Robert Bosch Power Tools GmbH
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PRO

GRL18V-4-34CVG



Safety Instructions



All instructions must be read and observed in order to enable work to be carried out safely. The integrated safeguards may be compromised if these instructions are not observed.

Never make warning signs unrecognisable. STORE THESE INSTRUCTIONS IN A SAFE PLACE AND INCLUDE THEM WITH THE PRODUCT WHEN GIVING IT TO A THIRD PARTY.

- **Warning! If operating or adjustment devices other than those specified here are used or other procedures are carried out, this can lead to dangerous exposure to radiation.**
- **The measuring tool is delivered with a laser warning sign (marked in the illustration of the measuring tool on the graphics page).**
- **If the text of the laser warning label is not in your national language, stick the provided warning label in your national language over it before operating for the first time.**



Do not direct the laser beam at persons or animals and do not stare into the direct or reflected laser beam yourself. You could blind somebody, cause accidents or damage your eyes.

- **If laser radiation hits your eye, you must close your eyes and immediately turn your head away from the beam.**
- **Do not make any modifications to the laser equipment.** The setting options described in these operating instructions can be used safely.
- **Do not use the laser goggles (accessory) 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 (accessory) as sunglasses or while driving.** The laser goggles do not provide full UV protection and impair your ability to see colours.
- **Have the measuring tool repaired only by a qualified specialist using only original replacement parts.** This will ensure that the safety of the measuring tool is maintained.
- **Do not let children use the laser measuring tool unsupervised.** They could unintentionally blind themselves or other persons.
- **Do not use the measuring tool in explosive atmospheres which contain flammable liquids, gases or dust.** Sparks may be produced inside the measuring tool, which can ignite dust or fumes.
- **Protect the measuring tool from moisture and direct sunlight as well as from extreme temperatures or fluctuations in temperature.** For example, do not leave it in a car for extended periods of time. In case of large variations in temperature, allow the measuring tool to adjust to the ambient temperature before putting it into operation. Before continuing work with the measuring tool, always perform an accuracy check (see "Accuracy Check and Calibration of the Measuring Tool", page 10).
- **Never leave the measuring tool unattended when switched on, and ensure the measuring tool is switched off after use.** Others may be blinded by the laser beam.
- **Avoid substantial knocks to the measuring tool and avoid dropping it.** Always carry out an accuracy check before continuing work if the measuring tool has been subjected to severe external influences (see "Accuracy Check and Calibration of the Measuring Tool", page 10).
- **Do not use any optical instruments such as binoculars or magnifying glasses to view the radiation source.** Doing so can damage your eyes.
- **Do not modify or open the rechargeable battery or the battery.** There is a risk of short-circuiting.
- **In case of damage and improper use of the battery, vapours may be emitted. The battery can set alight or explode.** Ensure the area is well ventilated and seek medical attention should you experience any adverse effects. The vapours may irritate the respiratory system.
- **If used incorrectly or if the battery is damaged, flammable liquid may be ejected from the battery. Contact with this liquid should be avoided. If contact accidentally occurs, rinse off with water. If the liquid comes into contact with your eyes, seek additional medical attention.** Liquid ejected from the battery may cause irritation or burns.
- **The battery can be damaged by pointed objects such as nails or screwdrivers or by force applied externally.** An internal short circuit may occur, causing the battery to burn, smoke, explode or overheat.
- **When the battery is not in use, keep it away from paper clips, coins, keys, nails, screws or other small metal objects that could make a connection from one terminal to another.** A short circuit between the battery terminals may cause burns or a fire.
- **Only use the Bosch rechargeable battery with products from the manufacturer.** This is the only way in which you can protect the battery against dangerous overload.
- **Only charge the batteries using chargers recommended by the manufacturer.** A charger that is suitable for one type of battery may pose a fire risk when used with a different battery.



Protect the rechargeable batteries against heat, e.g. against continuous sunlight, fire, dirt, water, and moisture. There is a risk of explosion and short circuit.





Keep the measuring tool and the magnetic accessories away from implants and other medical devices, e.g. pacemakers or insulin pumps. The magnets inside the measuring tool and accessories generate a field that can impair the function of implants and medical devices.

- ▸ **Keep the measuring tool and the magnetic accessories away from magnetic data storage media and magnetically sensitive devices.** The effect of the magnets inside the measuring tool and accessories can lead to irreversible data loss.
- ▸ **The measuring tool is equipped with a wireless interface. Local operating restrictions, e.g. in aeroplanes or hospitals, must be observed.**

The *Bluetooth*® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by Robert Bosch Power Tools GmbH is under license.

- ▸ **Caution! When using the measuring tool with *Bluetooth*®, a fault may occur in other devices and systems, aeroplanes and medical devices (e.g. pacemakers, hearing aids). Also, damage to people and animals in the immediate vicinity cannot be completely excluded. Do not use the measuring tool with *Bluetooth*® in the vicinity of medical devices, petrol stations, chemical plants, areas with a potentially explosive atmosphere and in blasting areas. Do not use the measuring tool with *Bluetooth*® on aeroplanes. Avoid using the product near your body for extended periods.**

Product Description and Specifications

Intended Use

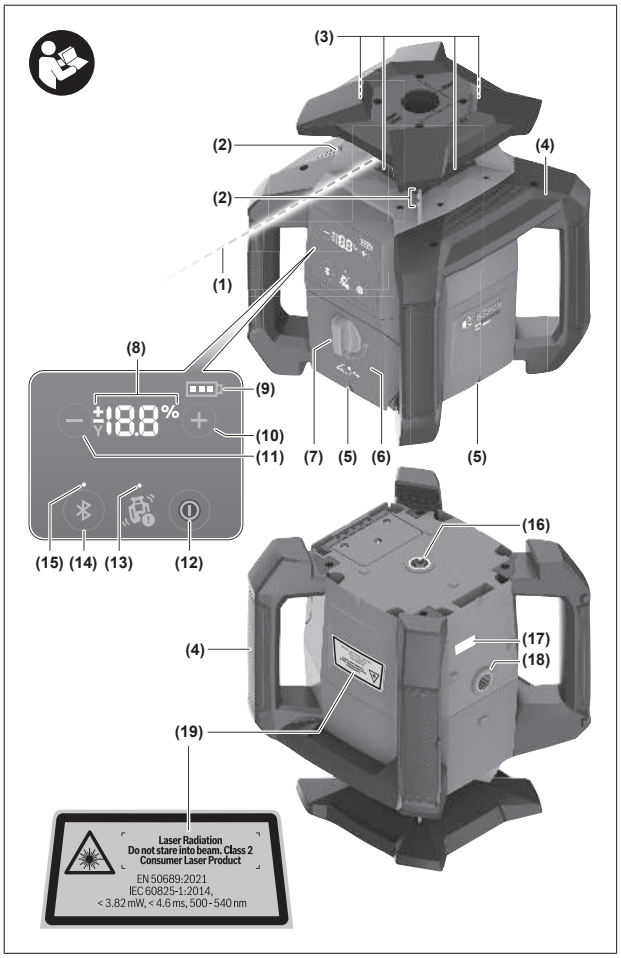
The measuring tool is intended for establishing and checking exactly horizontal height profiles, vertical lines and alignments.

The measuring tool is suitable for indoor and outdoor use.

This product is a consumer laser product in accordance with EN 50689.

Product features

The numbering of the product features refers to the representation of the measuring tool in the images.



