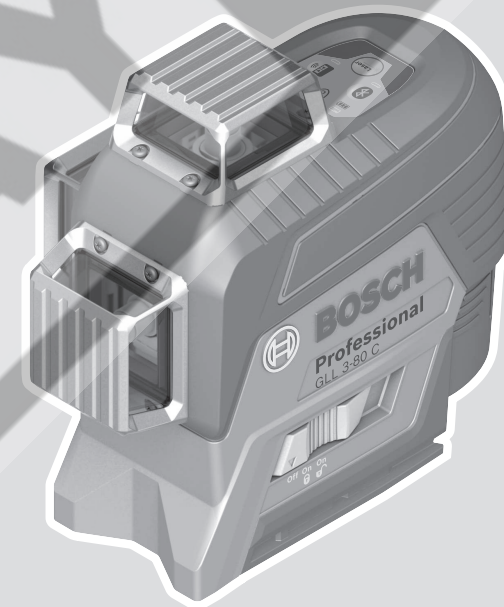




GLL Professional

3-80 C | 3-80 CG



Robert Bosch Power Tools GmbH
70538 Stuttgart
GERMANY

www.bosch-pt.com

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de Originalbetriebsanleitung
en Original instructions
fr Notice originale
es Manual original
pt Manual original
it Istruzioni originali
nl Oorspronkelijke gebruiksaanwijzing
da Original brugsanvisning
sv Bruksanvisning i original
no Original driftsinstruks
fi Alkuperäiset ohjeet
el Πρωτότυπο οδηγιών χρήσης
tr Orijinal işletme talimatı
pl Instrukcja oryginalna
cs Původní návod k používání
sk Pôvodný návod na použitie
hu Eredeti használati utasítás
ru Оригинальное руководство по эксплуатации
uk Оригінальна інструкція з експлуатації

kk Пайдалану нұсқаулығының түпнұсқасы
ro Instrucțiuni originale
bg Оригинална инструкция
mk Оригинално упатство за работа
sr Originalno uputstvo za rad
sl Izvirna navodila
hr Originalne upute za rad
et Algupärane kasutusjuhend
lv Instrukcijas oriģinālvalodā
lt Originali instrukcija
ja オリジナル取扱説明書
zh 正本使用说明书
zh 原始使用說明書
ko 사용 설명서 원본
th หนังสือนำคู่มือการใช้งานฉบับต้นแบบ

id Petunjuk-Petunjuk untuk Penggunaan Orisinal
vi Bản gốc hướng dẫn sử dụng
ar دليل التشغيل الأصلي
fa دفترچه راهنمای اصلی



Versenden Sie Akkus nur, wenn das Gehäuse unbeschädigt ist. Kleben Sie offene Kontakte ab und verpacken Sie den Akku so, dass er sich nicht in der Verpackung bewegt. Bitte beachten Sie auch eventuelle weiterführende nationale Vorschriften.

Entsorgung



Messwerkzeuge, Akkus/Batterien, Zubehör und Verpackungen sollen einer umweltgerechten Wiederverwertung zugeführt werden.



Werfen Sie Messwerkzeuge und Akkus/Batterien nicht in den Hausmüll!

Nur für EU-Länder:

Gemäß der europäischen Richtlinie 2012/19/EU müssen nicht mehr gebrauchsfähige Messwerkzeuge und gemäß der europäischen Richtlinie 2006/66/EG müssen defekte oder verbrauchte Akkus/Batterien getrennt gesammelt und einer umweltgerechten Wiederverwendung zugeführt werden.

Akkus/Batterien:

Li-Ion:

Bitte beachten Sie die Hinweise im Abschnitt Transport (siehe „Transport“, Seite 15).

English

Safety Instructions



All instructions must be read and observed in order for the measuring tool to function safely. The safeguards integrated into the measuring tool may be compromised if the measuring tool is not used in accordance with these instructions. Never make warning signs on the measuring tool unrecognisable. **SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE AND INCLUDE THEM WITH THE MEASURING TOOL WHEN TRANSFERRING 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 warning label (marked in the illustration of the measuring tool on the graphics page).**

GLL 3-80 C



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- ▶ **If the text on the warning label is not in your native language, cover it with the label supplied, which is in your language, before initial commissioning.**



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.**
- ▶ **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 colours.
- ▶ **Have the measuring tool serviced 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 accidentally dazzle someone.
- ▶ **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.
- ▶ **When operating the measuring tool, loud signal tones may sound under certain circumstances. For this reason, keep the measuring tool away from your ears and from other persons.** The loud sound can damage hearing.



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.
- ▶ **Never swallow button cells.** Swallowing button cells can result in severe internal burns and death within two hours.



Ensure that the button cell is kept out of the reach of children. If you suspect that someone has swallowed a button cell or that a button cell has entered the body in another way, seek medical attention immediately.



