TOPCON

INSTRUCTION MANUAL

LASER SENSOR

LS-B10W

Thank you for purchasing the TOPCON LS-B10W.
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.

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
⚠WARNING	Ignoring or disregard of this display may lead to death or serious injury.
⚠CAUTION	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

⚠WARNING
• **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!
• **Risk of fire or electric shock.** Do not use damaged power cable, plug and socket.
• **Risk of fire or electric shock.** Do not use a wet battery.
• **May ignite explosively.** Never use an instrument near flammable gas, liquid matter, and do not use in a coal mine.
• **Do not hold the LS-B10W magnetic clamp near anyone who uses a pace maker or other electronic medical devices.** The strong magnetic field can disrupt the normal operation of such devices.
• **Battery can cause explosion or injury.** Do not dispose in fire or heat.
• **The short circuit of a battery can cause a fire.** Do not short circuit battery when storing it.

⚠CAUTION
Risk of injury to fingers. Do not place fingers on magnet while mounting to equipment.
Strong magnetic field. Do not place LS-B10W magnetic clamp near any sensitive electronic devices or magnetic storage media such as computer disk.
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.

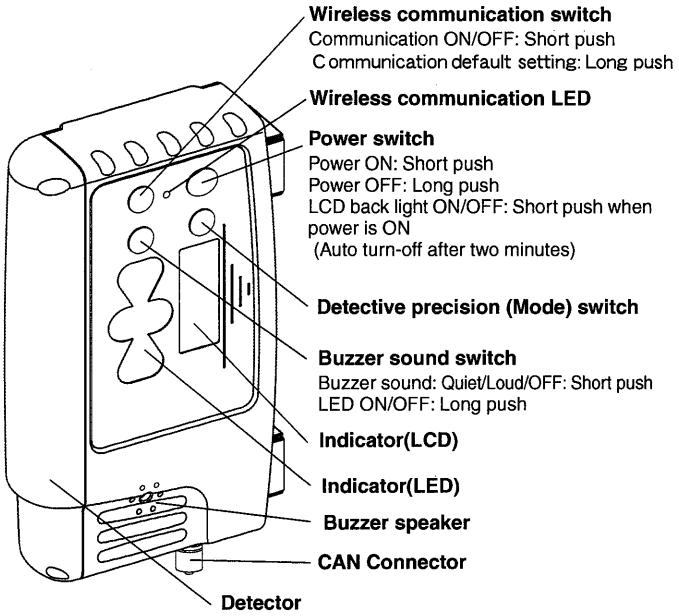
EXCEPTIONS FROM RESPONSIBILITY

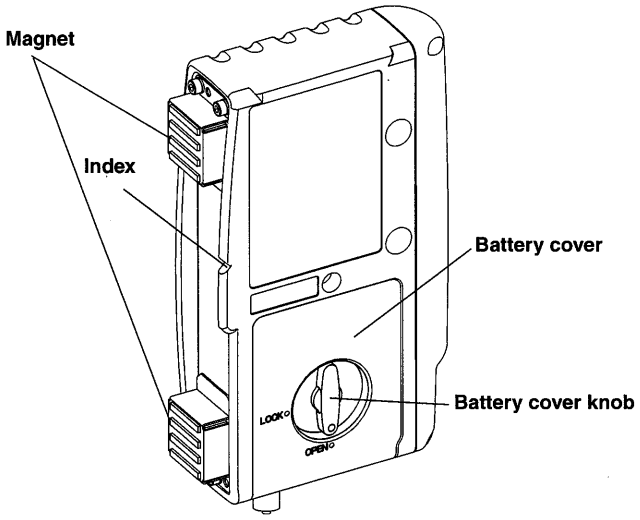
1)The user of this product is expected to follow all operating instructions and make periodic checks of the product's performance.
2)The manufacturer, or its representatives, assumes no responsibility for results of a faulty or intentional usage or misuse including any direct, indirect, consequential 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-B10W Instrument ..... 1pc.
2 AA-size dry cells ..... 3pcs.
3 Instruction manual ..... 1pc.

Nomenclature and Functions





- Risk of damage to installation surface of machine, because it uses a strong magnet.
- See [Laser beam positions and display patterns] in the Instruction manual for the display area and display pattern.
- This instrument is able to perform wireless communication with the RD-10W, sold separately. See the RD-10W Instruction manual for details on the RD-10W.
- This instrument is mounted with a CAN communication function. Please inquire with your sales agent for details.

Operation

1 Mount the LS-B10W on the instrument 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-B10W.

4 Keep the machine blade or arm motionless and raise or lower the LS-B10W 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-B10W display.

How to set up the wireless communication default setting

Place the LS-B10W and RD-10W in close position, so that they will not be affected by other wireless communications.