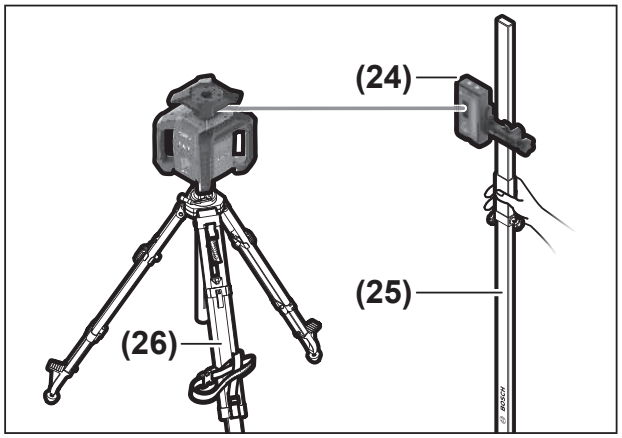
(1) Variable laser beam
(2) Notch for orientation (vertical operation)
(3) Laser beam outlet aperture
(4) Carrying handle
(5) Notch for orientation (horizontal operation)
(6) Battery compartment cover
(7) Battery compartment cover locking mechanism
(8) Y-axis slope angle indicator
(9) State of charge of rechargeable batteries/non-rechargeable batteries
(10) + Slope button up
(11) − Slope button down
(12) On/off button
(13) Shock-warning function indicator
(14) *Bluetooth*® button
(15) *Bluetooth*® connection indicator
(16) Tripod mount 5/8" (horizontal)
(17) Serial number
(18) Tripod mount 5/8" (vertical)
(19) Laser warning label
(20) Battery adapter cover locking mechanism[A)]
(21) Battery adapter[A)]

(22) Rechargeable battery/battery adapter release button[A)]

(23) Rechargeable battery[A)]

A) **This accessory is not part of the standard scope of delivery.**

Accessories



(24) Laser receiver[A)]

(25) Measuring rod[A)]

(26) Tripod[A)]

(27) Fixing holes for wall mount[A)]

(28) Fixing clamp for wall bracket[A)]

(29) Push button for rough adjustment of the wall mount[A)]

(30) Wall mount fine adjustment screw[A)]

(31) 5/8" screw for wall mount[A)]

(32) Locking screw for alignment unit[A)]

(33) Wall mount/alignment unit[A)]

(34) Fixing holes for wall mounting bracket[A)]

(35) Wall mounting bracket[A)]

(36) 5/8" screw for batter board mount[A)]

(37) Fastening screw for batter board mount[A)]

(38) Batter board mount[A)]

(39) Magnet[A)]

(40) Laser viewing glasses[A)]

A) **This accessory is not part of the standard scope of delivery.**

Technical data

Rotary laser	GRL18V-4-34CVG
Article number	**3 601 K61 H..**
Max. altitude	5000 m
Relative air humidity max.	90 %
Pollution degree according to IEC 61010-1	2[A)]
Laser class	2
Laser type	< 3.82 mW, 500–540 nm
Divergence	< 1.5 mrad (full angle)
Measuring tool power supply	
– Rechargeable battery (Li-ion)	18 V
– Non-rechargeable batteries (alkaline manganese) (with battery adapter)	4× 1.5 V LR14 (C)
Max. working range with laser receiver (diameter)[B)]	400 m
Levelling accuracy at 30 m distance[C)D)]	
– horizontal	±1.5 mm
– vertical	±3 mm
Self-levelling range	±15 % (±8.5°)
Rotation speed[E)]	150/600 min^{-1}
Output power	
– Rotating laser beam	< 3.82 mW
– Stationary laser beam	< 1 mW
Pulse duration (rotating laser beam)	< 4.6 ms
Repetition rate (rotating laser beam)	≥ 150 min^{-1}
Single-axis slope operation	±15 % (±8.5°)
Recommended laser receiver	LR 45
Tripod mount (horizontal/vertical)	5/8"
Weight[F)]	3.1 kg
Dimensions (length × width × height)	226 × 213 × 276 mm
Protection rating	IP66
Tipping test height[G)]	1.5 m
A-weighted sound pressure level	< 70 dB(A)
Bluetooth® measuring tool	
– Operating frequency range	2402–2480 MHz
– Max. transmission power	3.3 mW
– Compatibility[H)]	*Bluetooth*® 5.2 (Low Energy)
– Max. signal range[I)]	40 m
Bluetooth® smartphone	
– Compatibility[H)]	*Bluetooth*® 5.2 (Low Energy)
Recommended ambient temperature during charging	0 °C to +35 °C
Permitted ambient temperature	
– During operation	–10 °C to +50 °C
– During storage	–20 °C to +50 °C
Compatible rechargeable batteries	GBA18V... (< 4 Ah) GBA 18V... (< 4 Ah) ProCORE18V... (≤ 4 Ah) EXPERT18V... (≤ 4 Ah) EXBA18V... (≤ 4 Ah) CORE18V... (≤ 4 Ah)

Rotary laser	GRL18V-4-34CVG
Recommended battery chargers	GAL18... GAL 18... GAL 36... GAL12V/18... GAL 12V/18... GAX 18... EXAL18...

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

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

C) At **20** °C

D) Along the axes

E) The rotation speed can only be changed via the **Bosch Levelling Remote App**.

F) Weight without rechargeable battery/battery adapter/batteries (you can find the battery weight at **www.bosch-professional.com**.)

G) The measuring tool, mounted in a horizontal position on a tripod, tips on flat concrete floor.

H) 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.

I) 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.).

The serial number **(17)** on the type plate is used to clearly identify your measuring tool.

Rechargeable Battery/Battery

The measuring tool 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 Rechargeable Battery

▸ **Use only the chargers listed in the technical data.** Only these chargers are matched to the lithium-ion battery of your measuring tool.

ⓘ Lithium-ion rechargeable batteries are supplied partially charged according to international transport regulations. To ensure full rechargeable battery capacity, fully charge the rechargeable battery before using your tool for the first time.

Battery Charge Indicator on the Rechargeable Battery

If the rechargeable battery is removed from the measuring tool, 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 On 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.

ⓘ Not all battery types have a battery charge indicator.

Rechargeable battery type GBA 18V... | GBA18V...

LED	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 %

Battery model ProCORE18V... | EXPERT18V... | EXBA18V... | CORE18V...

LED	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 defect risk detection

EXPERT18V... | EXBA18V...

In addition to the state of charge of the rechargeable battery, the LEDs on the battery charge indicator can also indicate the risk of a battery defect.

To activate the function, press and hold the button for the battery charge indicator for 3 seconds. The analysis of the battery is signalled by a moving light on the battery charge indicator. The result of is shown on the battery charge indicator.

1 LED: The rechargeable battery has a high defect risk. Performance and runtime may already be reduced. Replacing the rechargeable battery is recommended.

5 LEDs: The rechargeable battery is in good condition and has a low defect risk.

Please note: The rechargeable battery defect risk assessment works in a binary manner and offers a simplified status assessment, indicating either that the rechargeable battery is in good condition or that the rechargeable battery has an increased defect risk. A percentage of the battery status is not shown.

Recommendations for Optimal Handling of the Battery

Protect the battery against moisture and water.

Only store the battery within a temperature range of −20 to 50 °C. Do not leave the battery in your car in the summer, for example.

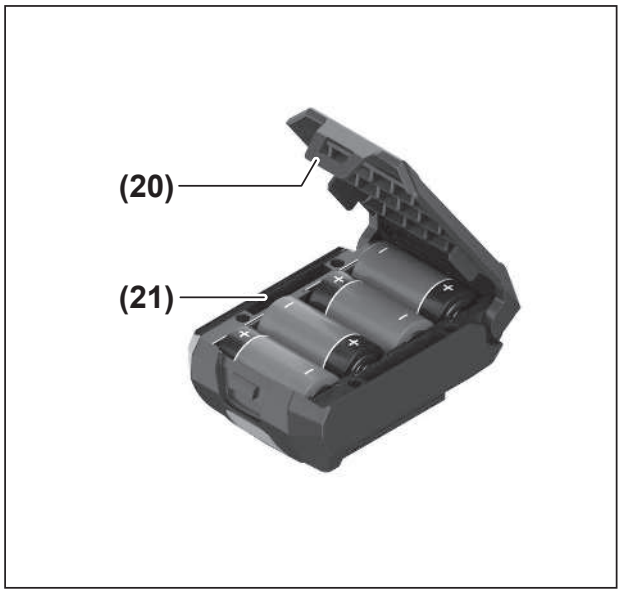
Occasionally clean the ventilation slots on the battery using a soft brush that is clean and dry.

