

IMPORTANT:
Read Before Using

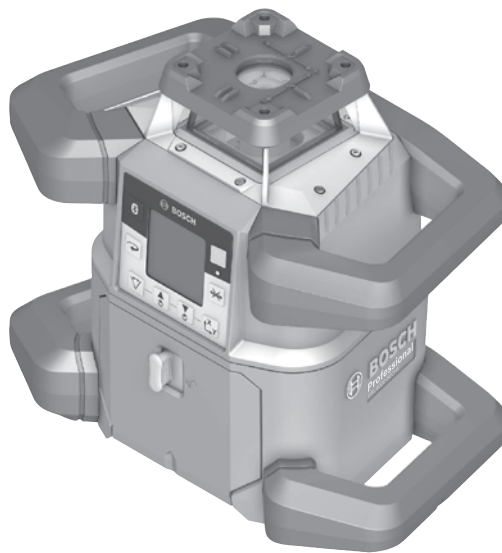
IMPORTANT :
Lire avant usage

IMPORTANTE:
Leer antes de usar



Operating/Safety Instructions
Consignes de fonctionnement/sécurité
Instrucciones de funcionamiento y seguridad

GRL4000-90CHVG
RC5



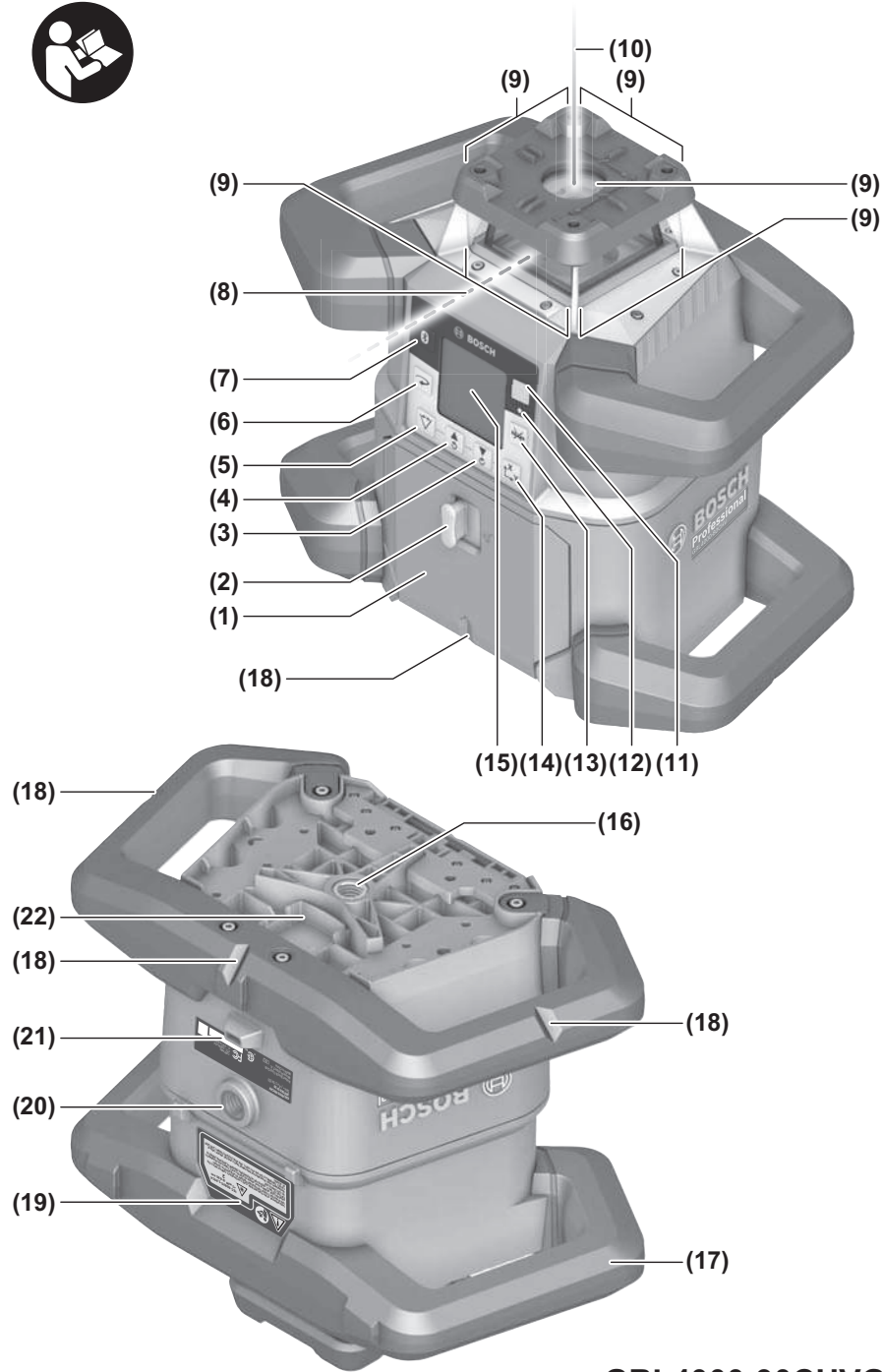
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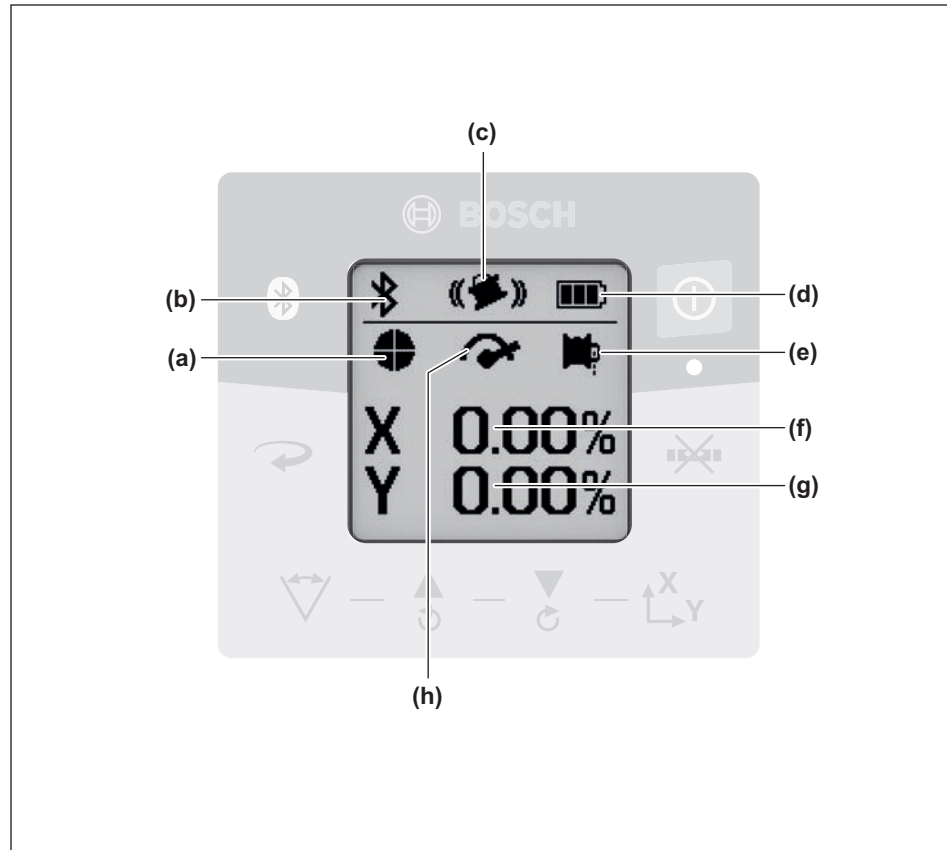
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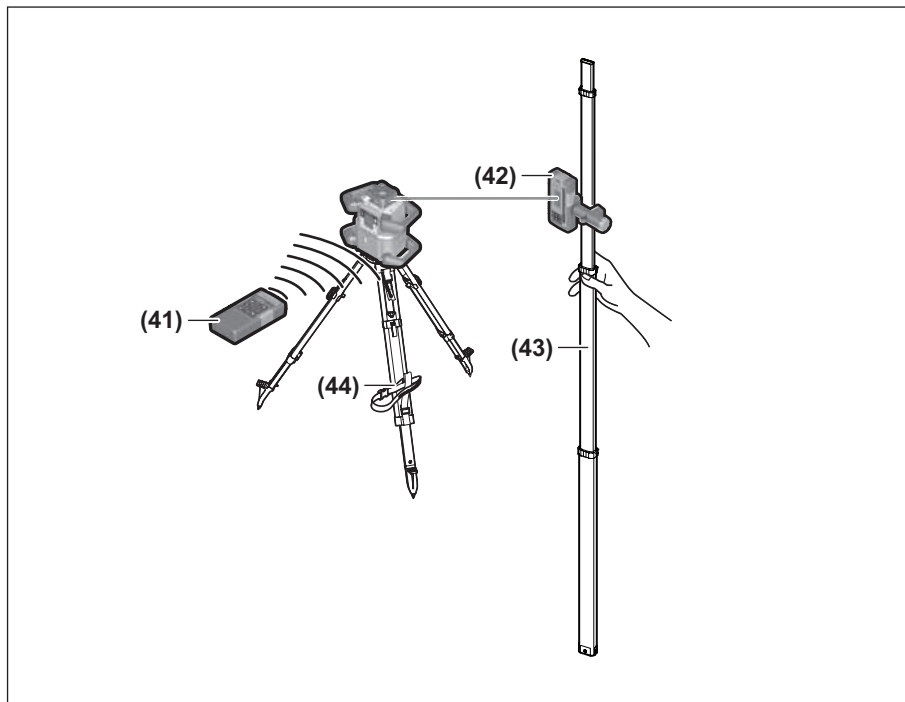
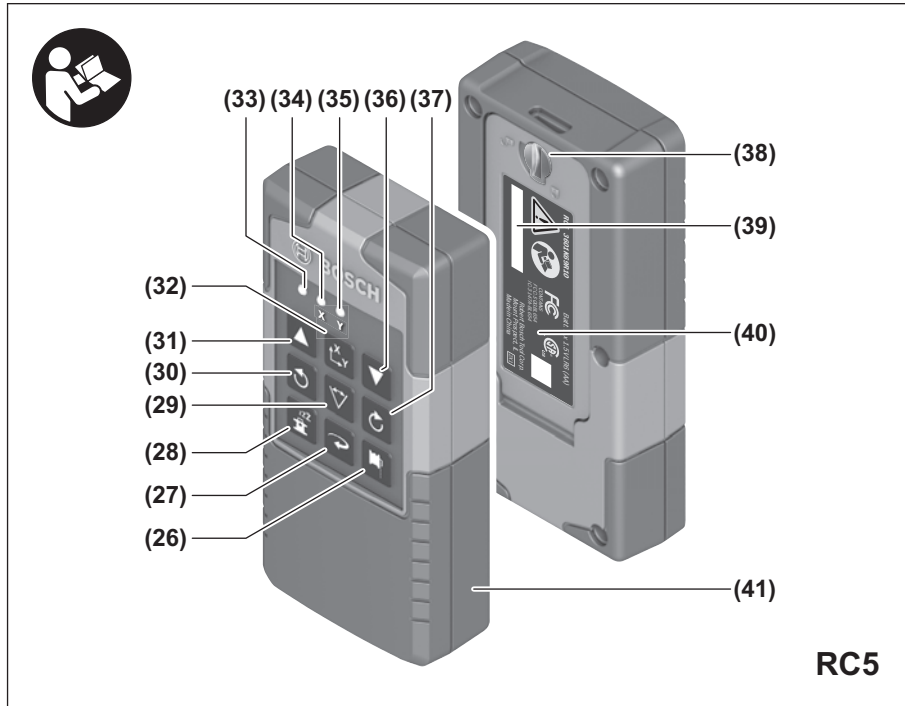
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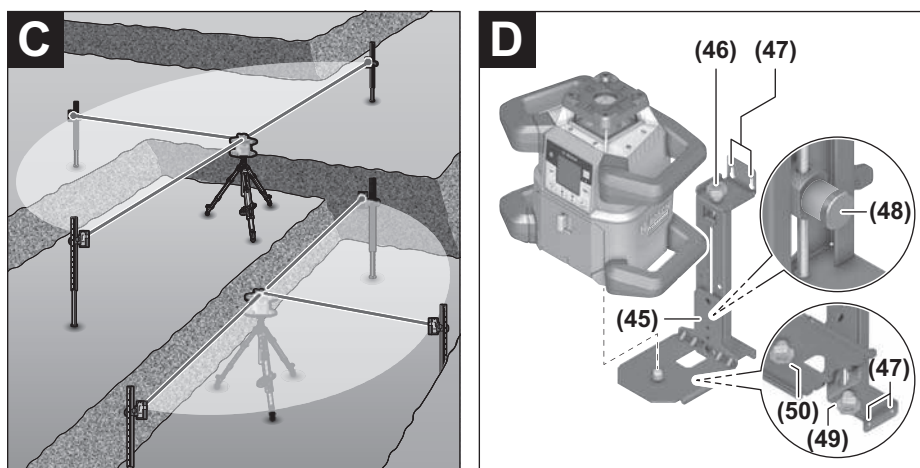
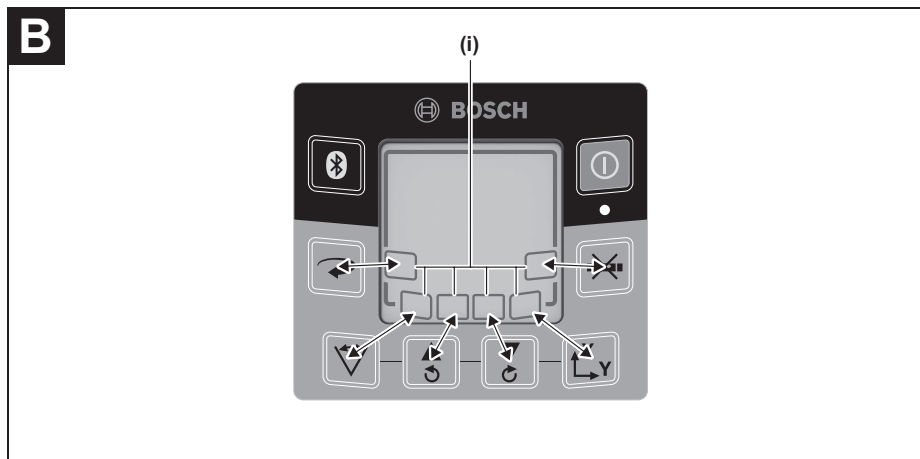
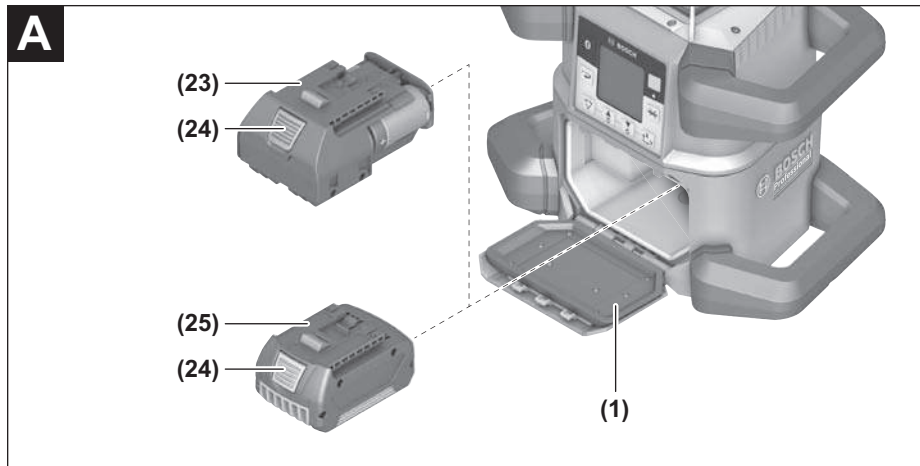
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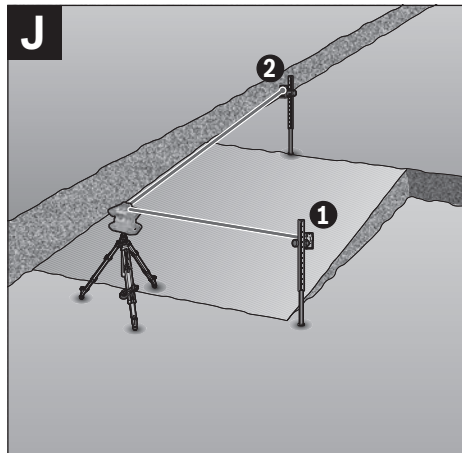
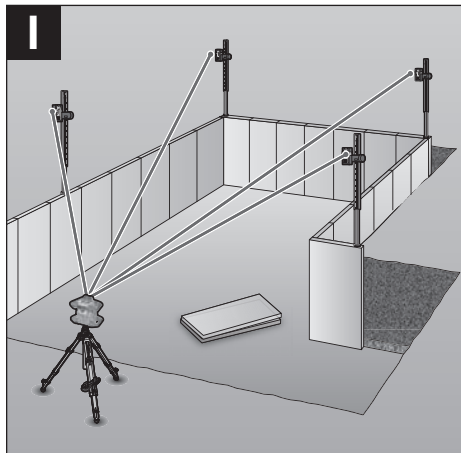
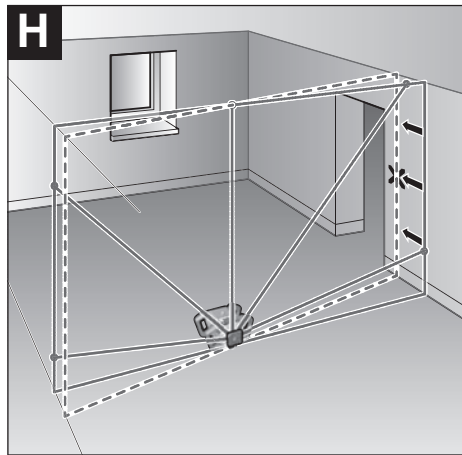
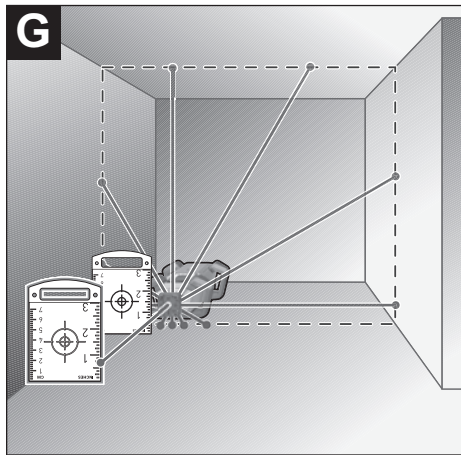
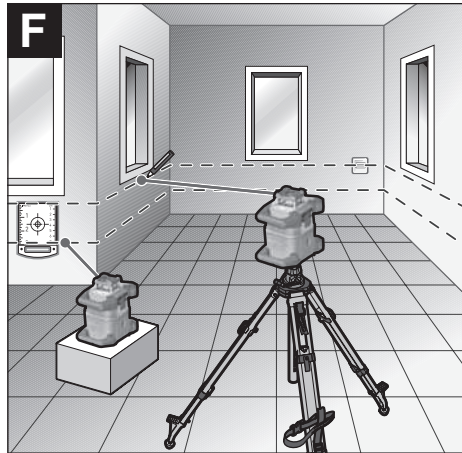
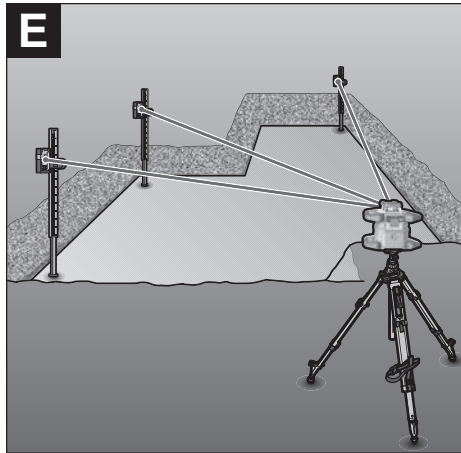
For English Version
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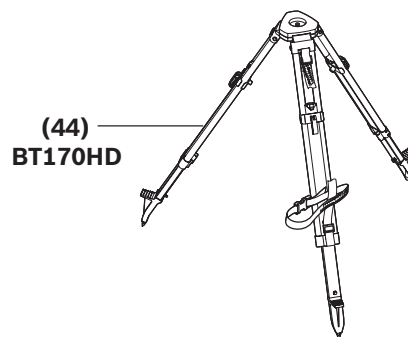
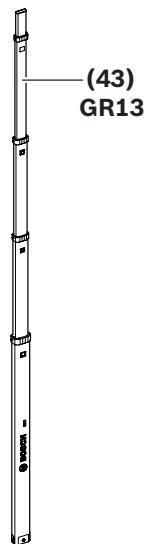
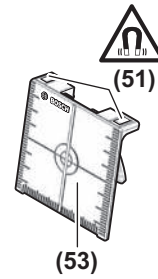
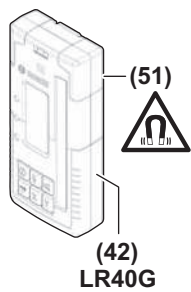