- ▶ **Ensure that battery replacement is carried out properly.** There is a risk of explosion.
- ▶ **Do not attempt to recharge the button cell and do not short circuit the button cell.** The button cell may leak, explode, catch fire and cause personal injury.
- ▶ **Remove and dispose of drained button cells correctly.** Drained button cells may leak and damage the product or cause personal injury.
- ▶ **Do not overheat the button cell or throw it into fire.** The button cell may leak, explode, catch fire and cause personal injury.
- ▶ **Do not damage the button cell and or take the button cell apart.** The button cell may leak, explode, catch fire and cause personal injury.
- ▶ **Do not allow damaged button cells to come into contact with water.** Leaking lithium may mix with water to create hydrogen, which could cause a fire, an explosion, or personal injury.
- ▶ **Do not use the measuring tool if the button cell holder (22) does not close.** Remove the button cell and have it repaired.
- ▶ **Remove the rechargeable battery/non-rechargeable batteries from the measuring tool before carrying out work on the measuring tool (e.g. assembly, maintenance, etc.).** The battery/batteries should also be removed for transport and storage. There is risk of injury from unintentionally pressing the on/off switch.
- ▶ **Do not open 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 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 battery against heat, e.g. against continuous intense sunlight, fire, dirt, water and moisture. There is a risk of explosion and short-circuiting.



- ▶ **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.**

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.

Product Description and Specifications

Please observe the illustrations at the beginning of this operating manual.

Intended Use

The measuring tool is intended for determining and checking horizontal and vertical lines.

The measuring tool is suitable for indoor and outdoor use.

Product Features

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

- (1) Laser beam outlet aperture
- (2) State of charge of battery pack/non-rechargeable batteries
- (3) CAL guard indicator
- (4) Pendulum lock indicator
- (5) Receiver mode button
- (6) Receiver mode indicator
- (7) Button for laser operating mode
- (8) Bluetooth® connection indicator
- (9) Bluetooth® button
- (10) Battery bay

- (11) Battery adapter cover^{A)}
- (12) Non-rechargeable batteries^{A)}
- (13) Rechargeable battery/battery adapter release button^{A)}
- (14) Battery adapter cap^{A)}
- (15) Rechargeable battery^{A)}
- (16) On/off switch
- (17) 1/4" tripod mount
- (18) 5/8" tripod mount
- (19) Serial number
- (20) Laser warning label
- (21) Button cell
- (22) Button cell holder
- (23) Button cell port

- (24) Magnet^{A)}
- (25) Universal holder^{A)}
- (26) Rotating platform^{A)}
- (27) Remote control^{A)}
- (28) Laser target plate^{A)}
- (29) Laser receiver^{A)}
- (30) Laser goggles^{A)}
- (31) Protective bag^{A)}
- (32) Tripod^{A)}
- (33) Telescopic rod^{A)}
- (34) Case^{A)}
- (35) Inlay^{A)}

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

Technical Data

Line laser	GLL 3-80 C	GLL 3-80 CG
Article number	3 601 K63 R..	3 601 K63 T..
Working range ^{A)}		
– Standard	30 m	30 m
– in receiver mode	25 m	25 m
– with laser receiver	5–120 m	5–120 m
Levelling accuracy ^{B)(C)(D)}	±0.2 mm/m	±0.2 mm/m
Self-levelling range	±4°	±4°
Levelling time	<4 s	<4 s
Max. altitude	2000 m	2000 m
Relative air humidity max.	90 %	90 %
Pollution degree according to IEC 61010-1	2 ^{E)}	2 ^{E)}
Laser class	2	2
Laser type	630–650 nm, <10 mW	500–540 nm, <10 mW
C ₆	10	10
Divergence of laser line	50 × 10 mrad (full angle)	50 × 10 mrad (full angle)
Shortest pulse duration	1/10000 s	1/10000 s
Compatible laser receivers	LR6, LR7	LR7
Tripod mount	1/4", 5/8"	1/4", 5/8"
Measuring tool power supply		
– Rechargeable battery pack (Li-ion)	12 V	12 V
– Non-rechargeable batteries (alkaline manganese)	4 × 1.5 V LR6 (AA) (with battery adapter)	4 × 1.5 V LR6 (AA) (with battery adapter)
Operating time with three laser planes ^{F)}		
– With rechargeable battery	8 h	6 h
– With non-rechargeable batteries	6 h	4 h
Bluetooth® measuring tool		
– Compatibility	Bluetooth® 4.0 (Low Energy) ^{G)}	Bluetooth® 4.0 (Low Energy) ^{G)}