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 non-rechargeable batteries to operate the measuring tool.



» Press the locking mechanism **(20)** of the battery adapter cover and fold out the cover.

» Put the batteries into the battery adapter **(21)**.

ⓘ Make sure that the polarity is correct and corresponds to the diagram on the battery adapter.

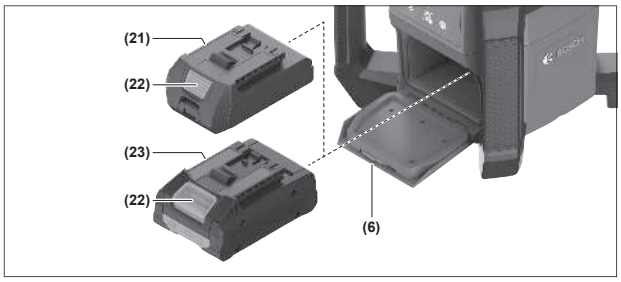
ⓘ Always replace all the non-rechargeable batteries at the same time. Only use non-rechargeable batteries from the same manufacturer and which have the same capacity.

» Close the cover of the battery adapter **(21)** so that it clicks into place.

▸ **Take the batteries out of the measuring tool when you are not using it for a prolonged period of time.** The batteries can corrode during prolonged storage in the measuring tool.

ⓘ The battery adapter is intended exclusively for use in Bosch measuring tools designed for this purpose.

Replacing the Rechargeable Battery/ Batteries



» Turn the locking mechanism **(7)** of the battery compartment cover into position 🔓 and open the battery compartment cover **(6)**.

» Press the release button **(22)** and pull the battery **(23)** or battery adapter **(21)** out of the battery compartment. **Do not use force to do this.**

» Insert either a charged rechargeable battery **(23)** or the battery adapter **(21)** with fitted batteries into the battery compartment until you feel it click into place.

» Close the battery compartment cover **(6)** and turn the locking mechanism **(7)** into position 🔒.

Battery Charge Indicator on the Measuring Tool

The battery charge indicator **(9)** shows the state of charge of the battery/batteries:

Display	Capacity
	60–100 %
	30–60 %
	5–30 %
	0–5 %

Starting Operation of the rotary laser

▸ **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.

▸ **Only the centre of the laser line must be used for marking.** The width of the laser line changes depending on the distance.

Setting up the measuring tool



Horizontal position

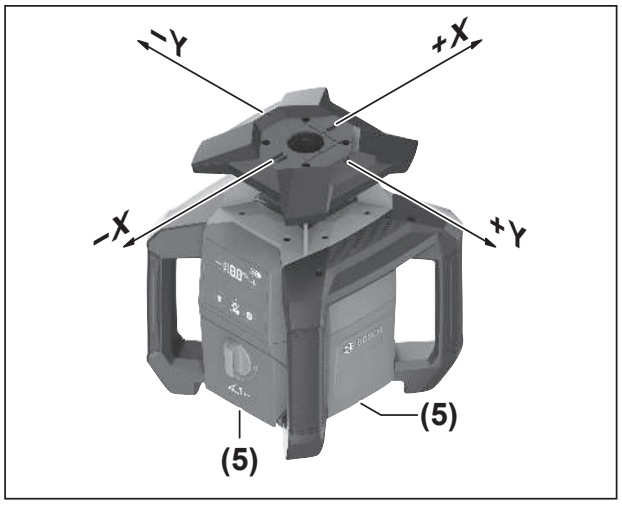


Vertical position

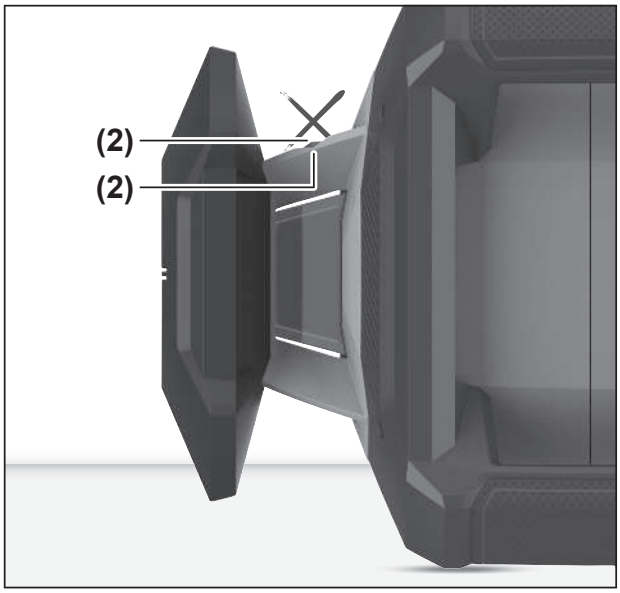
» Place the measuring tool on a stable surface in a horizontal or vertical position, mount it on the tripod or on a fastening accessory.

ⓘ Ensure that the measuring tool is stable to avoid interruptions in operation caused by re-levelling. Due to its high levelling accuracy, the measuring tool is very sensitive to knocks and vibrations and changes in position.

The alignment of the X and Y axes is marked on the housing above the rotation head. The measuring tool can be positioned according to the axes by using the alignment notches on the housing.



For horizontal operation, you can also align the measuring tool with the lower edge of the housing using the notches **(5)**.



For vertical operation, you can align the measuring tool using the side notches **(2)**.

▸ **Switch the measuring tool off when aligning it using the markings above the rotation head or the side notches.** Looking into the laser beam can damage your eyes.

Switching On and Off

ⓘ Carry out an accuracy check before starting operation and before beginning work (see "Accuracy Check and Calibration of the Measuring Tool", page 10).

Switching on

» Press the ⏻ button to switch on the measuring tool.
→ The measuring tool emits the variable laser beam **(1)** from the outlet apertures **(3)**.

Levelling starts automatically. During levelling, the laser is switched off and the slope angle indicator **(8)** flashes green (see "Automatic Levelling", page 9).

Once levelling is successful, the laser beam is switched on and rotation begins. The slope angle indicator **(8)** lights up green continuously.

The measuring tool works in rotational operation at the highest rotation speed.

All other operating modes can only be controlled via the **Bosch Levelling Remote App** (see "Remote control via **Bosch Levelling Remote App**", page 8).

Switching off

» Press and hold the ⏻ button.
» Release the ⏻ button as soon as the slope angle indicator **(8)** goes off (after approx. 1.5 s).
→ The measuring tool will then switch itself off.

The measuring tool is protected against electrostatic discharge (ESD). If the measuring tool becomes electrostatic-

ally charged (e.g. when it is touched in an environment with low humidity), it switches off automatically.

» Switch the measuring tool off and on again as described above using the button.

A hardware error may cause the measuring tool to switch off automatically. Before switching off, **<Er>** and **<03>** flash alternately for 3 seconds in the slope angle indicator **(8)**.

» Have the measuring tool checked by a **Bosch** customer service agent.

The measuring tool will switch off automatically in the following circumstances in order to protect the rechargeable battery/batteries:

– The measuring tool is outside of the self-levelling range for more than 10 min.

» Reposition the measuring tool and switch on again.

– The maximum permitted operating temperature has been exceeded (all displays flash 3 times before the tool switches off).

» Before switching back on, allow the measuring tool to cool down.

Sleep mode

You can set the measuring tool to sleep mode using the **Bosch Levelling Remote App**. The shock-warning function will remain activated and all settings will be saved.

When the sleep mode is activated, the slope angle indicator **(8)**, the shock-warning function indicator **(13)** and the state of charge indicator **(9)** flash once every 5 s.

The *Bluetooth*® connection indicator **(15)** lights up blue continuously whenever the connected smartphone is within range. If the connection is broken, the *Bluetooth*® connection indicator **(15)** will flash. In this instance, you can also exit the sleep mode by briefly pressing the button on the measuring tool.