Safety Symbols

The definitions below describe the level of severity for each signal word. Please read the manual and pay attention to these symbols.

	This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.
	Read manual symbol - Alerts user to read manual.
	WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.
	This symbol designates that this laser leveling tool complies with Part 15 of the FCC Rules.

General Safety Rules

WARNING Read all instructions. Failure to follow all instructions listed below may result in hazardous radiation exposure, electric shock, fire and/or serious injury.

SAVE ALL WARNINGS AND INSTRUCTIONS FOR FUTURE REFERENCE

The term “tool” in all of the warnings listed below refers to your mains-operated (corded) tool or battery-operated (cordless) tool.

WARNING The following labels are on your laser tool for your convenience and safety. They indicate where the laser light is emitted by the tool. ALWAYS BE AWARE of their location when using the tool.



Do not direct the laser beam at persons or animals and do not stare into the laser beam yourself. This tool produces laser class 2 laser radiation and complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 56, dated May 8, 2019. This can lead to persons being blinded.

DO NOT remove or deface any warning or caution labels. Removing labels increases the risk of exposure to laser radiation.

WARNING It is the user's responsibility to periodically check the accuracy of the laser level as work progresses. Always check the accuracy of the laser level after it has been dropped or subject to extreme temperatures and temperature variations.

WARNING If glass light house breaks when dropped, broken glass can cause laceration hazard and unit to lose its IP rating. Contact customer service immediately.

Use of controls or adjustments or performance of procedures other than those specified in this manual, may result in hazardous radiation exposure.

ALWAYS make sure that any bystanders in the vicinity of use are made aware of the dangers of looking directly into the laser tool.

DO NOT place the laser tool in a position that may cause anyone to stare into the laser beam intentionally or unintentionally. Serious eye injury could result.

ALWAYS position the laser tool securely. Damage to the laser tool and/or serious injury to the user could result if the laser tool fails.

