

# LASER SENSOR

## LS-B10

Thank you for purchasing the TOPCON LS-B10. For the best performance of the instruments, please read these instructions carefully and keep them in a convenient location for future reference.

### GENERAL HANDLING PRECAUTIONS

Before starting work or operation, be sure to check that the system is functioning properly.

#### Affection of the radio waves

When using the instrument in the following place, the strong radio wave may cause faulty operation.

- Near the instrument occurring strong radio waves. (e.g. Transceiver)
- Near the radio wave towers such as television or radio.

#### Battery replacement

- Replace all 3 batteries with new ones at the same time. Do not mix used and new batteries, and do not mix different types of batteries together.
- Use alkaline dry cells. (3 Dry cells for initial operation check are composed in a standard package.)  
Nickel hydrogen dry cells and nickel cadmium dry cells can be used too, but the operating time is different from the time of alkaline dry cells.

### DISPLAY FOR SAFE USE

In order to encourage the safe use of products and prevent any danger to the operator and others or damage to properties, important warnings are put on the products and inserted in the instruction manuals. We suggest that everyone understand the meaning of the following displays and icons before reading the "Safety Cautions" and text.

Display	Meaning
<b>WARNING</b>	Ignoring or disregard of this display may lead to death or serious injury.
<b>CAUTION</b>	Ignoring or disregard of this display may lead to personal injury or physical damage to the instrument.

- Injury refers to hurt, burn, electric shock, etc.
- Physical damage refers to extensive damage to buildings or equipment and furniture.

### HANDLING PRECAUTIONS

Guarding the instrument against shock  
When transporting the instrument, provide some protection to minimize risk of shock. Heavy shock may affect beam accuracy.

### SAFETY CAUTIONS

<b>WARNING</b>
<ul style="list-style-type: none"> <li>• <b>There is a risk of fire, electric shock or physical harm if you attempt to disassemble or repair the instrument yourself.</b> This is only to be carried out by TOPCON or an authorized dealer, only!</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Risk of fire or electric shock.</b> Do not use damaged power cable, plug and socket.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Risk of fire or electric shock.</b> Do not use a wet battery.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>May ignite explosively.</b> Never use an instrument near flammable gas, liquid matter, and do not use in a coal mine.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Do not hold the LS-B10 magnetic clamp near anyone who uses a pace maker or other electronic medical devices.</b> The strong magnetic field can disrupt the normal operation of such devices.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Battery can cause explosion or injury.</b> Do not dispose in fire or heat.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>The short circuit of a battery can cause a fire.</b> Do not short circuit battery when storing it.</li> </ul>

<b>CAUTION</b>
<ul style="list-style-type: none"> <li>Risk of injury to fingers. Do not place fingers on magnet while mounting to equipment.</li> </ul>
<ul style="list-style-type: none"> <li>Strong magnetic field. Do not place LS-B10 magnetic clamp near any sensitive electronic devices or magnetic storage media such as computer disk.</li> </ul>
<ul style="list-style-type: none"> <li>Do not allow skin or clothing to come into contact with acid from the batteries, if this does occur then wash off with copious amounts of water and seek medical advice.</li> </ul>

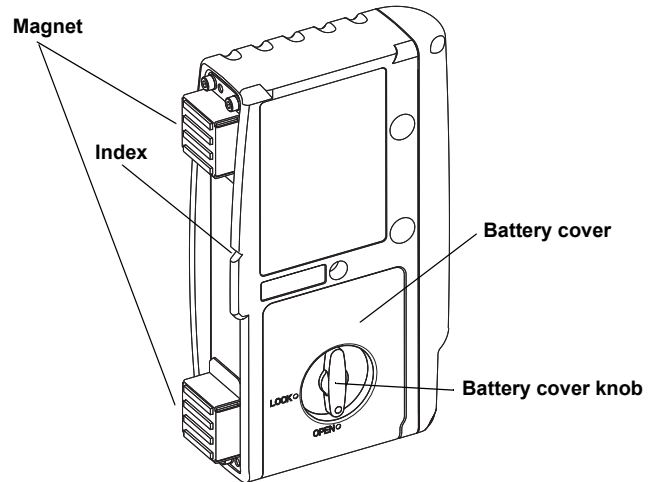
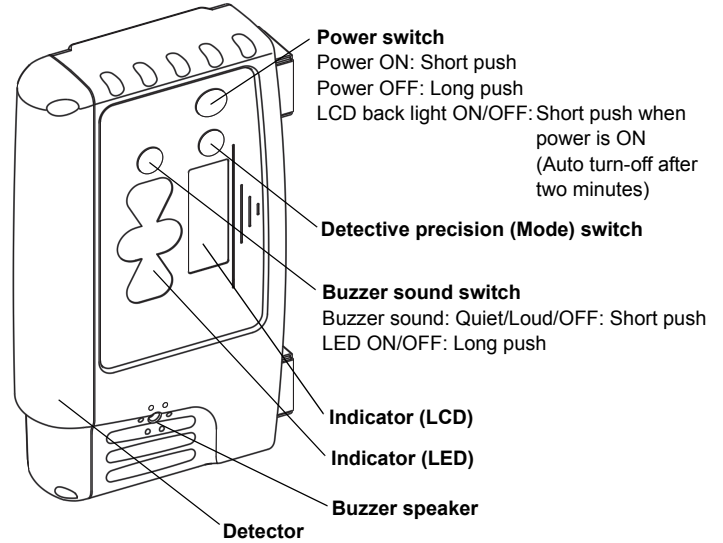
### EXCEPTIONS FROM RESPONSIBILITY

- 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.).  
A fire, accident, or an act of a third party and/or a usage any other 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 unusable product.
- 5) The manufacturer, or its representatives, assumes no responsibility for any damage, and loss of profits caused by usage except for 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.