Line laser	GLL 3-80 C	GLL 3-80 CG
– Max. signal range	30 m ^{H)}	30 m ^{H)}
– Operating frequency range	2402–2480 MHz	2402–2480 MHz
– Max. transmission power	<1 mW	<1 mW
Bluetooth® smartphone		
– Compatibility	Bluetooth® 4.0 (Low Energy) ^{G)}	Bluetooth® 4.0 (Low Energy) ^{G)}
– Operating system	Android 4.3 (and above) iOS 7 (and above)	Android 4.3 (and above) iOS 7 (and above)
Weight according to EPTA-Procedure 01:2014		
– With rechargeable battery	0.90 kg	0.90 kg
– With non-rechargeable batteries	0.86 kg	0.86 kg
Dimensions (length × width × height)	162 × 84 × 148 mm	162 × 84 × 148 mm
Protection rating ^{I)}	IP 54 (dust and splash-proof)	IP 54 (dust and splash-proof)
Recommended ambient temperature during charging	0 °C to +35 °C	0 °C to +35 °C
Permitted ambient temperature during operation	–10 °C to +40 °C	–10 °C to +40 °C
Permitted ambient temperature during storage	–20 °C to +70 °C	–20 °C to +70 °C
Recommended batteries	GBA 12V... (except for GBA 12V ≥ 4.0 Ah)	GBA 12V... (except for GBA 12V ≥ 4.0 Ah)
Recommended chargers	GAL 12... GAX 18...	GAL 12... GAX 18...

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

B) At 20–25 °C

C) Applies to the four horizontal intersection points

D) The values stated presuppose normal to favourable environmental conditions (e.g. no vibration, no fog, no smoke, no direct sunlight). Extreme fluctuations in temperature can cause deviations in accuracy.

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

F) Shorter operating times in Bluetooth® operation and/or in conjunction with RM 3

G) 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.

H) 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.).

I) The lithium-ion battery and the AA1 battery adapter are excluded from IP 54.

Technical data determined using the battery that comes with the product.

The serial number (19) on the type plate is used to clearly identify your measuring tool.

Assembly

Measuring Tool Power Supply

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

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.

Note: The use of batteries unsuitable for your measuring tool can lead to malfunctions or damage to the measuring tool.

Note: The battery is supplied partially charged. To ensure full battery capacity, fully charge the battery in the charger before using your tool for the first time.

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

The lithium-ion battery is protected against deep discharge by the "Electronic Cell Protection (ECP)". A protective circuit switches the measuring tool off when the battery is drained.

- Do not switch the measuring tool back on after it has been switched off by the protective circuit. This can damage the battery.

To insert the charged battery (15), slide it into the battery bay (10) until you feel it engage.

To **remove** the battery (15), press the release buttons (13) and pull it out of the battery bay (10). **Do not use force to do this.**

Operation with Non-Rechargeable Batteries

It is recommended that you use alkaline manganese batteries to operate the measuring tool.

The batteries are inserted into the battery adapter.

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

To **insert** the batteries, slide the cover (11) of the battery adapter into the battery bay (10). Place the batteries into the cover as per the illustration on the sealing cap (14). Slide the sealing cap over the cover until you feel it click into place.



To **remove** the batteries (12), press the release buttons (13) of the sealing cap (14) and pull off the sealing cap. Make sure that the batteries do not fall out. To do this, hold the measuring tool with the battery bay (10) facing upward. Remove the batteries. To remove the cover (11) from inside the battery bay, reach into the cover and pull it out of the measuring tool, applying light pressure to the side wall as you do so.

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 measuring tool when you are not using it for a prolonged period of time.** The batteries can corrode and self-discharge during prolonged storage in the measuring tool.

Battery Charge Indicator

The battery charge indicator (2) shows the state of charge of the battery/batteries:

LED	State of charge
Green continuous light	100–75 %
Yellow continuous light	75–35 %
Red continuous light	35–10 %
No light	– Battery defective – Batteries drained

If the rechargeable battery or non-rechargeable batteries are running low, the laser lines will gradually become dimmer. Immediately replace a faulty rechargeable battery or any empty batteries.

Operation

Starting Operation

- **Protect the measuring tool from moisture and direct sunlight.**
- **Do not expose the measuring tool to any extreme temperatures or fluctuations in temperature.** For example, do not leave it in a car for extended periods of time. If it

has been subjected to significant fluctuations in temperature, first allow the measuring tool to adjust to the ambient temperature and then always carry out an accuracy check before continuing work (see "Accuracy Check of the Measuring Tool", page 22).

The precision of the measuring tool may be compromised if exposed to extreme temperatures or fluctuations in temperature.

- **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 of the Measuring Tool", page 22).
- **Switch the measuring tool off when transporting it.** The pendulum unit is locked when the tool is switched off, as it can otherwise be damaged by big movements.

Switching On/Off

To **switch on** the measuring tool, slide the on/off switch (16) to the "On" position (for working with the pendulum lock) or to the "On" position (for working with automatic levelling). As soon as it is switched on, the measuring tool emits laser lines from the outlet apertures (1).

