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.

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 electoronic 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.

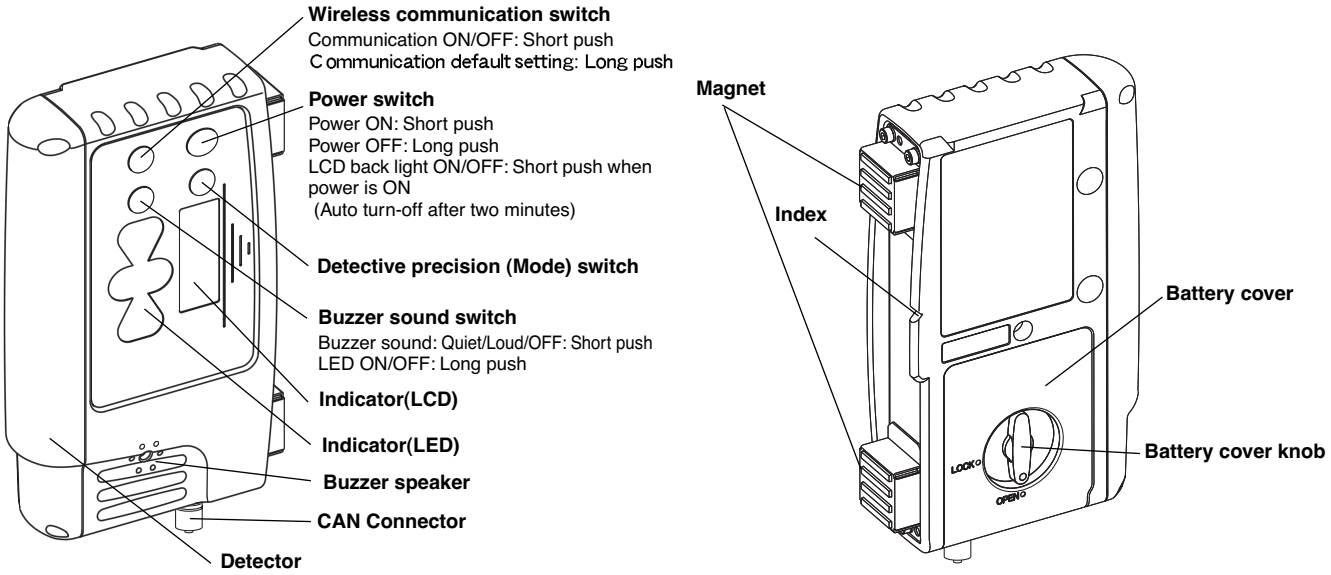
EXCEPTIONS FROM RESPONSIBILITY

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



- 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. When setting up, the instrument will be in the communication set-up status, and the LED (yellow light) will flash slowly.

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

- If the communication fails, a buzzer will sound (buzzer sound: pi, pi, pi) and the LED will turn off. 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

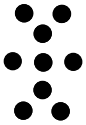
1 When power for both the LS-B10W and RD-10W are turned ON, communication will automatically begin.

- 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.
- If the LED continues to flash, a communication error is occurring. If flashing continues after turning off the power and on once again, please inquire with your sales agent.

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

Mode1

Mode2

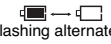
Mode3

Mode4 (Blinking)

Battery remaining display

Indicates the battery remaining of laser sensor as follows.

Battery is sufficient.



Flashing alternately

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.)

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.)

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	Flashes quickly	±15mm/±0.05ft (30mm/0.1ft width)
No display when in Mode 4		±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 Confomity
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.

