In order to ensure the safe use of this product, prevent any danger to the operator or others, or damage to property, important warnings are

Before starting work or operation, be sure to check that the instrument is functioning correctly with normal performance.

For superior performance, please read these instructions carefully and keep them in a convenient place for future reference.

GENERAL HANDLING PRECAUTIONS
Before starting work or operation, be sure to check that the instrument is functioning correctly with normal performance.

When storing the instrument for long period, remove the batteries. Always make sure instrument is dry before putting it in the carrying case. Never store a damp instrument.

DISPLAY FOR SAFE USE
In order to ensure the safe use of this product, prevent any danger to the operator or others, or damage to property, important warnings are placed on the product and inserted in the instruction manual. We recommend that you become familiar with the meaning of these Warnings and Cautions before continuing.

SAFETY CAUTIONS

<table>
<thead>
<tr>
<th>Display</th>
<th>Meaning</th>
</tr>
</thead>
</table>
| ![WARNING](image) | Ignoring or disregard of this display may lead to the danger of death or serious inju-
y* |
| ![CAUTION](image) | Ignoring or disregard of this display may lead to personal injury or physical damage. |

*Caution: Each injury refers to hurt, burn, electric shock, etc. Physical damage refers to extensive damage to equipment and structure or furnishings.

Exceptions from Responsibility

1. The user of this product is expected to follow all operating instructions and make periodic checks of the product’s performance.
2. The manufacturer or its representatives, assumes no responsibility for results of a faulty or intentional usage or misuse including any direct, indirect, consequential damage, and loss of profits.
3. The manufacturer or its representatives, assumes no responsibility for consequential damage, and loss of profits by any disaster, (an earthquake, storms, floods etc.), fire, accident, or an act of a third party and/or a usage in other than usual conditions.
4. The manufacturer or its representatives, assumes no responsibility for any damage, and loss of profits due to a change of data, loss of data, an interruption of business etc., caused by using the product or an unsafe product.
5. The manufacturer or its representatives, assumes no responsibility for any damage, and loss of profits caused by usage other than explained in the user manual.
6. The manufacturer or its representatives, assumes no responsibility for damage caused by wrong movement, or action due to connecting with other products.

Laser Safety

This product uses a visible laser beam, and is manufactured and sold in accordance with “Performance Standards for Light-Emitting Products” (FDA/BRH 21 CFR 1040) or “Radiation Safety of Laser Products, Equipment Classification, Requirements and User’s Guide” (IEC Publication 60825-1) provided on the safety standards for laser products.

As per the said standard, this product is classified as a “Class II Laser Product” or “Class 2 Laser Product”.

This is a simple product to operate and does not require training from a laser safety officer. In case of any failure, do not disassemble the instrument. Contact TOPCON or your TOPCON dealer.

NOMENCLATURE AND FUNCTIONS

Manual mode ON (Red LED)
Auto leveling does not function.
Height alert OFF (Red LED)
Height alert does not function.
Height alert OFF switch
OFF: Push twice continuously. ON: Push once.
Manual mode ON switch
ON: Push twice continuously. OFF: Push once.

Height alert function (Safety lock system)
When auto-leveling and height alert function are active, after the laser beam emits for one minute, this function prevents the instrument from operating if it is disturbed. This ensures accurate control. If the unit is disturbed, all lamps will blink except battery power lamp. The elevation (height of instrument) should be verified and re-established if necessary.

This function is not active in the manual mode.

HOW TO OPERATE

1. Set the instrument to the tripod or smooth surface.
2. Make sure instrument is roughly level (±3°).
3. Press power switch (ON).

- Press power switch on laser sensor (ON).
- Select the precision mode by pressing the On-Grade precision switch.
- Locate the on-grade position “---” by moving the laser sensor up and down.

NO. 70B/70C Indicator

Beam receiving window
Turn the beam receiving window side towards RL-H3C to detect the laser beam.