- **Do not direct the laser beam at persons or animals and do not stare into the laser beam yourself (even from a distance).**

To **switch off** the measuring tool, slide the on/off switch (16) to the **Off** position. The pendulum unit is locked when the tool is switched off.

- **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.

If the maximum permitted operating temperature of 40 °C is exceeded, the tool shuts down to protect the laser diode. Once it has cooled down, the measuring tool is operational again and can be switched back on.

If the temperature of the measuring tool is approaching the maximum permissible operating temperature, the laser lines will gradually become dimmer.

Deactivating the Automatic Shut-Off Function

If no button on the measuring tool is pressed for approx. 120 min, the measuring tool will automatically switch itself off to preserve battery life.

To switch the measuring tool back on after it has been automatically switched off, you can either slide the on/off switch (16) to the "Off" position first and then switch the measuring tool back on, or press either the laser mode button (7) or the receiver mode button (5) once.

To deactivate the automatic shut-off function, hold down the laser mode button (7) for at least 3 s (with the measuring tool switched on). If the automatic shut-off function is deactivated, the laser beams will flash briefly as confirmation.

To activate the automatic shut-off function, switch the measuring tool off and on again.

Deactivating the Signal Tone Function

The signal tone function is always activated once the measuring tool is switched on.

To deactivate or activate the signal tone function, simultaneously press the laser mode button (7) and the receiver mode button (5) and hold them down for at least 3 s.

Three short signal tones will sound as confirmation both when the signal tone function is activated and deactivated.

Operating Modes

The measuring tool has several operating modes which you can switch between at any time. These are for:

- Generating a horizontal laser plane,
- Generating a vertical laser plane,
- Generating two vertical laser planes,
- Generating a horizontal laser plane and two vertical laser planes.

After you switch it on, the measuring tool generates a horizontal laser plane. To change the operating mode, press the laser mode button (7).

All operating modes can be selected with both automatic levelling or the pendulum lock.

Receiver Mode

Receiver mode must be activated when working with the laser receiver (29), regardless of which operating mode is selected.

In receiver mode, the laser lines flash at a very high frequency, enabling them to be detected by the laser receiver (29).

To switch on receiver mode, press the receiver mode button (5). The receiver mode indicator (6) will light up green.

When receiver mode is switched on, the laser lines are less visible to the human eye. Therefore, switch receiver mode off by pressing the receiver mode button (5) again to work without a laser receiver. The receiver mode indicator (6) will go out.

Automatic Levelling

Working with Automatic Levelling

Position the measuring tool on a level, firm surface or attach it to the universal holder (25) or the tripod (32).

For work with automatic levelling, slide the on/off switch (16) to the "On" position.

The automatic levelling function automatically compensates irregularities within the self-levelling range of $\pm 4^\circ$. The levelling is finished as soon as the laser lines stop moving.

If automatic levelling is not possible, e.g. because the surface on which the measuring tool stands deviates by more than 4° from the horizontal plane, the laser lines will begin to flash quickly. If the signal tone function is activated, rapid signal tones will sound.

Set up the measuring tool in a horizontal position and wait for the self-levelling to take place. As soon as the measuring tool is within the self-levelling range of $\pm 4^\circ$, the laser lines will light up continuously and the signal tones will cease.

In case of ground vibrations or position changes during operation, the measuring tool is automatically levelled again.

Upon re-levelling, check the position of the horizontal or vertical laser line with regard to the reference points to avoid errors by moving the measuring tool.

Working with the Pendulum Lock

For work with the pendulum lock, slide the on/off switch (16) to the "On" position. The pendulum lock indicator (4) lights up red and the laser lines continuously flash slowly.

For work with the pendulum lock, the automatic levelling is switched off. You can hold the measuring tool freely in your hand or place it on a sloping surface. This means that the laser lines are no longer levelled and no longer necessarily run perpendicular to one another.

Remote control via the 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** 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 measuring tool.

Switching on Bluetooth®

To switch on *Bluetooth*®, press the *Bluetooth*® button (9). Ensure that the *Bluetooth*® interface is activated on your mobile terminal device.

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

The connection is established as soon as the *Bluetooth*® indicator (8) lights up.

The *Bluetooth*® connection may be interrupted if the distance between the measuring tool and the mobile terminal device is too great or is blocked, and if there are any sources of electromagnetic interference. Should this occur, the *Bluetooth*® indicator (8) will flash.

Switching off Bluetooth®

To switch off *Bluetooth*® for remote control, press the *Bluetooth*® button (9) or switch off the measuring tool.

Calibration warning CAL guard

The sensors for calibration warning **CAL guard** monitor the status of the measuring tool, even when it is switched off. If the measuring tool is not being supplied with power by a re-

chargeable battery or non-rechargeable batteries, an internal energy storage system provides continuous monitoring by the sensors for 72 hours.

The sensors are activated when the measuring tool is started up for the first time.