ALWAYS use only the accessories that are recommended by the manufacturer of your laser tool. Use of accessories that have been designed for use with other laser tools could result in serious injury.

DO NOT use this laser tool for any purpose other than those outlined in this manual. This could result in serious injury.

DO NOT leave the laser tool “ON” unattended in any operating mode.

DO NOT disassemble the laser tool. There are no user serviceable parts inside. Do not modify the product in any way. Modifying the laser tool may result in hazardous laser radiation exposure.

DO NOT use the laser viewing glasses as safety goggles. The laser viewing glasses are used for improved visualization of the laser beam, but they do not protect against laser radiation.

DO NOT use the laser viewing glasses as sun glasses or in traffic. The laser viewing glasses do not afford complete UV protection and reduce color perception.

DO NOT use any optical tools such as, but not limited to, telescopes or transits to view the laser beam. Serious eye injury could result.

DO NOT stare directly at the laser beam or project the laser beam directly into the eyes of others. Serious eye injury could result.

Work area safety

Keep work area clean and well lit. Cluttered or dark areas invite accidents.

DO NOT operate the laser tool around children or allow children to operate the laser tool. Serious eye injury could result.

DO NOT use laser tools, attachments and

accessories outdoors when lightning conditions are present.

Do not operate the laser tool in explosive environments, such as in the presence of flammable liquids, gases or dusts. Sparks can be created in the laser tool which may ignite the dust or fumes.

Electrical safety

⚠ WARNING Batteries can explode or leak, cause injury or fire.

To reduce this risk, always follow all instructions and warnings on the battery label and package.

DO NOT expose the laser tool and battery to rain or wet conditions. Water entering laser tool will increase the risk of fire and personal injury.

DO NOT short any battery terminals.

DO NOT charge alkaline batteries.

DO NOT mix old and new alkaline batteries. Replace all of them at the same time with new batteries of the same brand and type.

DO NOT mix battery chemistries.

Dispose of or recycle batteries per local code.

DO NOT dispose of batteries in fire. Keep batteries out of reach of children.

Remove batteries if the device will not be used for several months.

Personal safety

If laser radiation strikes your eye, you must deliberately close your eyes and immediately turn your head away from the beam.

Do not make any modifications to the laser equipment.

Stay alert, watch what you are doing and use common sense when operating a tool. Do not use a tool while you are tired or under the influence of drugs, alcohol or medication. A moment of inattention while operating a tool may result in serious personal injury or incorrect measurement results.

Use safety equipment. Always wear eye protection. Safety equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.

Use caution when using laser tools in the vicinity of electrical hazards.

Magnets



Keep the tool, wall mount, laser receiver, and laser target plate away from cardiac pacemakers.

The magnets of the tool and laser target plate generate a field that can impair the function of cardiac pacemakers.

Keep the tool, wall mount, laser receiver, and laser target plate away from magnetic data medium and magnetically-sensitive equipment. The effect of the magnets of the tool and laser target plate can lead to irreversible data loss.

Use and care

Use the correct tool for your application. The correct tool will do the job better and safer.

Do not use the tool if the switch does not turn it on and off. Any tool that cannot be controlled with the switch is dangerous and must be repaired.

Store idle tool out of the reach of children and do not allow persons unfamiliar with the tool or these instructions to operate the tool. Tools are dangerous in the hands of untrained users.

Maintain tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the operation. If damaged, have the tool repaired before use. Many accidents are caused by poorly maintained tools.

Use the tool, accessories, etc., in accordance with these instructions and in the manner intended for the particular type of tool, taking into account the working conditions and the work to be performed. Use of the tool for operations different from those intended could result in a hazardous situation.

Battery tool use and care

Recharge only with the charger specified by the manufacturer. A charger that is suitable for one type of battery pack may create a risk of fire when used with another battery pack.

Use laser tools only with specifically designated battery packs. Use of any other battery packs may create a risk of injury and fire.

When battery pack is not in use, keep it away from other metal objects like paper clips, coins, keys, nails, screws, or other small metal objects that can make a connection from one terminal to another. Shorting the battery terminals together may cause burns or fire.

Under abusive conditions, liquid may be ejected from the battery; avoid contact. If contact accidentally occurs, flush with water. If liquid contacts eyes, additionally seek medical help. Liquid ejected from the battery may cause irritation or burns.

Do not use a battery pack or tool that is damaged or modified. Damaged or modified batteries may exhibit unpredictable behavior resulting in fire, EXPLOSION or risk of injury.

Do not expose a battery pack or tool to fire or excessive temperature. Exposure to fire or temperature above 265 °F (130 °C) may cause explosion.

Follow all charging instructions and do not charge the battery pack or tool outside the temperature range specified in the instructions. Charging improperly or at temperatures outside the specified range may damage the BATTERY and increase the risk of fire.

Service

Have your tool serviced by a qualified repair person using only identical replacement parts. This will ensure that the safety of the tool is maintained.

Develop a periodic maintenance schedule for tool. When cleaning a tool be careful not to disassemble any portion of the tool since internal wires may be misplaced or pinched or may be improperly mounted. Certain cleaning agents such as gasoline, carbon tetrachloride, ammonia, etc., may damage plastic parts.

SAVE THESE INSTRUCTIONS.

FCC Caution



The manufacturer is not responsible for radio interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.

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.

NOTE! This equipment has been tested and found to comply with the limits for a Class B digital devices, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee

that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

"Exposure to Radio Frequency (RF) Signals: The wireless device is a radio transmitter and receiver. It is designed and manufactured not to exceed the emission limit for exposure to radio frequency (RF) energy set by the Ministry of Health (Canada), Safety Code 6. These limits are part of comprehensive guidelines and established permitted levels of RF energy for the general population.

Industry Canada (IC)

This device complies with Industry Canada's licence-exempt RSSs. Operation 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.

Features

The numbering of the product features shown refers to the illustration of the tool on the graphic page.

Rotary laser

- (1) Battery compartment cover
- (2) Battery compartment cover locking mechanism
- (3) Slope button down ▼/Button for clockwise rotation ⤵
- (4) Slope button up ▲/Button for counter-clockwise rotation ⤴
- (5) Line operation button
- (6) Rotational operation button
- (7) Bluetooth® button
- (8) Variable laser beam
- (9) Laser beam outlet aperture
- (10) Upwards plumb point ^{A)}
- (11) On/off button
- (12) Status indicator
- (13) Manual operation button
- (14) Slope button
- (15) Display
- (16) Tripod mount 5/8" (horizontal)
- (17) Carrying handle
- (18) Notch for orientation
- (19) Laser warning label
- (20) Tripod mount 5/8" (vertical)
- (21) Serial number
- (22) Recess for Bluetooth® localization module
- (23) Battery adapter
- (24) Release button for rechargeable battery/battery adapter
- (25) Rechargeable battery

A) In vertical mode, the upwards plumb point applies as a 90° reference point.

Rotary laser indicator elements

- (a) Laser operating mode indicator
- (b) Bluetooth® connection indicator
- (c) Shock-warning function indicator
- (d) Battery charge indicator for rechargeable battery/non-rechargeable batteries
- (e) Plumb point function indicator (downwards)
- (f) X-axis slope angle indicator
- (g) Y-axis slope angle indicator
- (h) Rotational speed indicator
- (i) Softkey symbols

Remote control

- (26) Plumb point function button (downwards)
- (27) Rotational operation button
- (28) Sleep mode button
- (29) Line operation button
- (30) Button for counterclockwise rotation
- (31) Slope button, up
- (32) Slope button
- (33) Signal transmission indicator
- (34) X-axis status indicator
- (35) Y-axis status indicator
- (36) Slope button, down
- (37) Button for clockwise rotation
- (38) Battery compartment cover locking mechanism
- (39) Serial number
- (40) Battery compartment cover
- (41) Remote control

The numbering of the product features shown refers to the illustration of the tool on the graphic page.

Accessories/replacement parts

- | | |
|--|--|
| (42) Laser receiver | (49) Wall mount fine adjustment screw |
| (43) Measuring rod ^{B)} | (50) 5/8" wall mount screw |
| (44) Tripod ^{B)} | (51) Magnet |
| (45) Wall mount/alignment unit ^{B)} | (52) Laser viewing glasses ^{B)} |
| (46) Wall mount fastening screw | (53) Laser target plate ^{B)} |
| (47) Wall mount fixing holes | (54) Case |
| (48) Push button for coarse adjustment
of the wall mount | (55) Bluetooth® localization module ^{B)} |

B) Accessories shown or described are not included with the product as standard. You can find the complete selection of accessories in our accessories range.

Rotary Laser	GRL4000-90CHVG
Article number	3601K61V10
Working range (Diameter)	
–without laser receiver	approx. 230 ft (approx. 70 m)
–with laser receiver	approx. 4000 ft (approx. 1200 m)
Leveling Accuracy ^{A) B)}	
–Horizontal	±1/16 in @ 100 ft (±1.5 mm @ 30m)
–Vertical	±1/8 in @ 100 ft (±3 mm @ 30m)
Self-leveling range (typical)	±8.5% (±5°)
Scan angle for line operation	0°/10°/25°/50°
Leveling duration at a slope of up to ±3%	30s
Rotational speed	150/300/600min ⁻¹
Singe/dual-axis slope operation	±8.5%
Accuracy of single-axis slope operation ^{B) D)}	±0.2%
Max. altitude	6560 ft (approx. 2000 m)
Relative air humidity max.	90%
Laser class	2
Laser type	500-540nm, <1mW
Divergence of laser line	<1.5 mrad (full angle)
Recommended laser receiver	LR40G
Tripod mount (horizontal/vertical)	5/8 in-11
Laser level power supply	
– Rechargeable battery pack (Li-ion)	18 V
– Non-rechargeable batteries (alkaline manganese) (with battery adapter)	4 x 1.5V LR20 (D)
Approx. operating time	
– with Lithium Ion (or rechargeable) battery (4 Ah)	50 h
– with non-rechargeable batteries	60 h
Bluetooth® laser level	
– Class	1
– Compatibility	Bluetooth® 5.0/4.X (Low Energy) ^{E)}
– Max. signal range	328 ft (100 m) ^{F)}
– operating frequency range	2402–2480 MHz
– Max. transmission power	6.3 mW
Bluetooth® smartphone	
– Compatibility	Bluetooth® 5.0/4.X (Low Energy) ^{E)}
– Operating system ^{I)}	Android 6, iOS 11 (and above)

Rotary Laser	GRL4000-90CHVG
Weight according to EPTA-Procedure 01:2014	
– with rechargeable battery ^{G)}	9.3–10.6 lb (4.2–4.8 kg)
– with non-rechargeable batteries	10 lb (4.6 kg)
Dimensions (length × width × height)	12.8 × 7.4 × 11 in (327 × 188 × 278 mm)
Protection rating	IP 68
Recommended ambient temperature during charging	32 °F ~ 95 °F (0 °C to +35 °C)
Permitted ambient temperature	
– during operation ^{H)}	14 °F ~ 122 °F (–10 °C to +50 °C)
– during storage	–4 °F ~ 122 °F (–20 °C to +50 °C)
Batteries	Bosch GBA18V40, GBA18V80
Chargers	Bosch GAL18V40

A) The working range may be reduced by unfavorable environmental conditions (e.g. direct sunlight).

B) At 20 °C.

C) Along the axes.

D) At a maximum slope of ±8.5%, the maximum deviation is ±0.2%.

E) Only non-conductive deposits occur, whereby occasional temporary conductivity caused by condensation is expected.

F) When using Bluetooth® Low Energy devices, it may not be possible to establish a connection depending on the model and operating system. Bluetooth® devices must support the SPP profile.