Indicator
Data the on-grade position “---” by moving the Laser Sensor up and down. Direct the sensor allowing the beam to the beam receiving window. (Top of Laser Sensor is 40mm [1 9/16"] from on-grade index for offset marking.)

LS-70B: The indicators are located on front and back sides of the instrument.

LS-70C: The indicator is located only on front side.

On-Grade precision switch
Two on-grade precision options are available, normal precision and high precision. By pressing this switch, the precision options are switched alternately. Confirm the precision choice by the indicator. (Normal precision is the default setting each time the sensor is turned on. See NO. 70B/70C Indicator diagram below.)

Power switch
The power switch turns ON or OFF by pressing. If the power switch is turned ON, all signs will be displayed on the indicator for a second with a beep sound.

Buzzer speaker
Buzzer sound switch
Volume of the sensor buzzer can be alternately switched to LOW/LOUD/Off by pressing the switch.

Auto shut off function
The power will be turned off automatically if no laser beam is detected for approximately 30 minutes. (To turn on the sensor, press the power switch again.)

CLASS 1M LASER RADIATION

The instrument emits laser radiation while operating. If the instrument is used in an environment where laser radiation can be received, note the following:

- Do not stare into beam.
- Battery cannot cause explosion or injury.
- There is a risk of fire, electric shock or physical harm if you attempt to disassemble or repair the instrument yourself. This is only to be carried out by TOPCON or an authorized dealer, only!
- May ignite explosively. Never use an instrument near flammable gas, liquid matter, and do not use in a coal mine.
- Cause eye injury or blindness. Do not allow beam to strike the eyes.
- Risk of fire or electric shock. Do not use the wet battery.
- Battery can cause explosion or injury. Do not disassemble in fire or heat.
- The short circuit of a battery can cause a fire. Do not short circuit battery when storing.
- Do not open when carrying. If opening occurs then wash off with copious amounts of water and seek medical advice.
- Do not store instrument on unstable platform, surface or tripod. If using tripod, make sure instrument is securely attached.
- Risk of injury by taking down a tripod and an instrument. Always check that the screws of tripod are tightened.
### BATTERY REPLACEMENT
**RL-H3C**
1. Remove the battery cover by turning battery cover knob to "OPEN" side.
2. Remove the batteries by pulling out the slide plate.
3. Install the new batteries referring to the illustration on the battery cover, "1", "2", "3".
4. Install the battery cover. By using a coin, tighten the battery cover knob to "CLOSE" side until the knob does not turn. *4

*1. Replace all 4 batteries with new ones at the same time. Do not mix used and new batteries, as this may result in damage to the battery terminals.
*2. Use alkaline dry cells. (Dry cells or rechargeable dry cells are used, but the operating time is different from the life of alkaline dry cells.)
*3. Generally, performances of dry cell deteriorate temporarily in low temperature, but recover in normal temperature.
*4. It is important to use a coin or other tool to make sure cover is firmly closed to avoid water entering inside.

### CHECKS AND ADJUSTMENTS

#### 1 Checking and adjusting calibration

**Horizontal calibration of the beam can be changed by the user.**

**[Checking]**
1. Face the X1 side of the instrument (panel side) toward a wall. Set up a tripod approx. 50m (160ft) from a wall. Mount the instrument on the tripod, facing X1 side toward the wall.
2. Turn the instrument on and allow auto-leveling to complete.
3. Put the laser sensor in free detection mode by pressing the On-Grade switch.
4. By using the laser sensor, mark the center position of laser beam on the wall. (X1)
5. Turn off the instrument.
6. Loosen the tripod screw, rotate the instrument 180 degrees and re-secure it on the tripod. The X2 side of the instrument faces toward the wall.
7. When rotating the instrument, avoid changing the height.
8. Turn the unit on again and allow auto-leveling to complete.
9. Check the X1 (handle) side as the same way.