Calibration Warning Triggers

If one of the following events occurs, the calibration warning **CAL guard (3)** is triggered and the indicator **CAL guard (3)** lights up red:

- The calibration interval (every 12 months) has expired.
- The measuring tool was stored outside of the storage temperature range.
- The measuring tool was subjected to a strong shock (e.g. impact with the ground after being dropped).

You can refer to the **Bosch Levelling Remote App** to see which of the three events triggered the calibration warning. Without the app, the cause cannot be identified, as the indicator **CAL guard (3)** lighting up indicates merely that the levelling accuracy needs to be checked.

Once the warning has been triggered, the indicator **CAL guard (3)** lights up until the levelling accuracy has been checked and the indicator switched off.

Procedure in the Event of a Calibration Warning Being Triggered

Check the levelling accuracy of the measuring tool (see "Accuracy Check of the Measuring Tool", page 22).

If the maximum deviation has not been exceeded in any of the tests, switch the indicator **CAL guard (3)** off. To do so, press and hold the receiver mode button (5) and the **Bluetooth®** button (9) at the same time for at least 3 s. The indicator **CAL guard (3)** will go out.

Should the measuring tool exceed the maximum deviation during one of the tests, please have it repaired by a **Bosch** after-sales service.

Accuracy Check of the Measuring Tool

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.

Since the temperature stratification is greatest at ground level, you should always mount the measuring tool on a tripod for measuring distances of 20 m or more. 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.

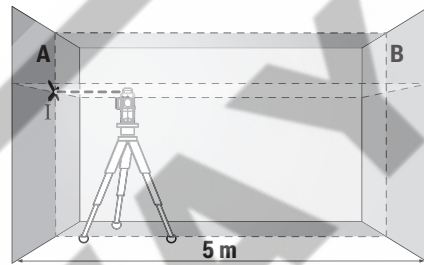
First check the levelling accuracy of the horizontal laser line, then the levelling accuracy of the vertical laser lines.

Should the measuring tool exceed the maximum deviation during one of the tests, please have it repaired by a **Bosch** after-sales service.

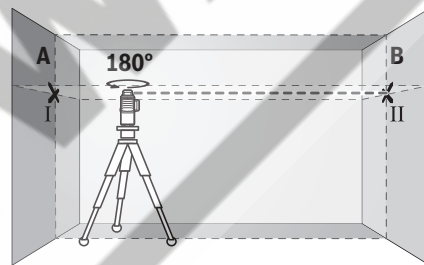
Checking the Horizontal Levelling Accuracy of the Transverse Axis

For this check, you will need a free measuring distance of **5 m** on firm ground between two walls (designated A and B).

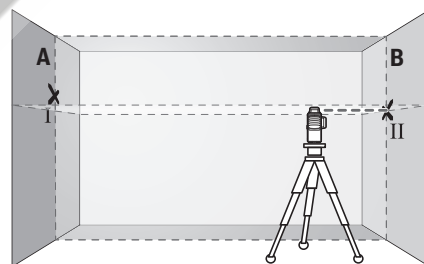
- Mount the measuring tool close to wall A on a tripod, or place it on a firm, flat surface. Switch on the measuring tool in the mode with automatic levelling. Select the operating mode for generating a horizontal laser plane and a vertical laser plane directly in front of the measuring tool.



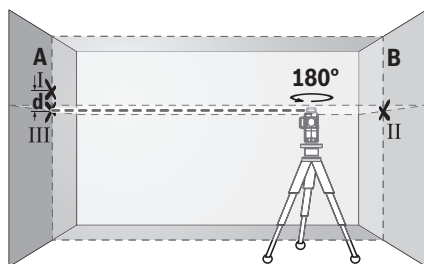
- Aim the laser at the closer wall A and allow the measuring tool to level in. Mark the middle of the point at which the laser lines cross on the wall (point I).



- Turn the measuring tool 180°, allow it to level in and mark the point where the laser lines cross on the opposite wall B (point II).
- Position the measuring tool – without rotating it – close to wall B, switch it on and allow it to level in.



- Align the height of the measuring tool (using the tripod or by placing objects underneath as required) so that the point where the laser lines cross exactly hits the previously marked point II on wall B.



- Turn the measuring tool 180° without adjusting the height. Aim it at wall A such that the vertical laser line runs through the already marked point I. Allow the measuring tool to level in and mark the point where the laser lines cross on wall A (point III).
- The discrepancy d between the two marked points I and III on wall A reveals the actual height deviation of the measuring tool.