G) The signal range may vary greatly depending on external conditions, including the receiving device used. The Bluetooth® range may be significantly weaker inside closed rooms and through metallic barriers (e.g. walls, shelving units, cases, etc.).

H) Depends on battery in use.

I) Higher versions of the operating system may be necessary depending on app software updates.

The serial number **(21)** on the type plate is used to clearly identify your laser level.

Remote Control	RC5
Article number	3 601 K69 R10
Working range (radius)	300 ft (100 m)
Operating temperature	14 °F ~ 122 °F (–10 °C to +50 °C)
Storage temperature	–4 °F ~ 158 °F (–20 °C to +70 °C)
Max. altitude	6560 ft (approx. 2000 m)
Relative air humidity max.	90%
Pollution degree according to IEC 61010-1	2 ^{A)}
Bluetooth® remote control	
– Class	1
– Compatibility	Bluetooth® 5.0/4.X (Low Energy) ^{B)}
– Max. signal range	328 ft (100 m) ^{C)}
– Operating frequency range	2402–2480 MHz
– Max. transmission power	6.3 mW
Batteries	2 × 1.5 V LR6 (AA)
Weight according to EPTA-Procedure 01:2014	0.37 lb (0.17 kg)
Dimensions (length × width × height)	4.8 × 2.3 × 1 in (122 × 59 × 27 mm)
Protection rating	IP 54

A) Only non-conductive deposits occur, whereby occasional temporary conductivity caused by condensation is expected.

B) When using Bluetooth® Low Energy devices, it may not be possible to establish a connection depending on the model and operating system. Bluetooth® devices must support the SPP profile.

C) The signal range may vary greatly depending on external conditions, including the receiving device used. The Bluetooth® range may be significantly weaker inside closed rooms and through metallic barriers (e.g. walls, shelving units, cases, etc.).

Intended Use

Rotary laser

The laser level is intended for establishing and checking exactly horizontal height profiles, vertical lines, alignments and plumb points.

The laser level is suitable for indoor and outdoor use.

Remote control

The remote control is intended for controlling the Bosch rotary lasers via Bluetooth®.

The remote control is suitable for indoor and outdoor use.

Assembly

Laser level Power Supply

The laser level can be operated either with conventional non-rechargeable batteries or with a Bosch lithium-ion battery.

Do not use any commercially available rechargeable batteries (e.g. nickel metal hydride).

Operation with Bosch Rechargeable Lithium-ion Battery Pack

⚠ WARNING Use only Bosch rechargeable lithium-ion battery packs listed in the technical data section of this manual. Use of other battery packs may increase the risk of fire, personal injury and property damage.

Note: The battery pack is supplied partially charged. To ensure full capacity of the battery pack, completely charge the battery pack in the battery charger before using for the first time.

⚠ WARNING Use only Bosch chargers listed in the technical data section of this manual. Use of other chargers may increase the risk of fire, personal injury and property damage.

The lithium-ion battery pack can be charged at any time without reducing its service life. Interrupting the charging procedure does not damage the battery pack.

The “Electronic Cell Protection (ECP)” protects the lithium-ion battery pack against deep discharging. When the battery pack is discharged, the laser tool is switched off by a protective circuit.

► **Do not switch the laser level back on after it has been switched off by the protective circuit.** This can damage the battery.

Battery charge indicator

If the rechargeable battery is removed from the laser level, its state of charge may be indicated by the green LEDs of the battery charge indicator on the battery.

Press the button for the battery charge indicator  or  to show the state of charge.

If no LED lights up after pressing the button for the battery charge indicator, then the battery is defective and must be replaced.

Battery model ProCORE18V...

LEDs	Capacity
5× continuous green light	80–100 %
4× continuous green light	60–80 %
3× continuous green light	40–60 %
2× continuous green light	20–40 %
1× continuous green light	5–20 %
1× flashing green light	0–5 %

Battery model GBA18V...

LEDs	Capacity
3× continuous green light	60–100 %
2× continuous green light	30–60 %
1× continuous green light	5–30 %
1× flashing green light	0–5 %

Recommendations for Optimal Handling of the Battery

Protect the battery against moisture and water.

Only store the battery within a temperature range of –4 to 122 °F. Do not leave the battery in your car in the summer, for example.

Occasionally clean the ventilation slots on the battery using a soft brush that is clean and dry.

A significantly reduced operating time after charging indicates that the battery has deteriorated and must be replaced.

Follow the instructions on correct disposal.

Operation with Non-Rechargeable Batteries

It is recommended that you use alkaline manganese batteries to operate the laser level.

Put the batteries into the battery adapter (23). Make sure that the polarity is correct and corresponds to the diagram on the battery adapter.

► **The battery adapter is intended only for use in designated Bosch laser levels and must not be used with power tools.**

Always replace all the batteries at the same time. Only use batteries from the same manufacturer and which have the same capacity.

► **Take the batteries out of the laser level when you are not using it for a prolonged period of time.** The batteries can corrode and

self-discharge during prolonged storage in the laser level.

Changing the batteries/rechargeable battery (see figure A)

To replace the batteries/rechargeable battery, move the locking mechanism (2) of the battery compartment cover into position  and open the battery compartment cover (1).

Insert either a charged rechargeable battery (25) or the battery adapter (23) with fitted batteries into the battery compartment until you feel it click into place.

To remove the rechargeable battery (25) or battery adapter (23), press the release button (24) and pull the rechargeable battery or battery adapter out of the battery compartment. **Do not use force to do this.**

Close the battery compartment cover (1) and move the locking mechanism (2) into position .

Battery Charge Indicator

The battery charge indicator (d) will indicate the state of charge of the batteries/rechargeable batteries on the display:

Indicator	Capacity
	60 - 100%
	30 - 60%
	5 - 30%
	0 - 5%



If the batteries or rechargeable battery are empty, a warning message will appear for a few seconds and the status display (12) will flash red quickly. The laser level will then switch itself off.

Remote control power supply

Using alkali-manganese batteries is recommended to operate the remote control.

Turn the locking mechanism (38) of the battery compartment cover into position  (e.g. using a coin). Open the battery compartment cover (40) and insert the batteries.

When inserting the batteries, ensure that the polarity is correct according to the illustration on the inside of the battery compartment.

Close the battery compartment cover (40) and turn the locking mechanism (38) of the battery compartment cover into position .

► **Remove the batteries from the remote control when not using it for longer periods.** The batteries can corrode and self-discharge during prolonged storage in the remote control.

Note: The Bluetooth® function remains active as long as batteries are fitted in the remote control. The batteries can be removed in order to prevent energy consumption by this function.

Operation

► **Protect the laser level and remote control against moisture and direct sunlight.**

► **Do not expose the laser level or remote control to any extreme temperatures or variations in temperature.** For example, do not leave them in a car for extended periods of time. In case of large variations in temperature, allow the laser level and the remote control to adjust to the ambient temperature before putting them into operation. Before continuing work with the laser level, always perform an accuracy check (see “Accuracy Check of the Laser level”, page 27). The precision of the laser level may be compromised if exposed to extreme temperatures or fluctuations in temperature.

► **Avoid substantial knocks to the laser level and avoid dropping it.** Always carry out an accuracy check before continuing work if the laser level has been subjected to severe external influences (see “Accuracy Check of the Laser level”, page 27).

Starting Operation of the remote control

The remote control will only work if it is fitted with batteries that are sufficiently charged.

To activate the remote control, press any button on the remote control. The status of the axes on the rotary laser is called up and displayed in the (34) and (35) status indicators on the remote control.

Provided the status indicators are lit up, the relevant setting on the rotary laser is changed with every subsequent press of a button on the remote control. The signal transmission indicator (33) on the remote control lights up to show that a signal is being transmitted.

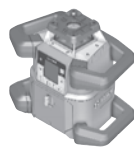
In order to save energy, the remote control is deactivated after a short time and the (34) and (35) status indicators go out again.

It is not possible to switch the laser level on/off with the remote control.

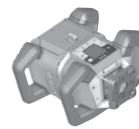
Starting Operation of the rotary laser

Setting up the laser level

► **Keep the work area free from obstacles that could reflect or obstruct the laser beam. For example, cover any reflective or shiny surfaces. Do not measure through panes of glass or similar materials.** The measurements may be distorted by a reflected or obstructed laser beam.



Horizontal position



Vertical position

Position the laser level on a stable surface in the horizontal or vertical position, mount it on the tripod (44) or on the wall mount (45) with the alignment unit.

Due to its high leveling accuracy, the laser level is very sensitive to knocks and vibrations and changes in position. Take care, therefore, that the laser level is stable to avoid interruptions to the operation caused by releveling.

Operating the laser level

The main functions of the laser level are controlled by the buttons on the laser level and the remote control (41). Additional functions are available via the remote control (41), the laser receiver (42), or by controlling remotely via the **Bosch Leveling Remote App** (see “Overview of control options for the functions”, page 34).

For the indicator on the laser level’s display (15), the following applies:

- The current settings for this function will be indicated when a function button (e.g. the line operation button (5)) is pressed for the first time. The settings will be changed the next time a function button is pressed.
- In the lower part of the display, softkey symbols (i) are shown in various menus. The corresponding function keys (softkeys) arranged around the display can be used to execute the functions represented by the symbols (i) (see figure B). Depending

on the corresponding menu, the symbols show the usable function buttons (e.g. the rotational operation button in the rotational operation menu **(6)**) or additional functions such as Next **(→)**, Back **(←)** or Confirm **(OK)**.

- The softkey symbols **(i)** also make it easy to recognize whether the Slope button down/Button for clockwise rotation **(3)** and Slope button up/Button for counterclockwise rotation **(4)** buttons in the current menu are used to slope downwards **(▼)** or slope upwards **(▲)** or to turn in a clockwise **(↻)** or counterclockwise **(↺)** direction.
- The function menus or status messages can be exited at any time by briefly pressing the on/off button **(11)**. This will save the last setting of the function menu.
- The display will automatically go back to the start screen five seconds after the last press of a button.
- The display **(15)** will light up with every press of a button or signal that reaches the laser level. The light will go out approximately one minute after the last press of a button.

Tilting or rotation in various functions can be accelerated if the respective tilting or rotation buttons on the laser level or the remote control are held down for longer.

All functions are reset to their standard setting when the laser level is switched off.

Switching On and Off

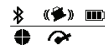
Note: After the first time the tool is started up and before beginning work, you should always perform an accuracy check (see “Accuracy Check of the Laser level”, page 27).

To **switch on** the laser level, press the on/off button **(11)**. The start sequence will appear for a few seconds, followed by the home screen. The laser level emits the variable laser beam **(8)** and the plumb point up **(10)** from the outlet apertures **(9)**.

⚠ WARNING Do not direct the laser beam at persons or animals and do not look into the laser beam yourself, not even from a large distance.



Leveling starts automatically and is shown by the flashing symbol for leveling on the display, the flashing laser beams and the flashing status indicator **(12)** that is flashing green (see “Automatic leveling”, page 24).



After leveling has successfully been completed, the start screen will appear, the laser beams will light up continuously, rotation will start and the status display will light up green continuously.

⚠ WARNING Never leave the laser level unattended when switched on, and ensure the laser level is switched off after use. Others may be blinded by the laser beam.



To **switch off** the laser level, press and hold the on/off button **(11)** until the switch-off symbol appears on the display.



If the maximum permitted operating temperature of 122 °F is exceeded, a warning message will appear for a few seconds and the status indicator **(12)** will flash red.

The laser level will then shut down in order to protect the laser diode. Once it has cooled down, the laser level is operational again and can be switched back on.

Establishing a connection to the remote control/laser receiver

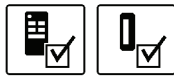
In the default factory setting, the laser level, the remote control **(41)** and the laser receiver **(42)** which come with the set are already connected via Bluetooth®.