**If the difference value is greater than 60mm (2 3/8 inches), contact your Topcon dealer.**

#### 2 Checking cone error

**Perform the following check after completing horizontal calibration procedure.**

**[Checking]**
1. Set up the laser centered between two walls approximately 40m (131ft) apart. Orient the instrument so one axis, either X or Y, is facing the walls.
2. Locate and mark the position of the rotating laser beam on both walls using the laser sensor.
3. Turn off the instrument and move the instrument closer to wall A (1m to 2m / 3 ft to 6 ft). Do not change the axis orientation of the instrument. Turn the instrument on.
4. Again locate and mark the position of the rotating laser beam on both walls using the laser sensor.
5. Measure the distance between the first and second marks on each wall.

**If the difference between each set of marks is less than 4mm (5/32 of an inch), no error exists.**

#### 3 Error Code

**Use the table below to determine operation errors indicated by blinking lamps on the control panel. If corrective action listed does not correct error, please contact your local Topcon dealer.**

<table>
<thead>
<tr>
<th>Lamp Indication</th>
<th>Error Code</th>
<th>Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lamp B, C and D blink in turn</td>
<td>Auto leveling range error</td>
<td>Correct tilt of the instrument until it less than 3 degrees.</td>
</tr>
<tr>
<td>Lamp A lights</td>
<td>Battery power error</td>
<td>Replace all 4 batteries with new ones at the same time.</td>
</tr>
<tr>
<td>Lamp B, C and D blink simultaneously</td>
<td>Height alert error</td>
<td>Turn power off, rough level the instrument, then turn power on again. Check height of laser beam as it may have changed.</td>
</tr>
<tr>
<td>Lamp D blinks quickly</td>
<td>Calibration error</td>
<td>Repeat calibration procedure. If error repeats contact your local Topcon dealer.</td>
</tr>
<tr>
<td>Lamp A, B, C and D blink simultaneously</td>
<td>Internal error</td>
<td>Turn power off, then on again. If error repeats contact your local Topcon dealer.</td>
</tr>
</tbody>
</table>

### STORAGE PRECAUTIONS

**Always clean the instrument after use.**

Use a clean cloth moistened with neutral detergent or water.

Never use an abrasive cleaner, ether, thinner benzene, or other solvents.

Always make sure the instrument is completely dry before storing. Dry any moisture with a soft, clean cloth.

### SPECIFICATIONS

**RL-H3C**
- **Accuracy:** ±3.6mm/50m (±15 °)
- **Automatic correction range:** ±3°
- **Beam detecting range:** Approx. 2m~300m diameter (6m~980m)
- **Rotational speeds:** 600r.p.m
- **Laser diode (Visible, Red):** 0.8mW (Max.)
- **Laser concept:** Class 2 laser product
- **Power source:** Four C size alkaline manganese dry batteries
- **Power supply:** Approx. 80 hours at +20°C (+68°F)
- **Auto shut-off delay:** Approx. 30 minutes without beam detection.
- **Power output:** Using alkaline manganese dry batteries
- **Beam detection indication:** Liquid crystal and buzzer
- **Beam detection window:** 50mm (2.0 in)
- **Beam detection precision:** High precision : ±1mm/0.04 in
- **Normal precision : ±2mm/0.08 in
- **Power switch:** DC 9V alkaline (dry) battery
- **Auto-shut-off delay:** Approx. 30 minutes without beam detection.
- **Dimensions:** 167(L)x182(W)x189(H)mm (6.5x7.1x7.4 in)
- **Weight:** 2.55 kg (5.6 lbs) (With dry batteries)

**LS-70B/70C**
- **Operating temperature:** -20°C~+50°C (-4°F~+122°F)
- **Dimensions:** 167(L)x182(W)x189(H)mm (6.6x7.1x7.4 in)
- **Weight:** 1.9kg (4.2lbs) (With dry batteries)