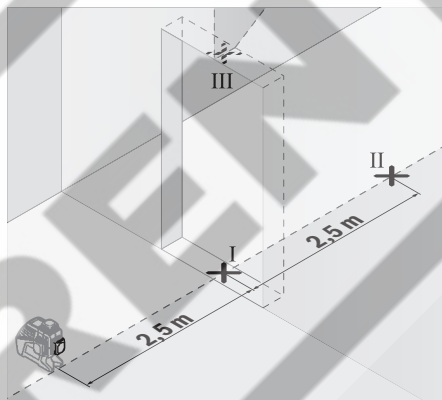
The maximum permitted deviation on the measuring distance of $2 \times 5 \text{ m} = 10 \text{ m}$ is as follows:

$10 \text{ m} \times \pm 0.2 \text{ mm/m} = \pm 2 \text{ mm}$. The discrepancy d between points I and II must therefore amount to no more than 2 mm.

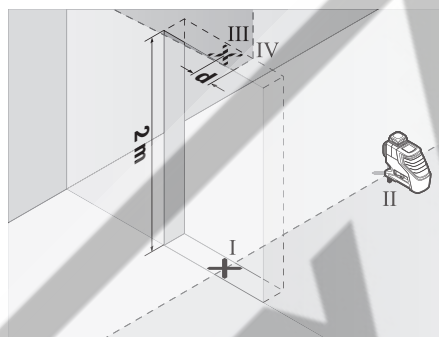
Checking the Levelling Accuracy of the Vertical Lines

For this check, you will need a door opening (on solid ground) which has at least 2.5 m of space either side of the door.

- Place the measuring tool 2.5 m away from the door opening on a firm, flat surface (not on a tripod). Switch on the measuring tool in the mode with automatic levelling. Select the operating mode for generating a vertical laser plane directly in front of the measuring tool.



- Mark the centre of the vertical laser line on the floor of the door opening (point I), 5 m away on the other side of the door opening (point II) and on the upper edge of the door opening (point III).



- Rotate the measuring tool 180° and position it on the other side of the door opening, directly behind point II. Allow the measuring tool to level in and align the vertical laser line in such a way that its centre passes through points I and II exactly.
- Mark the centre of the laser line on the upper edge of the door opening as point IV.
- The discrepancy d between the two marked points III and IV reveals the actual vertical deviation of the measuring tool.
- Measure the height of the door opening.

Repeat the measuring process for the two vertical laser planes. To do this, select the operating mode for generating a vertical laser plane to one side of the measuring tool and rotate the measuring tool by 90° before beginning the measuring process.

You can calculate the maximum permitted deviation as follows:

Doubled height of the door opening $\times 0.2 \text{ mm/m}$

Example: At a door opening height of 2 m, the maximum deviation amounts to

$2 \times 2 \text{ m} \times \pm 0.2 \text{ mm/m} = \pm 0.8 \text{ mm}$. The points III and IV must therefore be no further than 0.8 mm from each other.

Working Advice

- **Only the centre of the laser line must be used for marking.** The width of the laser line changes depending on the distance.
- **The measuring tool is equipped with a wireless interface.** Local operating restrictions, e.g. in aeroplanes or hospitals, must be observed.

Working with the Laser Target Plate

The laser target plate (28) improves visibility of the laser beam in unfavourable conditions and at greater distances.

The reflective half of the laser target plate (28) improves visibility of the laser line. The transparent half 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. Place the measuring tool with the 1/4" tripod mount (17) on the thread of the tripod (32) or a conventional camera tripod. Use the 5/8" tripod mount (18) to se-

cure the measuring tool on a conventional building tripod. Tighten the measuring tool using the locking screw of the tripod.

Roughly align the tripod before switching on the measuring tool.

Securing with the universal holder (accessory) (see figure B)

Using the universal holder (25), you can secure the measuring tool on vertical surfaces, pipes or magnetizable materials, for example. The universal holder is also suitable for use as a building tripod and facilitates height adjustment of the measuring tool.

Roughly align the universal holder (25) before switching on the measuring tool.

Working with the laser receiver (accessory) (see figure B)

Use the laser receiver (29) to improve detection of the laser lines in adverse lighting conditions (bright environment, direct sunlight) and over greater distances. When working with the laser receiver, switch on receiver mode (see "Receiver Mode", page 21).

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 colours.

Example applications (see figures A–F)

Examples of possible applications for the measuring tool can be found on the graphics pages.

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 protective bag (31) or the case (34).

If the measuring tool needs to be repaired, send it off in the protective bag (31) or the case (34).

After-Sales Service and Application Service

Our after-sales service responds to your questions concerning maintenance and repair of your product as well as spare parts. You can find explosion drawings and information on spare parts at: www.bosch-pt.com

The Bosch product use advice team will be happy to help you with any questions about our products and their accessories.