1 Turn on the power for both the LS-B10W and RD-10W.

2 Long-push the wireless communication switch for the LS-B10W and RD-10W. While setting up, the wireless communication LED (yellow light) will turn on.

3 When the instrument is ready to be used, a buzzer will sound (buzzer sound: peep) and the communication will begin.

- If the communication fails, a buzzer will sound (buzzer sound: pi, pi, pi). Eliminate any influence from other wireless instrument and redo the communication default setting.
- While setting up the default, only the default OFF (short-push of the wireless communication switch) is operable.

How to use wireless communication

1 When power for both the LS-B10W and RD-10W are turned ON, communication will automatically begin.
During communication, the wireless communication LED will flash quickly.
During communication preparation, the wireless communication LED will flash slowly.

- When changing the setting for detective precision, buzzer sound and LED ON/OFF, the setting for the RD-10W will also change in conjunction with the LS-B10W.
- If you wish to change the RD-10W to communicate, redo the communication default setting.

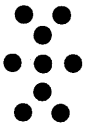
Lighting/Flashing pattern of wireless communication LED

Lights	While setting up the default
Flashes quickly	While LS-B10W is communicating
Flashes slowly	Communication is in preparation

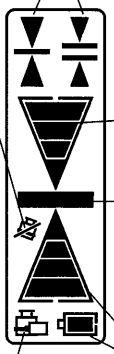
Indicator

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

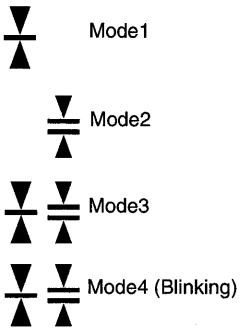


Higher than datum position
Move the sensor downward.
(Buzzer sound:High frequent beep sound)

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

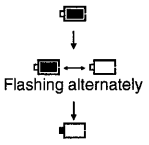
Lower than datum position
Move the sensor upward.
(Buzzer sound:Low frequent beep sound)

Precision mode



Battery remaining display

Indicates the battery remaining of laser sensor as follows.



Battery is sufficient.

The power is low, but sensor is still usable.

Dead battery.
Replace the dry battery with new one.

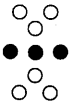
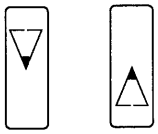
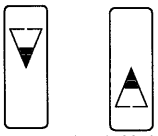
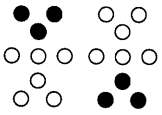
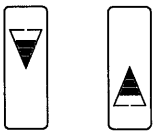
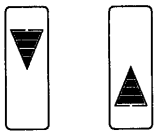
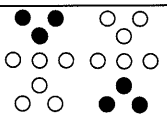
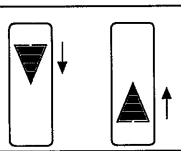
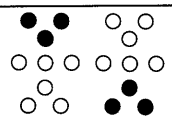
Rotating laser battery warning

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.)

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.)

Laser beam positions and display patterns

Indicator(LCD)	Indicator(LED)	Detective precision
		Mode1:±2mm Mode2:±6mm Mode3:±12mm Mode4:±30mm
 No display when in Mode 4		±15mm/±0.05ft (30mm/0.1ft width)
 No display when in Mode 4	 Flashes quickly	±25mm/±0.08ft (50mm/0.16ft width)
		±35mm/±0.11ft (70mm/0.23ft width)
	 Flashes slowly	±60mm/±0.2ft (120mm/0.39ft width)
	 Flashes more slowly	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)
Wireless communication range	:	20m (May vary depending on obstacles between the two instruments and other conditions)
Power source	:	AA-size dry cells 3pcs.
Continuous operating time (+20°C/+68°F)	:	Approximately 20 hours (Using alkaline manganese dry cells)
Operating temperature	:	-20°C~+50°C(-4°F~+122°F)
Water proof	:	IP66
Dimensions (W/D/H)	:	110x36x199(mm) (4.3″x1.4″x7.8″)
Weight (Without cells)	:	0.6kg (1.3lbs)

Detective angle, Detective precision and Laser detecting range may vary depending on rotating laser being used or atmospheric conditions.

Changes or modifications not expressly approved by the manufacturer for compliance could void the user's authority to operate the equipment.

In order to comply with FCC radio-frequency radiation exposure guidelines for an uncontrolled exposure, this device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

"Operation of this device is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device."

Declaration of Conformity
R&TTE Directive 1995/5/EC

WE: TOPCON CORPORATION
75-1 Hasunuma-cho Itabashi-ku Tokyo Japan

declare on our own responsibility, that the product;
Kind of Product: Laser Sensor
Type designation: LS-B10W
is in compliance with the following norm(s) or documents;
Radio :EN 300 328
EMC :EN 301 489-1/17
safety :EN 60950

Japan Surveying Instruments JSIMA 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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