ⓘ If the position of the measuring tool is changed while it is in sleep mode, the shock warning is triggered after sleep mode is ended.

Remote control via Bosch Levelling Remote App

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

The **Bosch Levelling Remote 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). Scan the adjacent QR code.

ⓘ When controlling remotely via *Bluetooth*®, poor reception conditions can cause time delays between the smartphone and the measuring tool.

You can use the **Bosch Levelling Remote App** to control the following functions on the measuring tool:

– Changing the rotation speed
– Switching line operation/point operation on and off and setting the laser line/laser point
– Switching slope operation on and off and changing the slope
– Switching on and off the shock-warning function
– Switching sleep mode on and off

Calibration of the measuring tool is also made easier if it is performed using the app.

The *Bluetooth*® function can be switched on or off using the button. This setting is saved when the measuring tool is switched off.

Establishing/ending a connection to a mobile device:

» Briefly press the button to switch on the *Bluetooth*® function.
→ The *Bluetooth*® connection indicator **(15)** will slowly flash to provide confirmation.

If the measuring tool has already been connected to a mobile device and this mobile device is within range (with the *Bluetooth*® interface activated), the connection to this mobile device is automatically re-established. The connection is successfully established as soon as the *Bluetooth*® connection indicator **(15)** lights up continuously.

The *Bluetooth*® connection may be interrupted if the distance between the measuring tool and the mobile device is too great or is blocked, and if there are any sources of electromagnetic interference. Should this occur, the *Bluetooth*® connection indicator **(15)** will flash.

To establish a new connection:

(first-time connection or connection to another mobile device)

✓ Ensure that the *Bluetooth*® interface is activated on the mobile device and that *Bluetooth*® is activated on the measuring tool.

» Load the **Bosch Levelling Remote App** app.

» If multiple active measuring tools are found, select the appropriate measuring tool.

» Press and hold the button on the measuring tool until the *Bluetooth*® connection indicator **(15)** begins rapidly flashing.

» Confirm the connection on your mobile device.
→ If the *Bluetooth*® connection indicator **(15)** lights up continuously, the connection is successfully established.

If no connection could be established within 30 s, the process will be cancelled and the *Bluetooth*® connection indicator **(15)** will flash slowly.

Switching off the *Bluetooth*® function:

» Briefly press the button.
→ The *Bluetooth*® connection indicator **(15)** goes out.

To reset the *Bluetooth*® function to the factory setting:

When you reset the device to factory settings, all of the connection data in the measuring tool will be deleted.

» If the measuring tool has already been connected to a mobile device and this mobile device is within range, either switch off the *Bluetooth*® function or delete the connection to the measuring tool on the end device.

» Switch on the measuring tool.

» Briefly press the button on the measuring tool.
→ The *Bluetooth*® connection indicator **(15)** will slowly flash to provide confirmation.

» Next, press the button and the — button simultaneously for 5 s, until the *Bluetooth*® connection indicator **(15)** lights up briefly and goes out again.

Software update for *Bluetooth*® function:

If there is a software update available for the *Bluetooth*® function, a notification appears in the **Bosch Levelling Remote App**. To install the update, follow the instructions in the app.

During the update, the *Bluetooth*® connection indicator **(15)** will flash at regular intervals. Until the update has been successfully installed, all buttons will be deactivated and the laser beam will be switched off.

Automatic Levelling

Overview

After switching on, the measuring tool checks the horizontal and vertical position and automatically levels out any unevenness within the self-levelling range of approx. ±**15** % (±**8.5**°).

During levelling, the laser is switched off and the slope angle indicator **(8)** flashes green.

Once levelling is successful, the laser beam is switched on and rotation begins. In the slope angle indicator **(8)**, **<0.0%>** lights up green when the measuring tool is in a horizontal position and **<-->** lights up green when the measuring tool is in a vertical position.

If the measuring tool is at a slant of more than **15** % or is positioned differently from the horizontal or vertical position, levelling will not be possible. The halves of **<100>** flash alternately red in the slope angle indicator **(8)**.

» Reposition the measuring tool and wait for it to re-level.

ⓘ If the measuring tool does not level itself automatically after repositioning, briefly press the button to restart the levelling process.

When the measuring tool is levelled in, it continuously checks the horizontal and vertical position. Re-levelling is automatically performed if there are any position changes. To avoid faulty measurements, the laser is switched off during the levelling process. The slope angle indicator **(8)** flashes green.

Shock-warning function



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

To activate shock warning:

The shock-warning function is switched on by default. It is activated approximately 15 s after the last press of a button. During activation, the shock-warning function indicator **(13)** flashes green. The indicator lights up continuously green after activation.

Shock warning actuated:

If the position of the measuring tool is changed or a strong shock is registered, the shock warning is triggered. The rotation of the laser is stopped, the laser beam is switched off, the slope angle indicator **(8)** and the shock-warning function indicator **(13)** flash red.

» Briefly press the button.
→ The shock-warning function is reset and the measuring tool starts the levelling. It returns to the levelling settings that it had before the shock-warning function was triggered.

As soon as the measuring tool has levelled in, it starts automatically in rotational operation.

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

Switching the shock-warning function on and off:

» Press and hold the button until the shock-warning function indicator **(13)** changes colour (after approx. 3 s):
Flashing from green to red when the shock-warning function is **switched off**,
flashing from red to green when the shock-warning function is **switched on**.

ⓘ When the shock warning is triggered, first press the button briefly to reset the shock-warning function before you can switch off the shock-warning function.

The shock-warning function is activated 15 s after switching on (the shock-warning function indicator **(13)** lights up continuously green).

Slope operation in the horizontal position

When the measuring tool is in a horizontal position, the Y-axis can be tilted in a range of ±**15** %.

» Press the — button to tilt the laser plane in a **Y–** direction.

» Press the + button to tilt the laser plane in a **Y+** direction.

The value in the slope angle indicator **(8)** will change more quickly if the button is pressed and held.

The selected slope is implemented on the measuring tool a few seconds after the last press of a button. The slope angle indicator **(8)** flashes red until the process of setting the slope has been completed. Once the set value has been reached, the slope angle indicator **(8)** lights up continuously red.

To reset the Y-axis to 0 %, you can also briefly press the — and + buttons simultaneously.

Turning the rotational plane when in the vertical position

When the measuring tool is in the vertical position, it is possible to rotate the laser point, laser line or rotational plane around the X-axis in a range of ±**15** %. This allows you to align the laser without moving the measuring tool (e.g. for easy sighting out or parallel alignment).

To rotate the rotational plane, press the — or + button until the required position is reached. During rotation, **<-->** flashes green in the slope angle indicator **(8)**. After completing the rotation, **<-->** lights up continuously green.

ⓘ No inclination values appear on the display when in the vertical position.

Manual operation

The automatic levelling of the measuring tool can be switched off (manual operation).

» Press the — button and the + button simultaneously for 2 s to switch off automatic levelling.
→ **<-->** is continuously shown in red in the slope angle indicator **(8)**.

It is possible to set up the measuring tool at any inclination in manual operation mode.

You can also tilt the Y-axis in a range of ±**15** %.

» Press the — button to tilt the laser plane in a **Y–** direction.

» Press the + button to tilt the laser plane in a **Y+** direction.

ⓘ No inclination values appear on the display during manual operation.

» To switch automatic levelling back on, press the — button and the + button simultaneously for 2 s.

Accuracy Check and Calibration of the Measuring Tool

The accuracy check and calibration should only be carried out by well-trained and qualified persons. The legalities with regard to performing an accuracy check or calibration of a measuring tool must be known.

To obtain permanently accurate results, carry out a calibration at least once a year or have the measuring tool checked by a **Bosch** customer service agent.

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 minimise thermal influences resulting from heat rising from the floor, it is recommended that you use the measuring tool on a tripod. In addition, position the measuring tool in the centre 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 levelling accuracy each time before beginning work.