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

Cambodia

Robert Bosch (Cambodia) Co., Ltd
Unit 8BC, GT Tower, 08th Floor, Street 169,
Czechoslovakia Blvd, Sangkat Veal Vong
Khan 7 Makara, Phnom Penh
VAT TIN: 100 169 511
Tel.: +855 23 900 685
Tel.: +855 23 900 660
www.bosch.com.kh

People's Republic of China China Mainland

Bosch Power Tool (China) Co. Ltd.
Bosch Service Center
567, Bin Kang Road
Bin Kang District
Hangzhou, Zhejiang Province
China 310052
Tel.: (0571) 8887 5566 / 5588
Fax: (0571) 8887 6688 x 5566# / 5588#
E-Mail: bsc.hz@cn.bosch.com
www.bosch-pt.com.cn

HK and Macau Special Administrative Regions

Robert Bosch Co. Ltd.
Flat B, 2/F, Yeung Yiu Chung No. 6 Industrial Building,
19 Cheung Shun Street
Cheung Sha Wan
Kowloon, Hong Kong
Customer Service Hotline: +852 2101 0235
Fax: +852 2590 9762
E-Mail: info@hk.bosch.com
www.bosch-pt.com.hk

India

Bosch Service Center
69, Habibullah Road, (Next to PSBB School), T. Nagar
Chennai-600077
Phone: (044) 64561816
Bosch Service Center
18, Community Center
Phase 1, Mayapuri
New Delhi-110064
Phone: (011) 43166190

Indonesia

PT Robert Bosch
Palma Tower 10th Floor
Jalan RA Kartini II-S Kaveling 6
Pondok Pinang, Kebayoran Lama
Jakarta Selatan 12310
Tel.: (21) 3005-5800
www.bosch-pt.co.id

Malaysia

Robert Bosch Sdn. Bhd.(220975-V) PT/SMY
 No. 8A, Jalan 13/6
 46200 Petaling Jaya
 Selangor
 Tel.: (03) 79663194
 Toll-Free: 1800 880188
 Fax: (03) 79583838
 E-Mail: kiathoe.chong@my.bosch.com
 www.bosch-pt.com.my

Pakistan

Robert Bosch Middle East FZE – Pakistan Liaison Office
 2nd Floor Plaza # 10, CCA Block, DHA Phase 5
 Lahore, 54810
 Phone: +92(303)4444311
 Email: Faisal.Khan@bosch.com

Philippines

Robert Bosch, Inc.
 28th Floor Fort Legend Towers,
 3rd Avenue corner 31st Street,
 Fort Bonifacio, Global City,
 1634 Taguig City
 Tel.: (632) 8703871
 Fax: (632) 8703870
 www.bosch-pt.com.ph

Singapore

Powerwell Service Centre Ptd Ltd
 Bosch Authorised Service Centre (Power Tools)
 4012 Ang Mo Kio Ave 10, #01-02 TECHplace
 Singapore 569628
 Tel.: 6452 1770
 Fax: 6452 1760
 E-Mail: ask@powerwellsc.com
 www.powerwellsc.com
 www.bosch-pt.com.sg

Thailand

Robert Bosch Ltd.
 FYI Center Tower 1, 5th Floor,
 2525 Rama IV Road, Klongtoei,
 Bangkok 10110
 Tel.: 02 0128888
 Fax: 02 0645802
 www.bosch.co.th
 Bosch Service – Training Centre
 La Salle Tower Ground Floor Unit No.2
 10/11 La Salle Moo 16
 Srinakharin Road
 Bangkaew, Bang Plee
 Samutprakarn 10540
 Tel.: 02 7587555
 Fax: 02 7587525

Vietnam

Branch of Bosch Vietnam Co., Ltd in HCMC
 14th floor, Deutsches Haus, 33 Le Duan
 Ben Nghe Ward, District 1, Ho Chi Minh City
 Tel.: (028) 6258 3690
 Fax: (028) 6258 3692 - 6258 3694

Hotline: (028) 6250 8555
 Email: tuvankhachhang-pt@vn.bosch.com
 www.bosch-pt.com.vn

Bahrain

EA Juffali and Brothers for Technical Equipment Company.
 Kingdom of Bahrain, Al Aker - Block 0624 - Road 2403 -
 Building 0055D
 Phone: +97317704537
 Fax: +973177045257
 Email: h.berjas@ejab.com.sa

Egypt

RBEG-LLC
 22 Kamal Eldin Hussein
 Sheraton Heliopolis
 11799 Cairo
 E-mail: boschegypt.powertools@eg.bosch.com

Iran

Robert Bosch Iran
 3rd Floor, No 3, Maadiran Building
 Aftab St., Khodami St., Vanak Sq.
 Tehran 1994834571
 Phone: +9821- 86092057

Iraq

Sahba Technology Group
 Al Muthana airport road
 Baghdad
 Phone Bagdad: +964 (0) 7 901 930366
 Phone Dubai: +971 (0) 4 422 1898
 Email: duraid@sahbatechnology.com

Jordan

Roots Arabia – Jordan
 Al-Hurriyah Street, Al-Muqabalein
 Amman 11623, Jordan
 P.O. Box: 110068
 Tel. : +962 6 4398990
 E-mail: bosch@rootsjordan.com

