

### LASER SENSOR LS-B100

Thank you for purchasing the TOPCON LS-B100. 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. Remove the batteries from the instrument when you will not be using it for long period. When washing the instrument, avoid spraying it with a high pressure stream of water from a water hose. The inside of the instrument will be damaged by the water. This instrument is designed based on the International Standard IPX 6, but it is not protected from a high pressure water stream or submergence.



#### 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.

#### 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>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>
<ul style="list-style-type: none"> <li>• <b>Battery can cause explosion or injury.</b> Remove battery when using the connector for external power supply.</li> </ul>

 <b>CAUTION</b>
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.

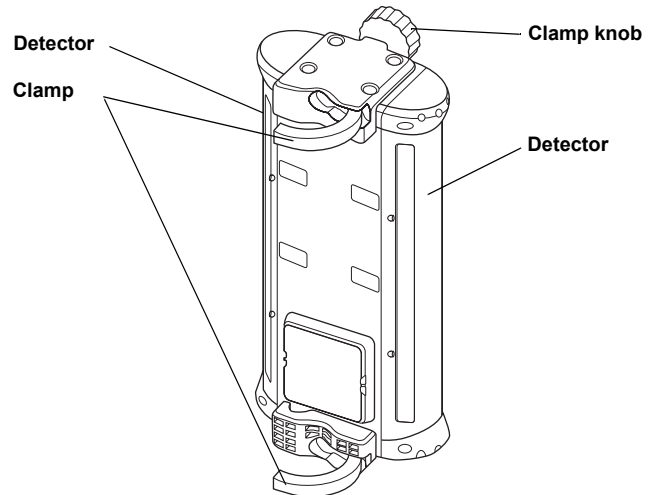
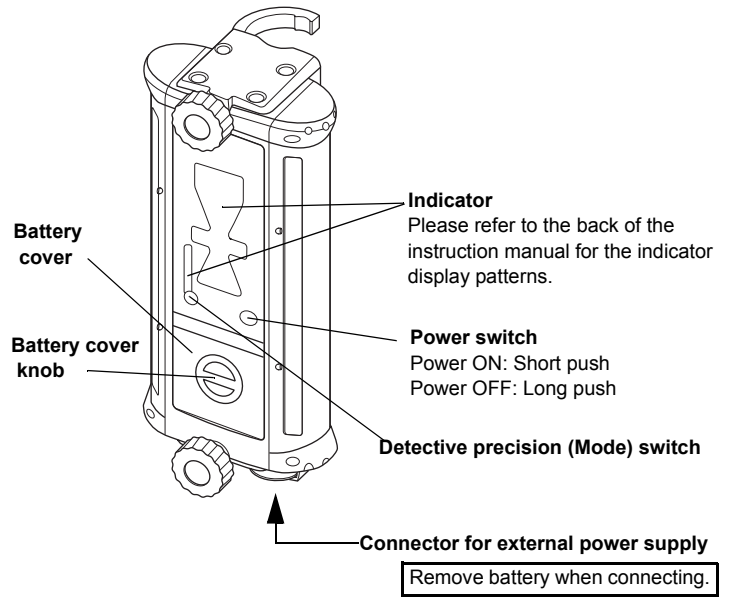
#### EXCEPTIONS FROM RESPONSIBILITY

- 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.

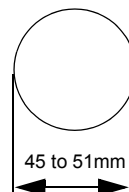
#### Standard Set Composition

- 1 LS-B100 Instrument ..... 1pc.
- 2 C-size dry cells ..... 4pcs.
- 3 Carrying case ..... 1pc.
- 4 Instruction manual ..... 1pc.

#### Nomenclature and Functions



Pipes that can be installed onto the LS-B100 are as described below.



Shape: Cylindrical  
Dimension: 45 to 51mm in diameter

Please refer to the instruction manual for the machine or contact the machine manufacturer for instructions on installing the mast onto the machine (by welding, etc.).