TOPCON POSITIONING SYSTEMS, INC.
7400 National Drive, Livermore, CA 94551, U.S.A.
Phone: 925-245-8300 Fax: 925-245-8599 www.topcon.com
TOPCON CALIFORNIA
3380 Industrial Blvd, Suite 105, West Sacramento, CA 95691, U.S.A.
Phone: 916-374-8575 Fax: 916-374-8329
TOPCON EUROPE POSITIONING B.V.
Essebaan 11, 2908 LJ Capelle a/d IJssel, The Netherlands.
Phone: 010-458-5077 Fax: 010-284-4949 www.topconeurope.com
IRELAND OFFICE
Unit 69 Western Parkway Business Center
Lower Ballymount Road, Dublin 12, Lreland
Phone: 01460-0021 Fax: 01460-0129
TOPCON DEUTSCHLAND G.m.b.H.
Giesserallee 31, 47877 Willich, GERMANY
Phone: 02154-885-100 Fax: 02154-885-111 info@topcon.de
www.topcon.de
TOPCON S.A.R.L.
89, Rue de Paris, 92585 Clichy, Cedex, France.
Phone: 33-1-41069490 Fax: 33-1-47390251 topcon@topcon.fr
TOPCON ESPAÑA S.A.
Frederic Mompou 5, ED. Euro 3, 08960, Sant Just Desvern, Barcelona, Spain.
Phone: 93-473-4057 Fax: 93-473-3932 www.topconesp.com
TOPCON SCANDINAVIA A. B.
Neongatan 2 S-43151 Mölndal, SWEDEN
Phone: 031-7109200 Fax: 031-7109249
TOPCON (GREAT BRITAIN)LTD.
Topcon House Kennet Side, Bone Lane, Newbury, Berkshire RG14 5PX U.K.
Phone: 44-1635-551120 Fax: 44-1635-551170
survey.sales@topcon.co.uk laser.sales@topcon.co.uk
TOPCON SOUTH ASIA PTE. LTD.
Blk 192 Pandan Loop, #07-01 Pantech Industrial Complex, Singapore 128381
Phone: 62780222 Fax: 62733540 www.topcon.com.sg
TOPCON AUSTRALIA PTY. LTD.
Unit 18, 4 Avenue of Americas Newington NSW 2127, Australia
Phone: 02-8748-8777 Fax: 02-9647-2926 www.topcon.com.au
TOPCON INSTRUMENTS (THAILAND) CO., LTD.
77/162 Sinn Sathorn Tower, 37th Fl.,
Krungdhonburi Rd., Klongtonsai, Klongsarn, Bangkok 10600 Thailand.
Phone: 02-440-1152~7 Fax: 02-440-1158
TOPCON INSTRUMENTS (MALAYSIA) SDN. BHD.
Excella Business Park Block C, Ground & 1st Floor, Jalan Ampang Putra,
Taman Ampang Hilir, 55100 Kuala Lumpur, MALAYSIA
Phone: 03-42701068 Fax: 03-42704508
TOPCON KOREA CORPORATION
2F Yooseoung Bldg., 1595-3, Seocho-Dong, Seocho-gu, Seoul, 137-876, Korea.
Phone: 82-2-2055-0321 Fax: 82-2-2055-0319 www.topcon.co.kr
TOPCON OPTICAL (H.K.) LIMITED
2-4/F Meeco Industrial Bldg., No. 53-55 Au Pui Wan Street, Fo Tan Road,
Shatin, N.T., Hong Kong
Phone: 2690-1328 Fax: 2690-2221 www.topcon.com.hk
TOPCON CORPORATION BEIJING OFFICE
Building A No.9, Kangding Street
Beijing Economic Technological Development Area, Beijing, China 100176
Phone: 10-6780-2799 Fax: 10-6780-2790
TOPCON CORPORATION BEIRUT OFFICE
P. O. BOX 70-1002 Antelias, BEIRUT-LEBANON.
Phone: 961-4-523525/961-4-523526 Fax: 961-4-521119
TOPCON CORPORATION DUBAI OFFICE
C/O Atlas Medical FZCO., P. O. Box 54304, C-25, Dubai Airport Free Zone,UAE
Phone: 971-4-2995900 Fax: 971-4-2995901

TOPCON CORPORATION
75-1 Hasunuma-cho, Itabashi-ku, Tokyo 174-8580, Japan
Phone: 3-3558-2520 Fax: 3-3960-4214 www.topcon.co.jp

1A

LS-B10W 31266 90041