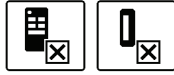
To connect the remote control or the laser receiver, press and hold the Bluetooth® button **(7)** until the indicator for establishing a connection with the remote control/laser receiver appears on the display.

To establish a connection to the remote control, press the button for counterclockwise rotation **(30)** and the button for clockwise rotation **(37)** on the remote control, until the status indicators **(34)** and **(35)** begin to flash. While the connection to the remote control is being established, the status indicators on the remote control will alternately flash green.

To establish a connection to the laser receiver, press on the X-axis and Y-axis buttons on the laser receiver at the same time until the message that a connection has been established appears on the display of the laser receiver. To do this, consult the operating instructions for the laser receiver.



It will be confirmed on the display whether a connection has successfully been established to the remote control or the laser receiver. If the attempt to establish a connection to the remote control is successful, the status indicators **(34)** and **(35)** on the remote control will light up green for three seconds.



If no connection could be established, an error message will appear on the display. If the attempt to establish a connection to the remote control has failed, the status indicators **(34)** and **(35)** on the remote control will light up red for three seconds.

Two laser receivers can be connected to and work with the laser level at the same time.

If other remote controls or laser receivers are connected, the oldest connection will then be deleted.

Remote control via the Bosch Leveling Remote App

The laser level is equipped with a Bluetooth® module which uses radio technology to enable remote control via a smartphone with a Bluetooth® interface.

The **Bosch Leveling Remote App** application (app) is required to use this function. You can download this in the app store for your terminal device (Apple App Store, Google Play Store).

Information about the system requirements for a Bluetooth® connection can be found on the Bosch website at www.bosch-pt.com

When remote controlling via Bluetooth®, poor reception conditions can cause time delays between the mobile terminal device and the laser level.



Do not turn on laser remotely using the Bosch app without line of sight to the laser tool. The sudden bright laser beam may increase the risk of personal injury or property damage.

Ensure there are no bystanders in the direct path of the laser beam before turning on the laser remotely.



To switch off Bluetooth® to control remotely via the app, press the Bluetooth® button **(7)**. The indicator for a terminated connection will appear on the display and the Bluetooth® connection indicator **(b)** on the standard screen will go out.



The Bluetooth function is switched on by default. To switch back on Bluetooth® to control remotely via the app, briefly press the Bluetooth® button **(7)**. The indicator for establishing a connection to the smartphone will appear on the display. Ensure that the Bluetooth® interface is activated on your mobile device.



It will be confirmed on the display whether a connection has successfully been established. The existing connection is visible on the Bluetooth® connection indicator **(b)** on the home screen.



If no connection could be established, an error message will appear on the display.

The connection between mobile end device and laser level is established after the Bosch application has started. If multiple active laser levels are found, select the appropriate laser level. A connection will be established automatically if only one active laser level is found.

The Bluetooth® connection may be interrupted if the distance between the laser level and the mobile device is too great or is blocked, and if there are any sources of electromagnetic interference. In this case, another attempt to establish a connection will automatically begin.

Sleep mode

During breaks from work, you can set the laser level to sleep mode. All your settings will still be saved.



To switch on sleep mode, briefly press the on/off button **(11)**. In the menu which subsequently appears the on/off button **(11)** as often as required until sleep mode has been selected. Confirm your selection with **(14)** by pressing the slope button **(14)**.

Alternatively, you can switch on sleep mode by pressing the sleep mode button **(28)** on the remote control or with the leveling remote app.

⚠ WARNING Do not switch off sleep mode remotely without line of sight to the laser tool. The sudden bright laser beam may increase the risk of personal injury or property damage.

Ensure there are no bystanders in the direct path of the laser beam before turning off sleep mode remotely.



When sleep mode is switched on, the sleep mode symbol will be indicated on the display. The status indicator **(12)** will slowly flash green.

The shock-warning function will remain activated and all settings will be saved.

To switch off sleep mode, briefly press the on/off button **(11)** on the laser level or press the button for sleep mode **(28)** on the remote control.

You can also switch off the laser level while it is in sleep mode by pressing and holding the on/off button **(11)** until the switch-off symbol appears on the display. All other buttons on the laser level and the remote control will be deactivated.

It is also possible to switch sleep mode on and off via the **Bosch Leveling Remote App**.

Locking the keyboard



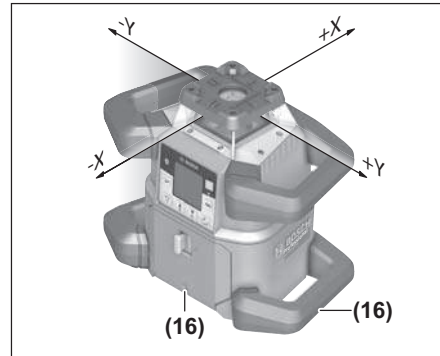
The keyboard of the laser level and the remote control can be locked via the **Bosch Leveling Remote App**. The keyboard lock indicator will appear on the laser level's display.

The keyboard can be unlocked as follows:

- via the **Bosch Leveling Remote App**,
- by switching the laser level on and off via the on/off button **(11)**
- or by pressing the **▲/⏮ (4)** and **▼/⏭ (3)** buttons on the laser level at the same time.

Operating Modes

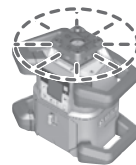
Alignment of X and Y-axis



The alignment of the X and Y axes is marked on the housing above the rotation head. The markings are exactly above the alignment notches **(16)** at the bottom edge of the housing and on the lower handle. The laser level can be aligned along the axes by using the alignment notches.

Operating modes overview

All three operating modes are possible with the laser level in horizontal and vertical position.



Rotational operation

Rotational operation is especially recommended when using the laser receiver. It is possible to select between different rotational speeds.



Line operation

In this operating mode, the variable laser beam moves within a defined aperture angle. This increases the visibility of the laser beam in comparison to rotational operation. You can select between different aperture angles.



Point operation

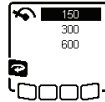
In this operating mode, the best visibility of the variable laser beam can be reached. For example, it is used to easily project heights or to check building lines.

Line and point operation are not suitable for use with the laser receiver **(42)**.

Rotational operation

Each time after switching on, the laser level is in rotational operation mode with standard rotational speed (600 min⁻¹).

To switch from line operation to rotational operation, press the rotational operation button **(6)** or the rotational operation button **(27)** on the remote control.



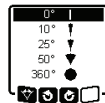
To change the rotational speed, press the rotational operation button **(6)** or the rotational operation button **(27)** on the remote control as many times as needed until the required speed is indicated on the display.

The set speed can be seen on the rotational speed indicator **(h)** on the home screen.

When working with the laser receiver, the highest rotational speed should be set. When not working with the laser receiver, reduce the rotational speed for improved visibility of the laser beam and use the laser goggles **(52)**.

Line operation/point operation

To switch to line or point operation, press the line operation button **(5)** or the line operation button **(29)** on the remote control.



To change the aperture angle, press the line operation button **(5)** or the line operation button **(29)** on the remote control until the required operating mode is indicated on the display. The aperture angle is reduced in stages each time a button is pressed until point operation is achieved.

At 360°, the laser level is again in rotational operation. The rotational speed is set to the last speed.

Note: Due to inertia, it is possible for the laser to slightly move beyond the end point of the laser line.

Functions

Turning the line/point within the rotational plane

In line and point operation, the laser line or the laser point can be positioned within the rotational plane of the laser. Rotation is possible by 360°.

To rotate counterclockwise, press the button **(4)** on the laser level or the button for counterclockwise rotation **(30)** on the remote control.

To rotate clockwise, press the button **(3)** on the laser level or the button for clockwise rotation **(37)** on the remote control.

Turning the rotational plane when in the vertical position

When the laser level is in the vertical position, it is possible to rotate the laser point, laser line or rotational plane around the Y-axis for easy sighting out or parallel alignment in a range of $\pm 8.5\%$.



To start the function, press the button for setting the slope **(14)** on the laser level or the button for setting the slope **(32)** on the remote control. The menu for setting the slope of the Y-axis will appear and the symbol for the Y-axis will flash.

To rotate the rotational plane, press the **▲** button **(4)** or the **▼** button **(3)** on the laser level or the up **(31)** or down **(36)** slope button on the remote control until the required position is reached.

Automatic downwards plumb point function in the vertical position

To align the laser level against a reference point on the ground when it is in the vertical position, the variable laser beam **(8)** can be turned downwards to be used as a plumb point. The plumb point function can be started via remote control or the Bosch Leveling Remote App.

The variable laser beam plumb point is not self-leveling. Therefore, ensure that the laser level is leveled when starting the plumb point function.



To start the downwards plumb point function, press the plumb point function button **(26)** on the remote control. The plumb point function symbol will appear on the display while the variable laser beam is aligned vertically. After it has been successfully aligned, the plumb point function indicator **(e)** will appear on the start screen.

Note: Possible rotation of the rotational plane around the Y-axis is not in the form of rotation around the plumb point.

Automatic leveling

Overview

After switching on, the laser level checks the horizontal and vertical position and automatically levels out any unevenness within the self-leveling range of approx. $\pm 8.5\%$ ($\pm 5^\circ$).



The leveling indicator flashes on the display during leveling. The status display (12) on the laser level and the status display for the respective axis ((35) or (34)) on the remote control flash a uniform green at the same time.

The rotation is stopped until leveling has been completed and the laser beams are flashing. The home screen will appear after leveling has been successfully completed. The laser beams will light up continuously and rotation will start. The status display (12) on the laser level and the status display for the leveled axis ((35) or (34)) on the remote control will light up green continuously.



If the laser level is at a slant of more than 8.5% or it is positioned differently to the horizontal or vertical position, leveling will no longer be possible. An error message will appear on the display and the status display (12) will flash red.

Reposition the laser level and wait for it to re-level.



If the maximum leveling time is exceeded, leveling will be discontinued with an error message.

Reposition the laser level and briefly press the on/off button (11) to restart leveling.

Position changes

When the laser level is leveled in, it continuously checks the horizontal and vertical position. Re-leveling is automatically performed if there are any position changes.

Minimal position changes are leveled out without interrupting the operation. This automatically compensates subsoil ground vibrations or weather influences.

For **larger position changes**, the rotation of the laser beam will be stopped in order to avoid faulty measurements during the leveling process and the laser beams will flash. The leveling indicator will appear on the display.

The shock-warning function will be actuated, if required.

The laser level will automatically detect the horizontal or vertical position. To **change between the horizontal and the vertical position**, switch the laser level off, reposition it and switch it on again.



If the position is changed without switching on/off, an error message will appear and the status display (12) will quickly flash red. Briefly press the on/off button (11) to restart leveling.

Shock-warning function

The laser level has a shock-warning function. After position changes or shock to the laser level, or in case of ground vibrations, it keeps the laser level from leveling in at changed positions, and thus prevents errors caused by a change in the laser level's position.

Activating the shock-warning function:

 The shock-warning function is switched on by default. It is activated approximately 30 seconds after the laser level has been switched on. During activation, the shock-warning indicator (c) will light up on the display. The indicator lights up continuously after activation.

Shock warning actuated:



If the position of the laser level is changed or a severe knock is registered, the shock warning will be actuated. The laser will stop rotating and an error message will appear. The status display (12) will quickly flash red and a warning signal will sound at a faster rate.

Confirm the warning message with  by pressing the slope button (14) on the laser level or the slope button (32) on the remote control. When working with automatic leveling (including slope operation), leveling is automatically restarted.

Now check the position of the laser beam at a reference point and, if necessary, correct the height or alignment of the laser level.