#### Operation

- 1 Position a rotating laser and turn on the laser.
- 2 Raise or lower the machine blade or arm to position the cutting edge or bucket at the desired grade elevation.
- 3 Mount the LS-B100 onto the mast near the path of the laser beam and turn on the LS-B100.
- 4 Keep the machine blade or arm motionless and raise or lower the LS-B100 and adjust until ON-GRADE position are flashing. This is the ON GRADE position.
- 5 Securely clamp the LS-B100 in place. The reference position has been set.
- 6 While operating, use the LED display to continually check grade, moving the blade or cutting / filling according to the direction of the LS-B100 display.

# Indicator

## Precision mode

Mode1: It is possible to change the detective precision of the instrument.

Mode2: Please select Mode 1 to 4 according to the objective of the operation.

Mode3: Pressing the detective precision (Mode) switch will change the mode and the corresponding LED lamp will light up. (During battery remaining display shown below, the lamp will flash.)

Mode4:

## Battery remaining display

**Battery remaining display LED**  
Battery remaining for the LS-B100 will be displayed at 3 levels.

Goes out:  
Battery is sufficient. (When Mode 1 is selected, the lamp will light up.)

Flashes slowly:  
The power is low, but sensor is still usable.

Flashes quickly:  
Dead battery. Replace the dry battery with new one.

## Rotating laser battery warning display

**Rotating laser battery remaining warning LED**  
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.)

## Laser beam positions and display patterns

Indicator (LED)	Detective precision
	Mode1: ±3mm (0.009ft) Mode2: ±6mm (0.019ft) Mode3: ±15mm (0.049ft) Mode4: ±30mm (0.098ft)
	±50mm/±0.16ft (100mm/0.32ft width)
	±87.5mm/±0.28ft (175mm/0.57ft width)
	When the laser beam is off to the top or to the bottom

## Height alert warning of rotating laser

A flash 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.)

Flashes

## Power-save function

The instrument turns the power-save mode after detecting no laser beam for more than approx. five minutes. During the power-save mode, LED (1 yellow, 1 red) will flash. (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.)

Flashes

## Auto-cut off function

The power will be turned off automatically after detecting no laser beam for more than approx. 60 minutes. (To turn on the laser sensor, press the power switch again.)

\* When turning the power on by pressing the power switch for more than 5 seconds, the power-save and the auto-cut off functions may be invalidated.

## Connector for external power supply

Connecting the connector cable PC-18 (sold separately) to the connector for external power supply will enable the use of the LS-B100 from an external power supply. When the instrument is operated with the external power supply, the power-save and the auto-cut off functions will be invalidated. The LS-B100 will turn on when connection is made to external power supply. The power switch of the instrument will not function when an external power supply is used.

## Specifications

Detective range	: 175mm (6.8inches)
Detective angle	: 360°
Detective precision	: Mode1: ±3mm (0.009ft) : Mode2: ±6mm (0.019ft) : Mode3: ±15mm (0.049ft) : Mode4: ±30mm (0.098ft)
Detectable laser wave length	: 633 to 785nm
Laser detecting range (diameter)	: 800m (2625ft) (Using RL-100 1S/2S)
Internal battery	: C-size dry cells 4pcs. : Battery pack BT-68Q (sold separately)
External power supply	: DC 10V to 30V
Continuous operating time (+20°C/+68°F)	: Approximately 100 hours (Using alkaline manganese dry cells) : Approximately 50 hours (Using Battery pack BT-68Q)
Operating temperature	: -20°C to +50°C (-4°F to +122°F)
Water proof	: IP66 (Based on the standard IEC60529)
Dimensions (W/D/H)	: 158x166x357 (mm) (6.2"x6.5"x14.0") (With Mechanical Clamp)
Weight (Without cells)	: 2.0kg (4.4lbs)
Detective angle, Detective precision and Laser detecting range may vary depending on rotating laser using used or atmospheric conditions. Battery using time will vary depending on environmental conditions and operations done with LS-B100.	

**JSIMA**  
Japan Surveying Instruments Manufacturers' Association

**CE EMC NOTICE**  
In industrial locations or in proximity to industrial power installations, this instrument might be affected by electromagnetic noise. Under such conditions, please test the instrument performance before use.

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