### Standard Set Composition

- 1 LS-B10 Instrument ..... 1pc.
- 2 AA-size dry cells..... 3pcs.
- 3 Instruction manual..... 1pc.

### Nomenclature and Functions



Please refer to the back of the instruction manual for the indicator display patterns.

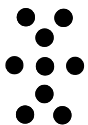
### Operation

- 1 Mount the LS-B10 on the equipment and position a rotating laser.
- 2 Raise or lower the machine blade or arm to position the cutting edge or bucket at the desired grade elevation.
- 3 Turn on the LS-B10.
- 4 Keep the machine blade or arm motionless and raise or lower the LS-B10 and adjust until ON-GRADE position are flashing. This is the ON GRADE position. The reference position has been set.
- 5 While operating, use the LED display to continually check grade, moving the blade or cutting / filling according to the direction of the LS-B10 display.

# Indicator

## Height alert warning of rotating laser

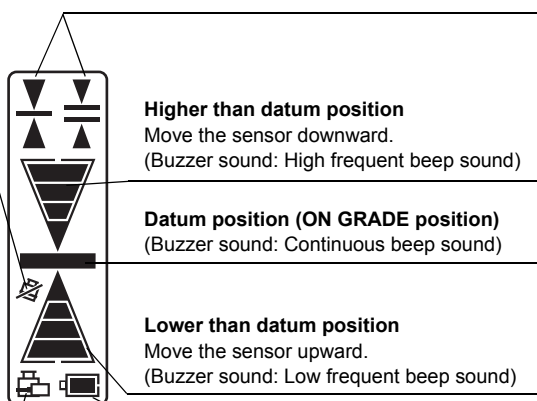
A flash and a buzzer sound signifies that the height alert function of rotating laser is operating. (This function is not usable to the rotating laser which does not have the height alert and the function to output alarm signal.)



Indicator (LED)  
Flashes slowly

## Rotating laser battery warning

A flash shows that the rotating laser power is low. (This function is not usable to the rotating laser which does not have the function to output alarm signal.)

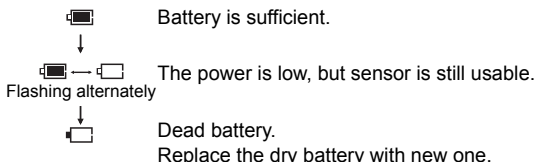


**Higher than datum position**  
Move the sensor downward.  
(Buzzer sound: High frequent beep sound)

**Datum position (ON GRADE position)**  
(Buzzer sound: Continuous beep sound)

**Lower than datum position**  
Move the sensor upward.  
(Buzzer sound: Low frequent beep sound)

**Battery remaining display**  
Indicates the battery remaining of laser sensor as follows.



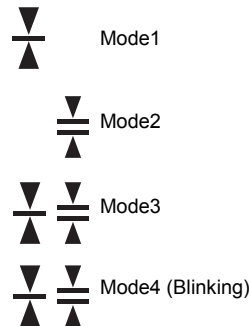
## Power-save function

The instrument turns the power-save mode after detecting no laser beam for more than approx. five minutes. In the power-save mode, the indicator LCD turns off and one indicator LED blinks green. (The mode is canceled automatically when the instrument detects a laser beam again. The mode can also be canceled by pressing the power switch again.)

## Auto-cut off function

The power will be turned off automatically after detecting no laser beam for more than approx. 30 minutes. (To turn on the laser sensor, press the power switch again.)

## Precision mode

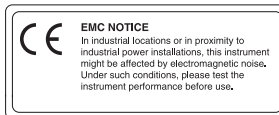


## Laser beam positions and display patterns

Indicator (LCD)	Indicator (LED)	Detective precision
		Mode1: ±2mm Mode2: ±6mm Mode3: ±12mm Mode4: ±30mm
		±15mm/±0.05ft (30mm/0.1ft width)
		±25mm/±0.08ft (50mm/0.16ft width)
		±35mm/±0.11ft (70mm/0.23ft width)
		±60mm/±0.2ft (120mm/0.39ft width)
		When the laser beam is off to the top or to the bottom

## Specifications

Detective range	: 120mm (4.724inches)
Detective angle	: 270°
Detective precision	: Mode1: ±2mm (0.0066ft) : Mode2: ±6mm (0.020ft) : Mode3: ±12mm (0.039ft) : Mode4: ±30mm (0.098ft)
Detectable laser wave length	: 633~780nm
Laser detecting range (diameter)	: 700m (2300ft) (Using RL-H1Sa)
Power source	: AA-size dry cells 3pcs.
Continuous operating time (+20°C/+68°F)	: Approximately 100 hours (Using alkaline manganese dry cells)
Operating temperature	: -20°C~+50°C (-4°F~+122°F)
Water proof	: IP66
Dimensions (W/D/H)	: 110x36x176 (mm) (4.3"x1.4"x6.9")
Weight (Without cells)	: 0.5kg (1.2lbs)
Detective angle, Detective precision and Laser detecting range may vary depending on rotating laser being used or atmospheric conditions.	



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