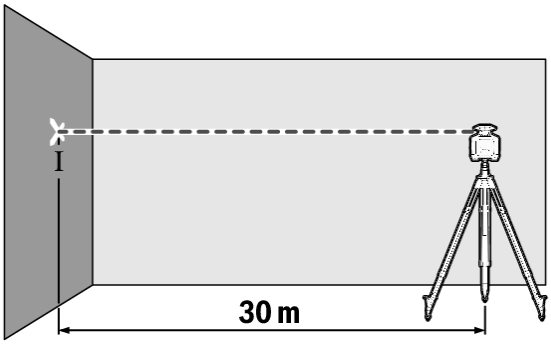
If the measuring tool exceeds the maximum deviation in the levelling accuracy check, perform a calibration or have the measuring tool checked by a **Bosch** customer service agent.

Checking the levelling accuracy in a horizontal position

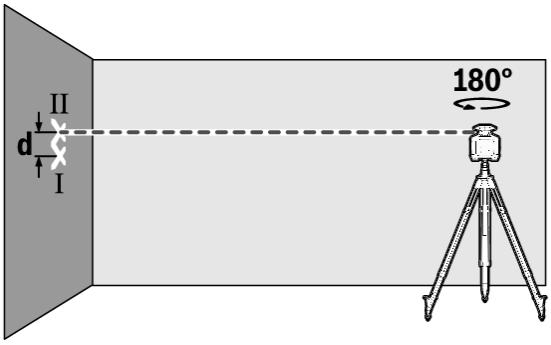
For a reliable and precise result, it is recommended that you check the levelling accuracy on a free measuring distance of **30** m on firm ground in front of a wall. Carry out a complete measuring procedure for each of the two axes.

» Mount the measuring tool in a horizontal position **30** m from the wall on a tripod, or place it on a firm, level surface.

» Switch on the measuring tool.



» Once levelling is complete, mark the centre of the laser beam on the wall (point I).



» Turn the measuring tool 180° without adjusting the height.

» Allow the measuring tool to level in.

» Mark the centre of the laser point on the wall (point II).

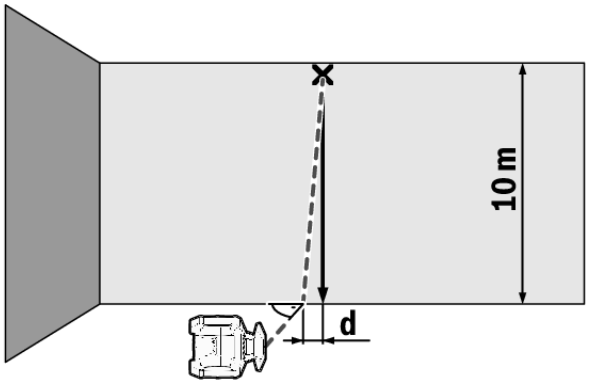
ⓘ Ensure that point II is vertically over or under point I.

» Rotate the measuring tool by 90° and repeat the measuring process for the other axis.

The maximum permitted deviation on the **30** m measuring distance is as follows: ±**1.5** mm. The discrepancy **d** between points I and II must therefore amount to no more than **3** mm for each of the two measuring processes.

Checking the levelling accuracy in the vertical position

For this check, you will need a free measuring distance on firm ground in front of a **10**-metre tall wall.



» Fix a plumb line to the wall.

» Position the measuring tool in the vertical position on a firm, level surface.

» Switch the measuring tool on and allow it to level in.

» Set up the measuring tool so that the laser beam meets the plumb line at the exact centre of the upper end.

→ The discrepancy **d** between the laser beam and the plumb line at the lower end of the line reveals the measuring tool's deviation from the vertical.

For a **10** m high measuring distance, the maximum permitted deviation is as follows: ±**1** mm. The discrepancy **d** must therefore be no more than **1** mm.

Calibrating the measuring tool

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 measuring tool must be known.

- **Perform calibration of the measuring tool with extreme precision or have the measuring tool 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 measuring tool.** As soon as the measuring tool 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 levelling accuracy after every calibration** . If the deviation is outside the maximum permitted limits, have the measuring tool checked by a **Bosch**- customer service agent.

Note: Calibration of the Z-axis is only possible via **Bosch** customer service.

X-axis and Y-axis Calibration

Calibration of the measuring tool should (as described below) where possible be performed using the LR 45 laser receiver. Calibration without a laser receiver is only possible under favourable lighting conditions and is associated with a higher risk of error.

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

Calibration should be performed via the **Bosch Levelling Remote App** if possible. There is less likelihood of error when controlling the tool via the app. Otherwise, the measuring tool's position can be altered if buttons are pressed without due care.
When calibrating without the app, the corresponding buttons on the measuring tool must be pressed.

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

To mount the measuring tool and the laser receiver for calibration:

» Mount the measuring tool in the horizontal position **30** m or **15** m from the laser receiver on the tripod **(26)** or position it on a firm, level surface.

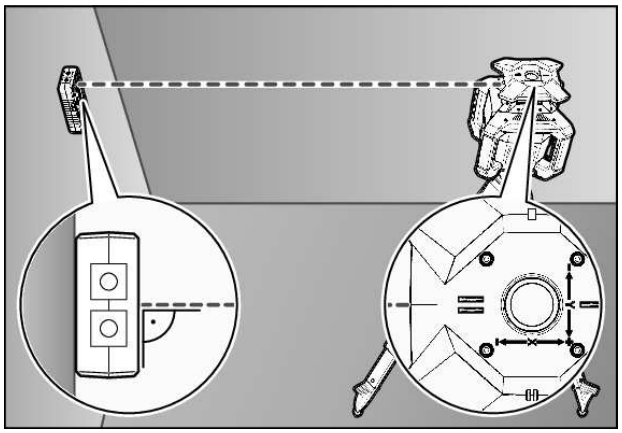
» Secure the laser receiver at the correct height:

– Either to a wall or to another surface by means of magnets on the laser receiver,

– or to a securely fastened aid with the holder for the laser receiver.

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

Aligning the measuring tool for calibration:



» Align the measuring tool so that the X-axis indicator imprinted on the measuring tool with the **"–"** side is pointing to the laser receiver. For this, the X-axis must be perpendicular to the laser receiver.

Information on calibration:

– During calibration, all buttons on the measuring tool that are not required for calibration are deactivated.

– If no button is pressed for longer than 5 min during calibration or if no signal is sent via the **Bosch Levelling Remote App** for longer than 5 min, calibration on the measuring tool is cancelled. No changes will be saved. **<Er>** and **<01>** flash red alternately in the slope angle indicator **(8)**. To return to normal operation, close the error message and briefly press the button on the measuring tool.

– Calibration of the measuring tool can be cancelled at any time via the app or by pressing and holding the button on the measuring tool. No changes will be saved. It is not possible to return to a previous step during calibration.

– If the connection to the measuring tool is interrupted during calibration via the app, calibration can be continued on the measuring tool (see Calibration process without app).

To start calibration:

ⓘ The measuring tool must be in a horizontal position. If it is in a vertical position, calibration cannot be started either via the app or on the measuring tool.

Calibration via the **Bosch Levelling Remote App**:

» Switch on the measuring tool.

» Establish the connection to the mobile device using the **Bosch Levelling Remote App**.

» Start calibration in the app.

» Follow the instructions in the app.

Calibration without the app:

✓ The measuring tool must be switched off.

» Press and hold the **—** button on the measuring tool. Briefly press the button and release it again to start calibration.

→ The measuring tool is levelled. The levelling is shown by rotating segments in the slope angle indicator **(8)**.

→ After levelling is completed, **<C1>** flashes red in the slope angle indicator **(8)**.

To perform calibration without the app:

» Switch the laser receiver on.

» Align the height of the laser receiver so that the variable laser beam **(1)** on the laser receiver is indicated as "centred". To do this, consult the operating instructions for the laser receiver.

» Secure the laser receiver at this height.