To adjust/switch off the shock warning function:

On the home screen, the current setting is shown with the shock-warning indicator (c):

 Shock-warning function is switched on.

 Shock-warning function is switched on at reduced sensitivity.

 Shock-warning function is switched off.

 Briefly press the on/off button (11) to adjust the shock-warning function setting. Then press the on/off button (11) in the menu which appears as often as needed until the required setting has been selected. Confirm your selection with  by pressing the slope button (14).

If the shock-warning function has been switched on, it will be activated after approximately 30 seconds.

Slope operation in the horizontal position

In the laser level's horizontal position, the X-axis and the Y-axis can be tilted independently of each other in a range of $\pm 8.5\%$.

 To tilt the X-axis, press the slope button (14) on the laser level or the slope button (32) on the remote control once. The menu for setting the slope of the X-axis will appear.

Set the required slope by using the buttons  (4) or  (3) on the laser level or using the up (31) or down (36) slope buttons on the remote control. Pressing both slope buttons on the laser level or on the remote control at the same time resets the slope back to 0.00%.

 To tilt the Y-axis, press the slope button (14) on the laser level or the slope button (32) on the remote control again. The menu for setting the slope of the Y-axis will appear.

Set the required slope in the same way as outlined for the X-axis.

 The selected slope is implemented on the laser level a few seconds after the last press of a button. Both the laser beam and the symbol for setting slope on the display will flash until the process of setting slope has been completed.

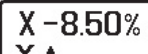
 After the process of setting the slope has been completed, the set slope values of both axes will be shown on the start screen. The status indicator (12) on the laser level will light up red continuously. On the remote con-

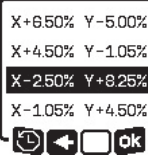
trol, the status indicator for the tilted axes ((35) and/or (34)) will light up red continuously.

Slope memory for slope operation in horizontal position

The laser level saves the four most recently used slope values of both axes. As an alternative when readjusting the slopes, you can apply these saved slope combinations.

Start the slope operation for the X-axis (see "Slope operation in the horizontal position", page 25).

 To call up the slope memory, press the line operation button (5) on the laser level or the line operation button (28) on the remote control.

 To select one of the four saved combinations, press the line operation button (5) on the laser level or the line operation button (28) on the remote control as many times as needed until the required combination is indicated on the display.

Confirm the selection by pressing the slope button (14) on the laser level  or the slope button (31) on the remote control. The slope combination is implemented on the laser level a few seconds after the button is pressed (see "Slope operation in the horizontal position", page 25).

To set a value other than one of those saved, press the  button (4) on the laser level or the slope up button (30) on the remote control. The indicator returns to the slope operation settings menu (see "Slope operation in the horizontal position", page 25).

SlopeProtect

Temperature changes in the laser level can have effects on the set slope of the axes.

To avoid measurement inaccuracies, the slope of the axes is readjusted when exceeding the set temperature difference. The laser level is leveled in, then it returns to slope operation with the previously set values.

The slope is reset at temperature changes of $\geq 5^\circ\text{C}$.

Using the **Bosch Leveling Remote App**, the temperature difference can be lowered to 2°C or the **SlopeProtect** function can be switched

off altogether. This setting is not saved when the laser level is switched off.

Manual operation

The automatic leveling of the laser level can be switched off (manual operation):

- in the horizontal position for both axes independently of each other,
- in the vertical position for the X-axis (the Y-axis cannot be leveled in the vertical position).

It is possible to set up the laser level at any inclination in the manual operation mode. The axes can also be tilted independently of each other in a range of $\pm 8.5\%$ on the laser level. In manual operating mode, the slope value of an axis will not be shown on the display.

The status indicator (12) on the laser level will light up red continuously if:

- at least one axis is set to manual operating mode in the horizontal position,
- the X-axis is set to manual operating mode in the vertical position.

The Y-axis status display (35) or the X-axis status display (34) on the remote control light up red continuously if the relevant axis is set to manual operating mode.

Manual operation cannot be started via remote control.

Manual operation in the horizontal position



To switch off automatic leveling, press the manual operation button (13) until the required settings combination for both axes is achieved. In the illustrated example, automatic leveling for the X-axis is switched off and the Y-axis continues to be leveled.



To tilt an axis **with automatic leveling switched off**, press the slope button (14) **while the menu for manual operating mode is displayed**.

If automatic leveling is only switched off for one axis, it will only be possible to change the slope of that axis. When manually operating both axes, it is possible to switch between the axes by pressing the slope button (14) again. The symbol for the axis whose slope can be changed will flash.

Tilt the selected axis using the $\blacktriangle$ (4) or $\blacktriangledown$ (3) buttons until the required position is reached.

Manual operation in the vertical position.



To switch off automatic leveling for the X-axis, press the manual operation button (13) once. (The Y-axis cannot be leveled when in the vertical position.)



To tilt the X-axis without using automatic leveling, press the slope button (14) **while manual operating mode is indicated on the display**. The symbol for the X-axis will flash on the display.

Tilt the X-axis using the $\blacktriangle$ (4) or $\blacktriangledown$ (3) buttons until the required position is reached.



To rotate the Y-axis, press the slope button (14) again **while manual operating mode menu is displayed**. The symbol for the Y-axis will flash on the display.

Rotate the Y-axis using the $\blacktriangle$ (4) or $\blacktriangledown$ (3) buttons until the required position is reached.

Functions

CenterFind mode

In **CenterFind** mode, the laser level automatically attempts to align the laser beam to the center line of the laser receiver by moving the rotation head up and down. The laser beam can be aligned to the X-axis or the Y-axis of the laser level.

CenterFind mode is started at the laser receiver. For this, please read and observe the operating instructions for the laser receiver.



During the search, the **CenterFind** symbol for one or both axes will appear on the display of the laser level and the status indicator (12) will flash red.

If the laser beam was able to be aligned to the center line of the laser receiver, the **CenterFind** mode will automatically finish and the slope found will be indicated on the start screen.



If the laser beam could not be aligned with the center line of the laser receiver, the rotation of the laser beam is stopped and an error message appears in the display. Press any button to close the error message. The corresponding axis is leveled in again to 0 %.

Check whether the laser level and laser receiver have been set up correctly, and restart the mode. The laser receiver must be situated within the pivoting range of $\pm 8.5\%$ of the laser level.

Note: When using **CenterFind** mode, the setting of both axes can change, even if one of the axes has not been aligned with the laser receiver.

CenterLock mode

In **CenterLock** mode, the laser level automatically attempts to align the laser beam to the center line of the laser receiver by moving the rotation head up and down. In contrast to the **CenterFind** mode, the position of the laser receiver is continuously checked and the inclination of the laser level is automatically adjusted. The slope measurements are not shown on the display.

► When working in **CenterLock** mode, take care to ensure that the laser level and laser receiver are not accidentally moved. The automatic adjustment of the inclination for every position change can result in measurement errors.

The laser beam can be aligned to the X-axis or the Y-axis of the laser level.

CenterLock mode is started and finished at the laser receiver. For this, please read and observe the operating instructions for the laser receiver.



During the search, the **CenterLock** symbol for one or both axes will appear on the display of the laser level and the status indicator (12) will flash red.



If the laser beam could be aligned to the center line of the laser receiver, the **CenterLock** symbol for one or both axes will appear on the start screen. The slope measurements are not shown.



If the laser beam could not be aligned with the center line of the laser receiver, the rotation of the laser beam is stopped and an error message appears in the display.

Press any button to close the error message. The corresponding axis is leveled in again to 0%.

Check whether the laser level and laser receiver have been set up correctly, and restart the mode. The laser receiver must be situated within the pivoting range of $\pm 8.5\%$ of the laser level.

Note: When using **CenterLock** mode, the setting of both axes can change, even if one of the axes has not been aligned with the laser receiver.

Mask mode (see figure C)

In rotational operation, the variable laser beam (8) can be switched off for one or more quadrants of the rotational plane. This makes it possible to limit the risk related to laser beams to certain areas. Interference from the laser beam that affects other tools or interference with the laser receiver by unintended reflections can also be avoided.

The switching off of individual quadrants can only be controlled by using the Bosch Leveling Remote App. The quadrants in which the laser beam is visible can be seen in the laser operating mode indicator (a) on the start screen.

Accuracy Check of the Laser level

The following tasks should be performed only by well-trained and qualified persons. The legalities with regard to performing an accuracy check or calibration of a laser level must be known.

Influences on Accuracy

The largest influence is exerted by the ambient temperature. In particular, temperature differences that occur from the ground upwards can refract the laser beam.

In order to minimize thermal influences resulting from heat rising from the floor, it is recommended that you use the laser level on a tripod. In addition, position the laser level in the center of the work surface, wherever this is possible.

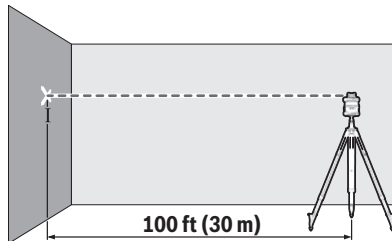
In addition to external influences, device-specific influences (e.g. falls or heavy impacts) can also lead to deviations. For this reason, check the leveling accuracy each time before beginning work.

If the laser level exceeds the maximum deviation for the measuring procedures described below, perform a calibration (see "Calibrating the laser level", page 28) or have the laser level checked by a Bosch customer service agent.

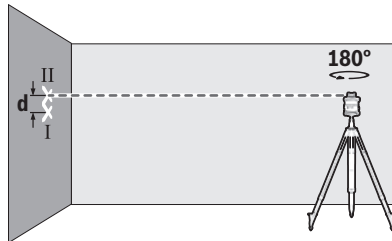
Checking the leveling accuracy in a horizontal position

For a reliable and precise result, it is recommended that you check the accuracy (perform the check) on a free measuring distance of 100 ft in front of a wall. Carry out a complete measuring procedure for each of the two axes.

- Mount the laser level in a horizontal position 100 ft from the wall on a tripod, or place it on a firm, level surface. Switch on the laser level.



- Once leveling is complete, mark the center of the laser beam on the wall (point I).



- Rotate the laser level 180° without adjusting the height. Allow it to level in and mark the center point of the laser beam on the wall (point II). Note that point II should preferably be positioned vertically above or below point I.

The discrepancy d between the two marked points I and II on the wall reveals the actual height deviation of the laser level for the axis being measured.

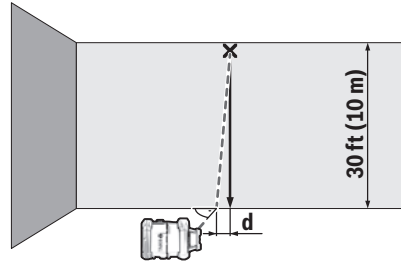
Repeat the measuring process for the other axis. To do this, turn the laser level through 90° before beginning the measurement.

The maximum permitted deviation on the 100 ft measuring distance is as follows: 100 ft (30 m) is $\pm 1/16$ in (± 1.5 mm). The discrepancy d between points I and II must therefore amount to no more than $1/8$ in (3 mm) for each of the two measuring processes.

Checking the leveling accuracy in the vertical position

For this check, you will need a free measuring distance on firm ground in front of a 30 ft (10 m) tall wall. Fix a plumb line to the wall.

- Position the laser level in the vertical position on a firm, level surface. Switch the laser level on and allow it to level in.



- Set up the laser level so that the laser beam meets the plumb line at the exact center of the upper end. The discrepancy d between the laser beam and the plumb line at the lower end of the line reveals the laser level's deviation from the vertical.

For a 30 ft tall measuring distance, the maximum permitted deviation is as follows: 30 ft (10 m) is $\pm 3/64$ in (± 1 mm). The discrepancy d must therefore be no more than $3/64$ in.

