improper operation, instruments damaged in transit or damage due to unauthorized service repairs made by someone other than Northwest or any other Northwest authorized service personnel. Circumstances beyond Northwest Instrument's control cannot be warranted.
- B. This warranty does not apply to regular required maintenance such as cleaning, adjusting, lubricating or calibrating unless required as a result of a defect in workmanship or materials.

If, upon examination of the instrument, the Seller determines that additional repair services are required and not covered under this warranty, the Seller shall notify the Buyer of such repair charges and proceed only after authorization has been received.

- C. This warranty does not apply to instruments damaged in transit to or from Northwest Instrument or any authorized repair center. Other remedies may or may not be available for transportation damages.