Calibration of the X-axis:

» Check whether the measuring tool and laser receiver are correctly aligned with each other (the **"–"** side of the X-axis is aligned with the laser receiver).

» Make sure that the variable laser beam **(1)** is displayed as centred on the laser receiver.

» Rotate the measuring tool 180° so that the **"+"** side of the X-axis is directed at the laser receiver.

ⓘ For each rotation, take care not to change the height and slope of the measuring tool.

» Briefly press the button on the measuring tool to confirm the rotation.

→ After levelling is completed, **<C2>** flashes red in the slope angle indicator **(8)**.

» Check the distance from the laser beam to the centre mark in the relative height indicator on the laser receiver.

The maximum permitted deviation on the **30** m measuring distance is as follows: **3** mm. If the value displayed on the laser receiver is greater than **3** mm, the alignment of the laser must be corrected:

» Press the **—** button or the **+** button on the measuring tool repeatedly until the value of the relative height displayed on the laser receiver has been halved.
Example: If a value of 10 mm is displayed on the laser receiver, press the buttons on the measuring tool repeatedly until the value on the laser receiver is 5 mm.

» Briefly press the button on the measuring tool to save the X-axis calibration.

→ After levelling is completed, **<C3>** flashes red in the slope angle indicator **(8)**.

Calibration of the Y-axis:

» Rotate the measuring tool 90° so that the **"–"** side of the Y-axis is directed at the laser receiver.

» Make sure that the variable laser beam **(1)** is displayed as centred on the laser receiver.

» Rotate the measuring tool 180° so that the **"+"** side of the Y-axis is directed at the laser receiver.

» Briefly press the button on the measuring tool to confirm the rotation.

→ After levelling is completed, **<C4>** flashes red in the slope angle indicator **(8)**.

» Check the distance from the laser beam to the centre mark in the relative height indicator on the laser receiver.

» If necessary, correct the distance as described for the X-axis.

» Then briefly press the button on the measuring tool to save the Y-axis calibration.

→ **<C>** lights up green for 2 s in the slope angle indicator **(8)**.

If the calibration has been completed successfully, the measuring tool then automatically switches itself off.

Calibration failed:

If the calibration of the X-axis or the Y-axis cannot be saved, **<Er>** and **<02>** flash red alternately in the slope angle indicator **(8)**.

» Briefly press the button on the measuring tool to confirm the message.

→ The measuring tool returns to normal operation without any changes.

» Restart the calibration.

If calibration fails again, have the measuring tool checked by a **Bosch** customer service agent.

Working with Accessories

Tripod

A tripod offers a stable, height-adjustable support surface for measuring.

» For horizontal operation, place the measuring tool with the 5/8" tripod mount **(16)** on the thread of the tripod **(26)**.

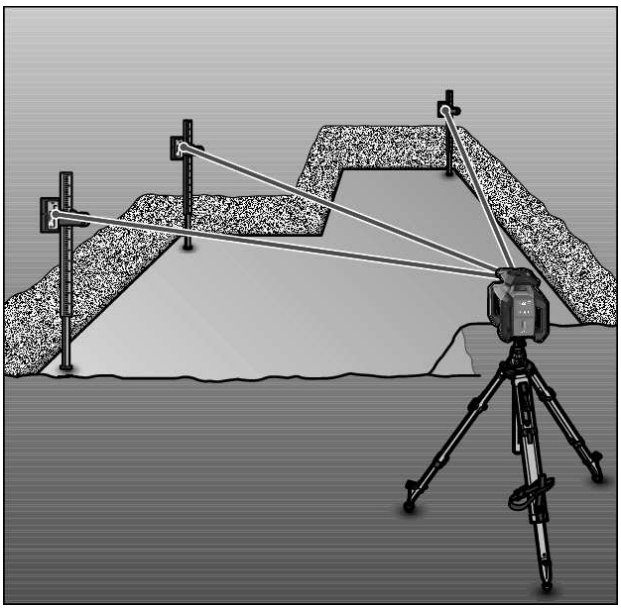
» For vertical operation, use the 5/8" tripod mount **(18)**.

» Tighten the measuring tool using the locking screw of the tripod.

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 measuring tool.

Laser receiver



Use the laser receiver **(24)** to improve detection of the laser lines in adverse lighting conditions (bright environment, direct sunlight) and over greater distances.

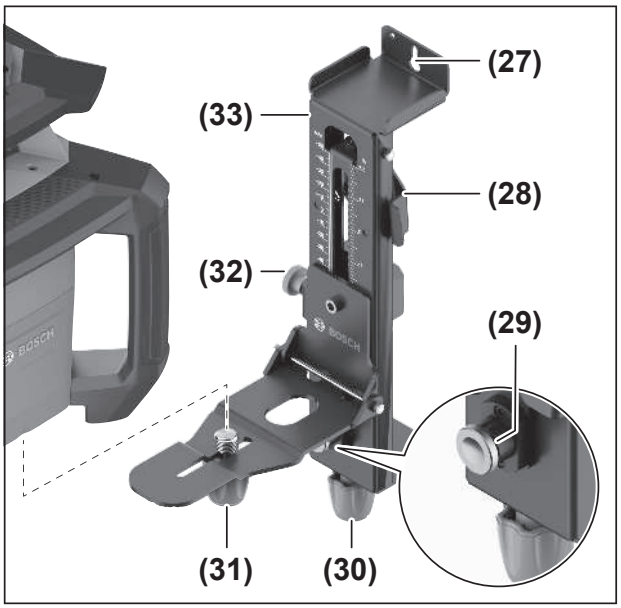
For rotary lasers with multiple operating modes, select the horizontal or vertical operation with the highest rotational speed.

Before working with the laser receiver, read and observe the laser receiver operating instructions.

Laser Goggles

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

Wall Bracket with Alignment Unit



The measuring tool can be secured to the wall using the wall mount with the alignment unit **(33)**. Using the wall mount is recommended, e.g. when working above the maximum ex-

tension height of tripods, or when working on unstable surfaces without a tripod.

» Fasten the wall bracket **(33)** to a wall using a screw through the fixing hole **(27)**.

» Alternatively, you can clamp the wall bracket **(33)** to crown mouldings, for instance, using the fixing clamp **(28)**.

» Fit the wall mount as perpendicular as possible and ensure it is mounted in a stable way.

» Screw the 5/8" wall mount screw **(31)** into the horizontal tripod mount **(16)**, depending on the requirements of the task, or the vertical tripod mount **(18)** on the measuring tool.

Using the alignment unit allows the measuring tool to be moved in a range of approx. ±45 mm with respect to height.

» Loosen the locking screw **(32)** of the alignment unit.

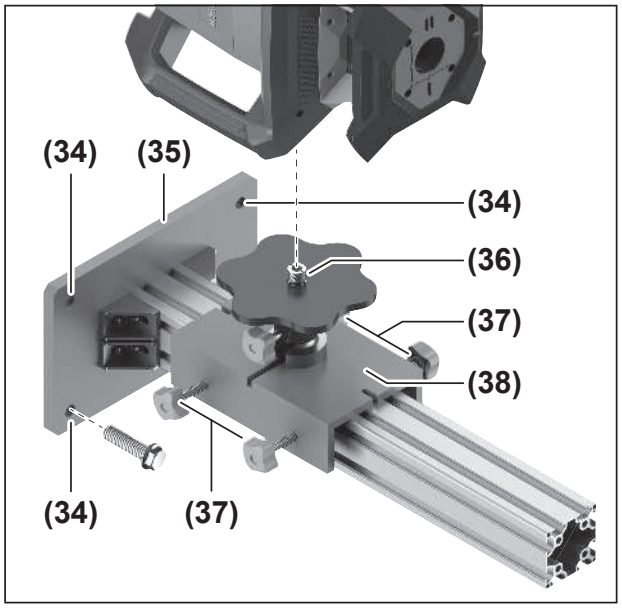
» Press the **(29)** pushbutton.

» Slide the alignment unit to roughly the required height.

» Align the laser beam precisely to the required reference height using the fine adjustment screw **(30)**.