Calibrating the laser level User Calibration - uCAL

The following tasks should be performed only by well-trained and qualified persons. The legalities with regard to performing an accuracy check or calibration of a laser level must be known.

- **Perform calibration of the laser level with extreme precision or have the laser level checked by a Bosch customer service agent.** Inaccurate calibration leads to incorrect measuring results.

- **Only start the calibration if you have to perform a calibration of the laser level.** As soon as the laser level is in calibration mode, you must perform the calibration meticulously to the end in order to ensure that no incorrect measuring results are produced afterwards.

Check the leveling accuracy after every calibration (see "Accuracy Check of the Laser level", page 27). If the deviation is outside the maximum permitted limits, have the laser level checked by a Bosch customer service agent.

X-axis and Y-axis Calibration

Calibration is only possible by using the laser receiver LR40G. The laser receiver must be connected to the laser level via Bluetooth® (see “Establishing a connection to the remote control/laser receiver”, page 20).

The positions of the laser level and laser receiver cannot be changed during calibration (with the exception of the outlined alignments or rotations described). Therefore position the laser level on a firm, level surface and secure the laser receiver.

Calibration should be performed via the **Bosch Leveling Remote App** if possible. There is less likelihood of error when controlling the tool via the app. Otherwise, the laser level's position can be altered if buttons are pressed without due care.

For calibration without the app, the corresponding buttons on the laser level must be pressed. It is not possible to use the remote control during calibration.

A free measuring distance of 100 ft (30 m) on a firm surface is required. If no such measuring distance is possible, calibration can also be performed with lower measuring accuracy on a measuring distance of 50 ft (15 m).

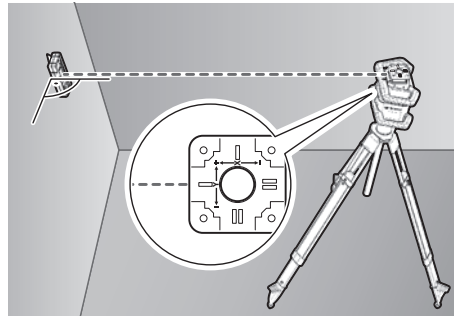
Mounting the laser level and the laser receiver for calibration

Mount the laser level in the horizontal position 100 ft (30 m) or 50 ft (15 m) from the laser receiver on the tripod (44) or position it on a firm, level surface.

Secure the laser receiver LR40G at the correct height:

- Either to a wall or to another surface by means of magnets or the suspension hooks on the laser receiver,
- or to a securely fastened measuring rod (43) with the holder for the laser receiver.

To do this, consult the operating instructions for the laser receiver.



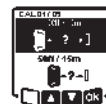
Aligning the laser level for calibration

Align the laser level so that the X-axis indicator imprinted on the laser level with the “+” side is pointing to the laser receiver. For this, the X-axis must be perpendicular to the laser receiver.

To start calibration:

- For calibration via the **Bosch Leveling Remote App**: Switch on the laser level. Start calibration in the app. Follow the instructions in the app.
- For calibration without the app: Switch on the laser level and the laser receiver. Make sure that both of these are connected via Bluetooth®. Start the calibration by pressing the on/off button on the laser receiver and the **CenterFind** mode button on the laser receiver at the same time. “CAL” will appear on the display of the laser receiver.

Press the **CenterFind** mode button on the laser receiver to cancel the calibration, if required.



In the menu that appears in the laser level display after starting the calibration, select the existing distance between the laser level and the laser receiver. To do this, press the buttons ▲ (4) or ▼ (3). Confirm your selection with by pressing the slope button (14).



To confirm the selected measuring distance (14), including the corresponding leveling accuracy, on the display which appears, press the slope button (14). To go back to selecting the measuring distance (14), press the line operation button (5).

Align the height of the laser receiver so that the variable laser beam (8) on the laser receiver is indicated as “centered” (see operating instructions for the laser receiver). Secure the laser receiver at this height.



Check whether the laser level and laser receiver are aligned with each other, as illustrated on the display (the “+” side of the X-axis is aligned to the laser receiver). Start the calibration of the X-axis with by pressing the slope button **(14)**.



If this step appears on the display, rotate the laser level 180° so that the “-” side of the X-axis is aligned to the laser receiver. For each rotation, take care not to change the height and position of the laser level. Confirm the rotation with by pressing the slope button **(14)**. Calibration of the X-axis continues.

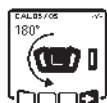


The indicator opposite will appear if both sides of the X-axis have been successfully calibrated.

Continue the calibration with by pressing the slope button **(14)**.



To calibrate the Y-axis, rotate the laser level 90° in the direction of the arrow so that the “+” side of the Y-axis is directed at the laser receiver. Confirm the rotation with by pressing the slope button **(14)**.



If this step appears on the display, rotate the laser level 180° so that the “-” side of the Y-axis is aligned to the laser receiver. Confirm the rotation with by pressing the slope button **(14)**. Calibration of the Y-axis continues.



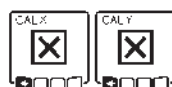
This symbol will appear on the laser level display if the Y-axis has been successfully calibrated.

Finish the calibration of the Y-axis with by pressing the slope button **(14)**.



This symbol confirms that the X-axis and the Y-axis have been successfully calibrated with the leveling accuracy selected at the beginning. End the calibration with by pressing the slope button **(14)**.

If the calibration has been completed successfully, the laser level then automatically switches itself off.

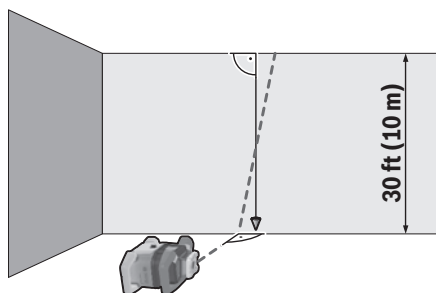


The relevant error message will appear in the laser level display if calibration of the X-axis or the Y-axis has failed. “ERR” will appear on the display of the laser receiver.

Cancel the calibration with by pressing the button for line operation **(5)**. Make sure that the laser level and the laser receiver are aligned correctly (see description above). Restart the calibration. If calibration fails again, have the laser level checked by a Bosch customer service agent.

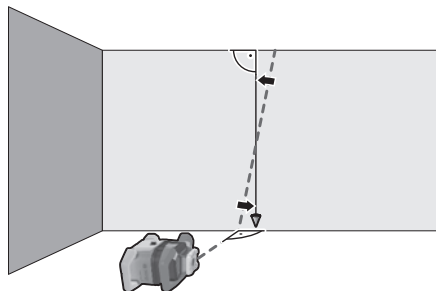
Z-axis calibration

A free measuring distance on firm ground in front of a 30 ft (10 m) wall is required for the calibration. Fix a plumb line to the wall.



Position the laser level on a firm, level surface. Switch the laser level on and allow it to level in. Align the laser level so that the laser beam is perpendicular to the wall and cuts through the plumb line. Switch the laser level off.

To start calibration mode, press and hold the slope button **(14)** and then also briefly press the on/off button **(11)**. The laser level is switched on. Allow the laser level to level in.



Align the laser beam so that it runs as parallel as possible to the plumb line. Tilt the laser beam in the ◀ direction by pressing the ▲ button **(4)**. Tilt the laser beam in the ▶ direction by pressing the ▼ button **(3)**.

If it is not possible to align the laser beam in parallel to the plumb line, align the laser level to the wall more precisely and start the calibration process again.

If the laser beam is aligned in parallel, save the calibration with  by pressing the slope button (14).



This symbol confirms that the Z-axis has been calibrated successfully. At the same time, the status indicator (12) will flash green three times. End the calibration with  by pressing the slope button (14). If the calibration has been completed successfully, the laser level then automatically switches itself off.



This error message will appear if calibration of the Z-axis has been unsuccessful. Cancel the calibration with  by pressing the button for line operation (5).

Ensure that the reference vertical line is in the pivoting range of the rotation head and restart the calibration. Make sure that the laser level is not moved during the calibration.

If the calibration is again unsuccessful, have the laser level checked by a Bosch customer service agent.

Working Advice

- **Only the center of the laser point or laser line must be used for marking.** The size of the laser point/the width of the laser line changes depending on the distance.
- **The laser level is equipped with a wireless interface. Local operating restrictions, e.g. in airplanes or hospitals, must be observed.**

Working with the Laser Target Plate

The laser target plate (53) improves visibility of the laser beam in unfavorable conditions and at greater distances.

The reflective surface of the laser target plate (53) improves visibility of the laser line. The transparent surface enables the laser line to be seen from behind the laser target plate.

Working with the Tripod (Accessory)

A tripod offers a stable, height-adjustable support surface for measuring. For horizontal operation, place the laser level with the 5/8" tripod mount (18) on the thread of the tripod (44). Tighten the laser level using the locking screw of the tripod.

For vertical operation, use the 5/8" tripod mount (20).

On a tripod featuring a measuring scale on

its extender, you can set the height deviation straight away.

Roughly align the tripod before switching on the laser level.

Laser Goggles (Accessory)

The laser goggles filter out ambient light. This makes the light of the laser appear brighter to the eye.

- **Do not use the laser goggles as protective goggles.** The laser goggles make the laser beam easier to see; they do not protect you against laser radiation.
- **Do not use the laser goggles as sunglasses or while driving.** The laser goggles do not provide full UV protection and impair your ability to see colors.

Working with a wall mount and alignment unit (see figure D)

The laser level can be secured to the wall using the wall mount with the alignment unit (45). Using the wall mount is recommended, e.g. when working above the maximum extension height of tripods, or when working on unstable surfaces without a tripod.

Fasten the wall mount (45) either to a wall using screws through the fixing holes (47) or to a strip of wall using the fastening screw. (46) Fit the wall mount as vertical as possible to the wall and ensure it is mounted in a stable way.

Screw the 5/8" wall mount screw (50) into the horizontal tripod mount (18), depending on the requirements of the task, or the vertical tripod mount (20) on the laser level.

Using the alignment unit allows the laser level to be moved in a range of approx. 13 cm with respect to height. Press the button (48) and move the alignment unit to roughly the required height. It is possible to align the laser beam precisely to a reference height using the fine adjustment screw (49).

Working with the measuring rod (accessory) (see figure E)

To check levels or apply slopes, it is recommended to use the measuring rod (43) together with the laser receiver.

A relative measuring scale is incorporated at the top of the measuring rod (43). You can preselect its zero at the bottom on the extender. This enables you to read deviations from the target height straight away.

Example applications

Projecting/checking heights (see figure F)

Position the laser level in the horizontal position on a firm support or mount it on a tripod (44) (accessory).

Working with a tripod: Set the laser beam at the required height. Project or check the height at the target location.

Working without a tripod: determine the height difference between the laser beam and the height at the reference point using the laser target plate (53). Project or check the height difference measured at the target location.

Parallel alignment of a plumb point/projecting right angles (see figure G)

When right angles are to be projected or partition walls are to be aligned, the plumb point (10) must be aligned in parallel, meaning at the same distance to a reference line (e.g. a wall).

For this, set up the laser level in the vertical position and position it in such a manner that the plumb point runs approximately parallel to the reference line.

For the exact positioning, measure the clearance between the plumb point and reference line directly on the laser level using the laser target plate (53). Measure the clearance between the plumb point and reference line again as far away as possible from the laser level. Align the plumb point in such a manner that it has the same clearance to the reference line as when measured directly at the laser level.

The right angle to the plumb point (10) is indicated by the variable laser beam (8).