Kuwait

Shuwaikh Industrial Area, Block 1, Plot 16, Street 3rd
 P.O. Box 164 – Safat 13002
 Phone: +965 - 2496 88 88
 Fax: +965 - 2481 08 79
 E-mail: josephkr@aalmutawa.com

Lebanon

Tehini Hana & Co. S.A.R.L.
 P.O. Box 90-449
 Jdeideh 1202 2040
 Dora-Beirut
 Phone: +9611255211
 Email: service-pt@tehini-hana.com

Libya

El Naser for Workshop Tools
 Swanee Road, Alfalah Area
 Tripoli
 Phone: +218 21 4811184

Oman

Malatan Trading & Contracting LLC
 P.O. Box 131, Ruwi, Muscat
 Postal Code: 112, Sultanate of Oman
 Phone: +968 2479 4035/4089/4901
 Mob: +968-91315465
 Fax: +968 2479 4058
 E-Mail: sudhirkumar@malatan.net

Qatar

International Construction Solutions W L L
 P. O. Box 51, Doha
 Phone: +974 40065458
 Fax: +974 4453 8585
 Email: csd@icsdoha.com

Saudi Arabia

Juffali Technical Equipment Co. (JTECO)
 P.O.Box: 1049 – Jeddah 21431 – KSA
 Jeddah: 00966 (0) 12 692 0770 – Ext 433
 Riyadh: 00966 (0) 11 409 3976 – Ext-30/34/39
 Dammam: 00966 (0) 13 833 9565
 E-mail: M.Zreik@ejab.com.sa

Syria

Dallal Establishment for Power Tools
 Damascus. Baramkeh street - Ibn Amer street,
 Phone: +963112241006 or 009631122414009
 Mobile: 00963991141005
 Email: rita.dallal@hotmail.com

United Arab Emirates

Central Motors & Equipment,
 P.O. Box 26255, Dubai
 Dubai: 00971 (0) 4 3090920/3090930
 Abu Dhabi: 00971 (0) 2 4017745
 Sharjah: 00971 (0) 6 5932777
 Al Ain: 00971 (0) 3 7157419
 E-Mail: Mallappa.Madari@centralmotors.ae

Yemen

Abu Alrejal Trading Corporation
 P.O. Box : 17024 , Zubeiry St.
 Sana'a, Yemen
 Tel: +967-1-20 20 10
 Fax: +967-1-47 19 17
 E-mail: tech-tools@abualrejal.com/yahya@abualrejal.com

Ethiopia

Forever plc
 Kebele 2,754, BP 4806,
 Addis Ababa
 Phone: +251 111 560 600
 Email: foreverplc@ethionet.et

Ghana

Robert Bosch Ghana Limited
 21 Kofi Annan Road Airport Residential Area Accra
 Tel. +233 (0)3027 94616

Kenya

Robert Bosch East Africa Ltd
 Mpaka Road P.O. Box 856
 00606 Nairobi

Nigeria

Robert Bosch Nigeria Ltd.
 52–54 Isaac John Street P.O. Box
 GRA Ikeja – Lagos

Tanzania

Diesel & Autoelectric Service Ltd.
 117 Nyerere Rd., P.O. Box 70839
 Vingunguti 12109, Dar Es Salaam
 Phone: +255 222 861 793/794

Australia, New Zealand and Pacific Islands

Robert Bosch Australia Pty. Ltd.
 Power Tools

Locked Bag 66
 Clayton South VIC 3169
 Customer Contact Center
 Inside Australia:
 Phone: (01300) 307044
 Fax: (01300) 307045

Inside New Zealand:
 Phone: (0800) 543353
 Fax: (0800) 428570

Outside AU and NZ:
 Phone: +61 3 95415555
 www.bosch-pt.com.au
 www.bosch-pt.co.nz

Great Britain

Robert Bosch Ltd. (B.S.C.)
 P.O. Box 98
 Broadwater Park
 North Orbital Road
 Denham Uxbridge
 UB 9 5HJ
 At www.bosch-pt.co.uk you can order spare parts or arrange
 the collection of a product in need of servicing or repair.
 Tel. Service: (0344) 7360109
 E-Mail: boschservicecentre@bosch.com

Ireland

Origo Ltd.
 Unit 23 Magna Drive
 Magna Business Park
 City West
 Dublin 24
 Tel. Service: (01) 4666700
 Fax: (01) 4666888

Republic of South Africa**Customer service**

Hotline: (011) 6519600

Gauteng – BSC Service Centre

35 Roper Street, New Centre
 Johannesburg
 Tel.: (011) 4939375
 Fax: (011) 4930126
 E-Mail: bsctools@icon.co.za

KZN – BSC Service Centre

Unit E, Almar Centre
 143 Crompton Street