» Retighten the locking screw **(32)**.

Wall Mounting Bracket



The measuring tool can be secured to the wall using the wall mounting bracket **(35)**. Using the wall mounting bracket 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 mounting bracket **(35)** to a wall using 4 screws through the fixing holes **(34)**.

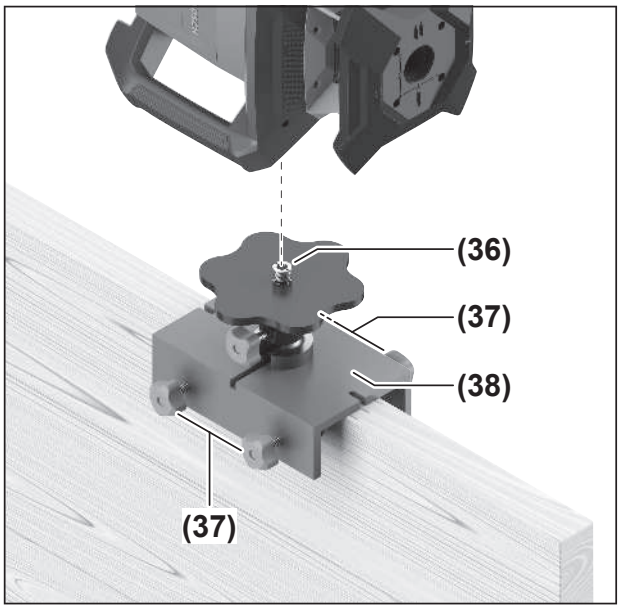
» Fit the wall mounting bracket as horizontally as possible and ensure it is mounted in a stable way.

» Screw the 5/8" screw **(36)** into the vertical tripod mount **(18)** of the measuring tool.

» If necessary, loosen the fastening screws **(37)** and move the mounted measuring tool to the required position.

» Retighten the fastening screws **(37)**.

Batter board mount



You can mount the measuring tool on objects from 15–80 mm in width using the batter board mount **(38)**.

» Place the batter board mount **(38)** on the board of a batter board.

» Tighten the fastening screws **(37)**.

» Screw the 5/8" screw **(36)** of the batter board mount into the vertical tripod mount **(18)** of the measuring tool.

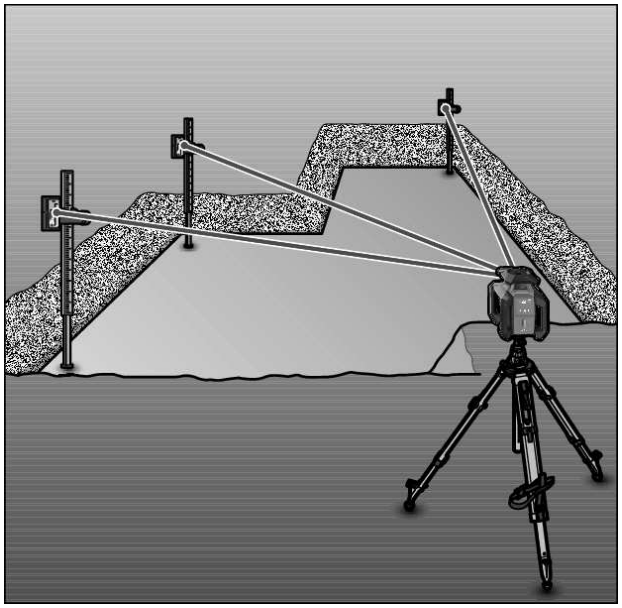
Measuring rod



Particular care is required when working with the measuring rod in the vicinity of high-voltage cables. If the measuring rod comes into close proximity to high-voltage cables, this can lead to a fatal electric shock.



Do not use the measuring rod during thunderstorms.



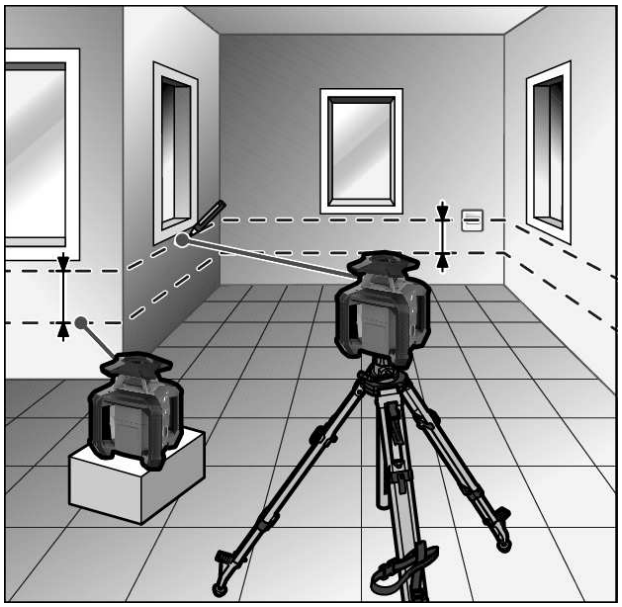
To check levels or apply slopes, it is recommended to use the measuring rod **(25)** together with the laser receiver.

A relative measuring scale is incorporated at the top of the measuring rod **(25)**. 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

Note: Line and point operation as well as changing the rotation speed can only be controlled via the **Bosch Levelling Remote App**.

Projecting/Checking Heights



» Position the measuring tool in the horizontal position on a firm support or mount it on a tripod **(26)**.

Working with a tripod:

» Set the laser beam at the required height.

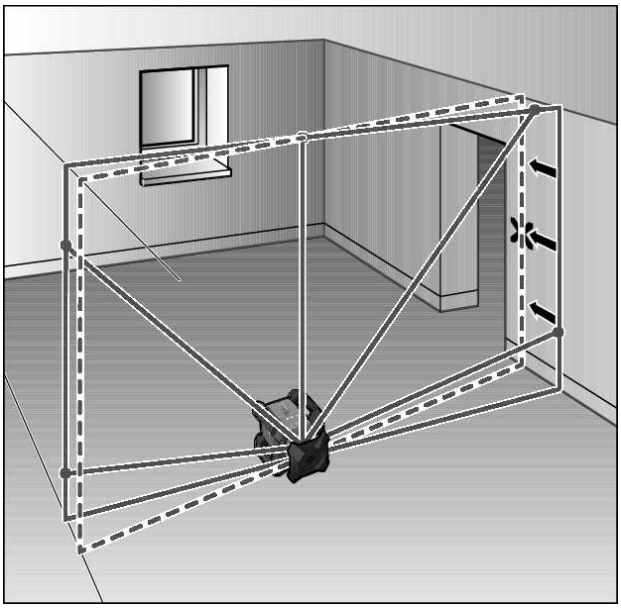
» Project or check the height at the target location.

Working without a tripod:

» Establish the height difference between the laser beam and the height at the reference point.

» Project or check the height difference measured at the target location.

Aligning a Perpendicular/Vertical Plane



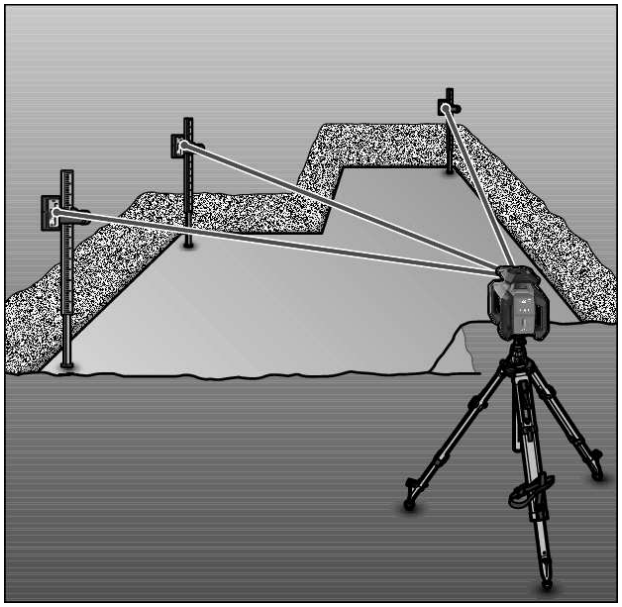
» To align the vertical laser line or the rotational plane against a reference point on a wall, set up the measuring tool in the vertical position, and roughly align the laser line or the rotational plane with the reference point.