Aligning a perpendicular/vertical plane (see figure G)

To align the vertical laser line or the rotational plane against a reference point on a wall, set up the laser level in the vertical position, and roughly align the laser line or the rotational plane with the reference point. For precise alignment with the reference point, turn the rotational plane around the X-axis (see "Turning the rotational plane when in the vertical position", page 23).

Working without the laser receiver

Under favorable light conditions (dark environment) and for short distances, it is possible to work without the laser receiver. For

improved visibility of the laser beam, either select line operation or point operation and rotate the laser beam to the target location.

Working with the laser receiver (see figure E)

In unfavorable lighting conditions (bright environment, direct sunlight) and for larger distances, use the laser receiver to improve detection of the laser beam (42). When working with the laser receiver, select rotational operation with the highest rotational speed.

Working outdoors (see figure E)

The laser receiver (42) should always be used when working outdoors.

When working on unstable ground, mount the laser level on the tripod (44). Always work with the shock-warning function activated in order to avoid faulty measurements in case of ground movements or shocks to the laser level.

Setting up formwork (see figure I)

Mount the laser level in the horizontal position on a tripod (44) and set up the tripod outside the formwork area. Select rotational operation.

Secure the laser receiver (42) to a measuring rod (43) with the holder. Position the measuring rod on a reference point for the formwork.

Align the height of the laser receiver on the measuring rod so that the variable laser beam (8) of the laser level is indicated as "centered" (see operating instructions for the laser receiver).

Then position the measuring rod with the laser receiver, one after the other, at different test locations on the formwork. Make sure that the laser receiver remains in the same position on the measuring rod.

Correct the height of the formwork until the laser beam is indicated as "centered" at all test locations.

Checking slopes (see figure J)

Mount the laser level in the horizontal position on a tripod (44). Select rotational operation.

Set up the tripod with the laser level so that the X-axis is aligned with the slope that is to be checked.

Set the target slope as the slope for the X-axis (see "Slope operation in the horizontal position", page 25).

Secure the laser receiver (42) to a measuring rod (43) with the holder. Place the measuring rod at the base of the slope surface.

Align the height of the laser receiver on the measuring rod so that the variable laser beam (8) of the laser level is indicated as “centered” (see operating instructions for the laser receiver).

Then position the measuring rod with the laser receiver, one after the other, at different test locations on the slope surface. Make sure that the laser receiver remains in the same position on the measuring rod.

If the slope of the plane is correct, the laser beam will be indicated as “centered” at all test locations.

Overview of status indicators

Laser level		Function
		
Green	Red	
○		Horizontal position: X- or Y-axis leveling in process. Vertical position: X-axis leveling in process.
○		Sleep mode activated.
●		Horizontal position: Both axes are leveled. Vertical position: X-axis is leveled.
	○	Automatic shut-down due to error message (e.g. empty rechargeable/non-rechargeable battery, operating temperature exceeded).
	○	CenterFind mode or CenterLock mode started (see operating instructions for the laser receiver).
	○	Position of the laser level changed without switching on/off.
	○	Self-leveling not possible, end of the self-leveling range.
	○	Shock-warning function actuated.
	○	Calibration of the laser level has been started.
	●	Horizontal position: At least one axis is tilted or is in manual operating mode. Vertical position: X-axis is tilted or in manual operating mode.

- lighting up continuously
- flashing

Remote control		Remote control		Function
				
Green	Red	Green	Red	
○				X-axis leveling in process (horizontal and vertical positions).
		○		Y-axis leveling in process (horizontal position).
○		○		Remote control is connected via <i>Bluetooth</i> ®. (Both of the status indicators flash alternately.)
●				Remote control successfully connected via <i>Bluetooth</i> ®.
		●		X-axis is leveled in (horizontal and vertical positions).
		●		Y-axis is leveled in (horizontal position).
●(3 s)		●(3 s)		Remote control successfully connected via <i>Bluetooth</i> .
	●			X-axis is tilted or in manual operating mode (horizontal and vertical positions).
			●	Y-axis is tilted or in manual operating mode (horizontal position).
	●(3 s)		●(3 s)	Unsuccessful connection to the laser level via <i>Bluetooth</i> ®.

- lighting up continuously
- flashing

Overview of control options for the functions

Function	GRL4000-90CHVG	RC5	LR40G	Bosch Leveling Remote App
Switching on/off	●	—	—	—
Establish connection via Bluetooth® A)	●	●	●	●
Sleep mode	●	●	—	●
Switch on the keyboard lock	—	—	—	●
Switch off the keyboard lock	●	—	—	●
Rotation, line and point operation	●	●	—	●
Turning the line/point within the rotational plane	●	●	—	●
Turning the rotational plane when in the vertical position	●	●	—	●
Automatic downwards plumb point function in the vertical position	—	●	—	●
CenterFind and CenterLock mode	—	—	●	—
Mask mode	—	—	—	●
Switching on/off and adjusting the sensitivity of the shock-warning function	●	—	—	●
Slope operation	●	●	—	●
Changing SlopeProtect	—	—	—	●
Manual operation	●	—	—	●
X-axis and Y-axis calibration (horizontal position) B)	●	—	●	●
Z-axis calibration (vertical position)	●	—	—	●

A) The function must be started on both the laser level and the remote control, laser receiver or smart phone at the same time.

B) The function must be started on both the laser level and the smartphone at the same time or on the laser receiver.

Rectifying errors

Rotary laser display indicator	Laser receiver display indicator	Problem	Corrective measure
	-	Automatic shut-down (operating temperature exceeded)	Adjust the laser level to the ambient temperature before switching it on. Then check the measuring accuracy and calibrate the laser level if required.
	-	Automatic shut-down (empty batteries or rechargeable battery)	Change the rechargeable or non-rechargeable batteries as necessary.
	 -/PNK	Unsuccessful attempt to connect to the remote control (41) or the laser receiver Z	Briefly press the on/off button (11). Start the connection process again (see "Establishing a connection to the remote control/laser receiver", page 20). If it is not possible to establish a connection, please contact a Bosch customer service agent.
	-	Unsuccessful attempt to connect to the mobile device	Briefly press the on/off button (11). Start the connection process again (see "Remote control via the Bosch Leveling Remote App", page 21). If it is not possible to establish a connection, please contact a Bosch customer service agent.
		-	Laser level is at a slant of more than 8.5% or is not in the correct horizontal or vertical position.
		-	Maximum leveling time is exceeded.
	-	Change between the horizontal and vertical position without switching the laser level on/off	Reposition the laser level, so that it is either in the horizontal or vertical position. The re-leveling will start automatically.
	ERR	Unsuccessful calibration of the X-axis	Reposition the laser level, so that it is in either the horizontal or vertical position. Briefly press the on/off button (11) to restart leveling.
	ERR	Unsuccessful calibration of the Y-axis	Briefly press the on/off button (11) to restart leveling.
	-	Unsuccessful calibration of the Z-axis	Cancel the calibration with  by pressing the button for line operation (5). Ensure that the receiving field of the laser receiver is perpendicular to the X-axis of the laser level. Restart the calibration.
	ERR	Unsuccessful CenterFind mode in relation to the X-axis	Cancel the calibration with  by pressing the button for line operation (5). Ensure that the receiving field of the laser receiver is perpendicular to the Y-axis of the laser level. Restart the calibration.
	ERR	Unsuccessful CenterFind mode in relation to the Y-axis	Cancel the calibration with  by pressing the button for line operation (5). Check that the laser level is aligned correctly and restart calibration.
	ERR	Unsuccessful CenterLock mode in relation to the X-axis	Press any button to close the error message. Check whether the laser level has been set up correctly. The laser receiver must be situated within the pivoting range of $\pm 8.5\%$ of the laser level. Restart the mode.
	ERR	Unsuccessful CenterLock mode in relation to the Y-axis	Press any button to close the error message. Check whether the laser level has been set up correctly. The laser receiver must be situated within the pivoting range of $\pm 8.5\%$ of the laser level. Restart the mode.

Maintenance and Service

⚠ WARNING

Store and transport the tool only in the supplied protective case.

Check the tool each time before using.

Keep the tool clean and dry at all times to ensure proper and safe operation.

Do not immerse the tool into water or other fluids.

Wipe off debris using a moist and soft cloth. Do not use any cleaning agents or solvents.

Regularly clean the surfaces at the exit opening of the laser.

In case of visible damage or loose components in the interior of the tool, the safe function is no longer ensured.

If the tool should fail despite the care taken in manufacturing and testing

procedures, repair should be carried out by an authorized after-sales service center for Bosch power tools.

In all correspondence and spare parts orders, please always include the 10-digit article number given on the type plate of the tool.

In case of repairs, send in the tool packed in its protective case.

ENVIRONMENT PROTECTION



Recycle raw materials & batteries instead of disposing of waste. The unit, accessories, packaging & used batteries should be sorted for environmentally friendly recycling in accordance with the latest regulations.

LIMITED WARRANTY OF BOSCH LASER AND Laser level PRODUCTS

Robert Bosch Tool Corporation ("Seller") warrants to the original purchaser only, that all Bosch lasers and laser levels will be free from defects in material or workmanship for a period of one (1) year from date of purchase. Bosch will extend warranty coverage to two (2) years when you register your product within eight (8) weeks after date of purchase. Product registration card must be complete and mailed to Bosch (postmarked within eight weeks after date of purchase), or you may register on-line at [www](http://www.bosch.com)

30 Day Money Back Refund or Replacement -

If you are not completely satisfied with the performance of your laser and laser levels, for any reason, you can return it to your Bosch dealer within 30 days of the date of purchase for a full refund or replacement. To obtain this 30-Day Refund or Replacement, your return must be accompanied by the original receipt for purchase of the laser or optical instrument product. A maximum of 2 returns per customer will be permitted.

SELLER'S SOLE OBLIGATION AND YOUR EXCLUSIVE REMEDY under this Limited Warranty and, to the extent permitted by law, any warranty or condition implied by law, shall be the repair or replacement of parts, without charge, which are defective in material or workmanship and which have not been misused, carelessly handled, or misrepaired by persons other than Seller or Authorized Service Center. To make a claim under this Limited Warranty, you must return the complete Bosch laser or laser level, transportation prepaid, to any BOSCH Factory Service Center or Authorized Service Center. Please include a dated proof of purchase with your tool. For locations of nearby service centers, please use our on-line service

THIS WARRANTY PROGRAM DOES NOT APPLY TO TRIPODS AND RODS. Robert Bosch Tool Corporation ("Seller") warrants tripods and leveling rods for a period of one (1) year from date of purchase.

THIS LIMITED WARRANTY DOES NOT APPLY TO OTHER ACCESSORY ITEMS AND RELATED ITEMS. THESE ITEMS RECEIVE A 90 DAY LIMITED WARRANTY.

ANY IMPLIED WARRANTIES SHALL BE LIMITED IN DURATION TO ONE YEAR FROM DATE OF PURCHASE. SOME STATES IN THE U.S., AND SOME CANADIAN PROVINCES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

IN NO EVENT SHALL SELLER BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING BUT NOT LIMITED TO LIABILITY FOR LOSS OF PROFITS) ARISING FROM THE SALE OR USE OF THIS PRODUCT. SOME STATES IN THE U.S., AND SOME CANADIAN PROVINCES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

THIS LIMITED WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE IN THE U.S., OR PROVINCE TO PROVINCE IN CANADA AND FROM COUNTRY TO COUNTRY.

THIS LIMITED WARRANTY APPLIES ONLY TO PRODUCTS SOLD WITHIN THE UNITED STATES OF AMERICA, CANADA AND THE COMMONWEALTH OF PUERTO RICO. FOR WARRANTY COVERAGE WITHIN OTHER COUNTRIES, CONTACT YOUR LOCAL BOSCH DEALER OR IMPORTER.