» For precise alignment with the reference point, turn the rotational plate around the X-axis (see "Turning the rotational plane when in the vertical position", page 10).

Working without the laser receiver

Under favourable 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 the lowest speed of rotation operation, or alternatively select line operation or point operation and rotate the laser beam to the target location.

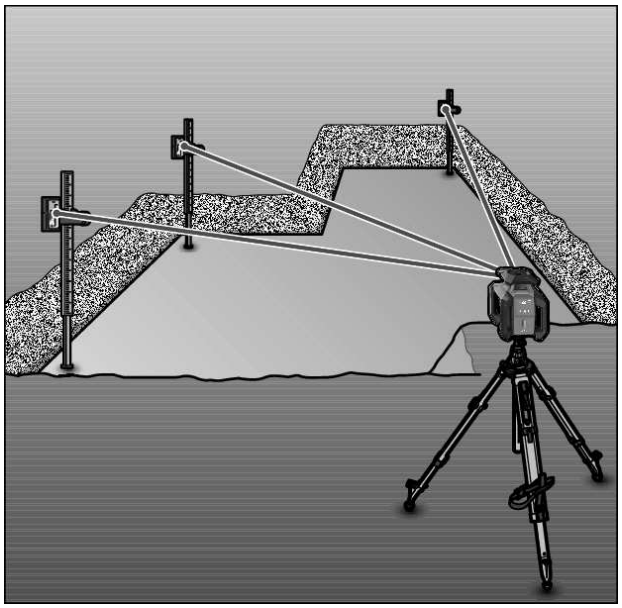
Working with a Laser Receiver



In unfavourable lighting conditions (bright environment, direct sunlight) and for larger distances, use the laser receiver to improve detection of the laser beam **(24)**.

» When working with the laser receiver, select rotational operation with the highest rotational speed.

Working Outdoors

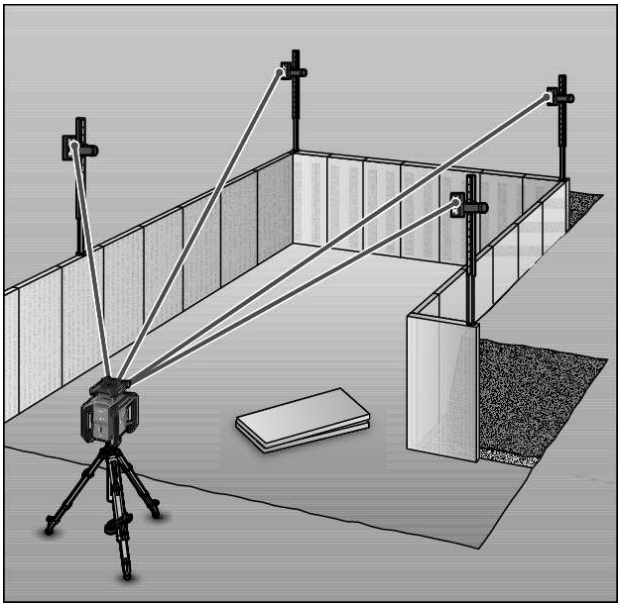


Always use the laser receiver **(24)** outdoors.

» When working on unstable ground, mount the measuring tool on the tripod **(26)**.

Always work with the shock-warning function activated in order to avoid faulty measurements in case of ground movements or shocks to the measuring tool.

Setting Up Formwork



» Mount the measuring tool in the horizontal position on a tripod **(26)** and set up the tripod outside the formwork area.

» Select rotational operation.

» Secure the laser receiver **(24)** to a measuring rod **(25)** with the holder .

» Position the measuring rod on a reference point for the formwork.

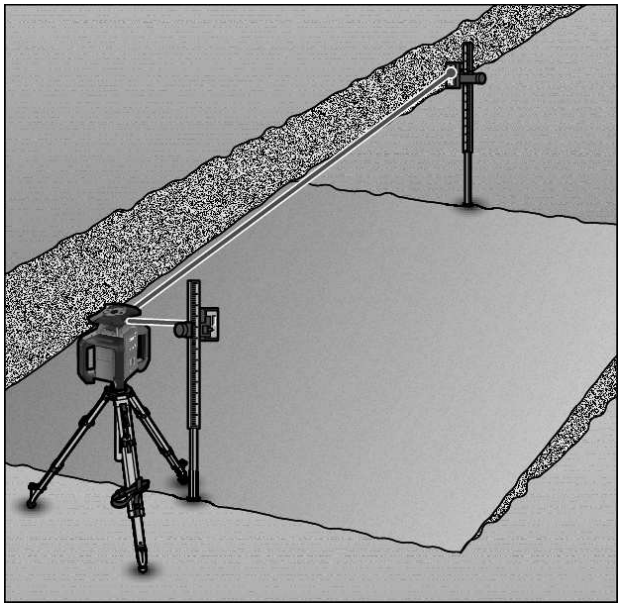
» Align the height of the laser receiver on the measuring rod so that the variable laser beam **(1)** of the measuring tool is indicated as centred.

» 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 "centred" at all test locations.

Checking Slopes



» Mount the measuring tool in the horizontal position on a tripod **(26)**.

» Select rotational operation.

» Set up the tripod with the measuring tool so that the Y-axis is aligned with the slope that is to be checked.

» Position the target slope as the slope for the Y-axis (see "Slope operation in the horizontal position", page 10).

» Secure the laser receiver **(24)** to a measuring rod **(25)** with the holder .

» Place the measuring rod at the base of the inclined surface.

» Align the height of the laser receiver on the measuring rod so that the variable laser beam **(1)** of the measuring tool is indicated as centred.

» 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 "centred" at all test locations.

Maintenance and Service

Maintenance and Cleaning

Keep the measuring tool clean at all times.

Never immerse the measuring tool in water or other liquids.

Wipe off any dirt using a damp, soft cloth. Do not use any detergents or solvents.

The areas around the outlet aperture of the laser in particular should be cleaned on a regular basis. Make sure to check for lint when doing this.

Only store and transport the measuring tool in the case .

If the measuring tool needs to be repaired, send it off in the case.

After-Sales Service and Application Service

Great Britain
Tel. Service: **(0344) 7360109**

GB Importer:
Robert Bosch Ltd.
Broadwater Park
North Orbital Road
Uxbridge
UB9 5HJ

Malaysia
Tel.: (03) 79663194

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

Disposal

Measuring tools, rechargeable/non-rechargeable batteries, accessories and packaging should be sorted for environmental-friendly recycling.



Do not dispose of the measuring tools or battery packs/batteries with household waste.

Only for EU countries and United Kingdom:

Electrical and electronic equipment or used batteries that are no longer suitable for use must be collected separately and disposed of in an environmentally friendly manner. Use the designated collection systems. Incorrect disposal may cause harmful effects on the environment and human health, due to the potential presence of hazardous substances.

Accessories

You can find the accessory on the Bosch website via the link given



BA 18-C battery adapter **(21)**
1 608 M00 C4B



BT 160 tripod **(26)**

0 601 091 200



BT 170 HD tripod **(26)**

0 601 091 B00



BT 300 HD tripod **(26)**

0 601 091 A00



LR 45 laser receiver **(24)**

0 601 069 L00



Laser viewing glasses (green) **(40)**

1 608 M00 05J



WM5 wall bracket **(33)**

0 601 092 J00



WF1 wall mounting bracket **(35)**

0 601 092 300



BB1 batter board mount **(38)**

0 601 092 H00



GR 240 measuring rod **(25)**

0 601 094 100



GR 500 measuring rod **(25)**

0 601 094 600