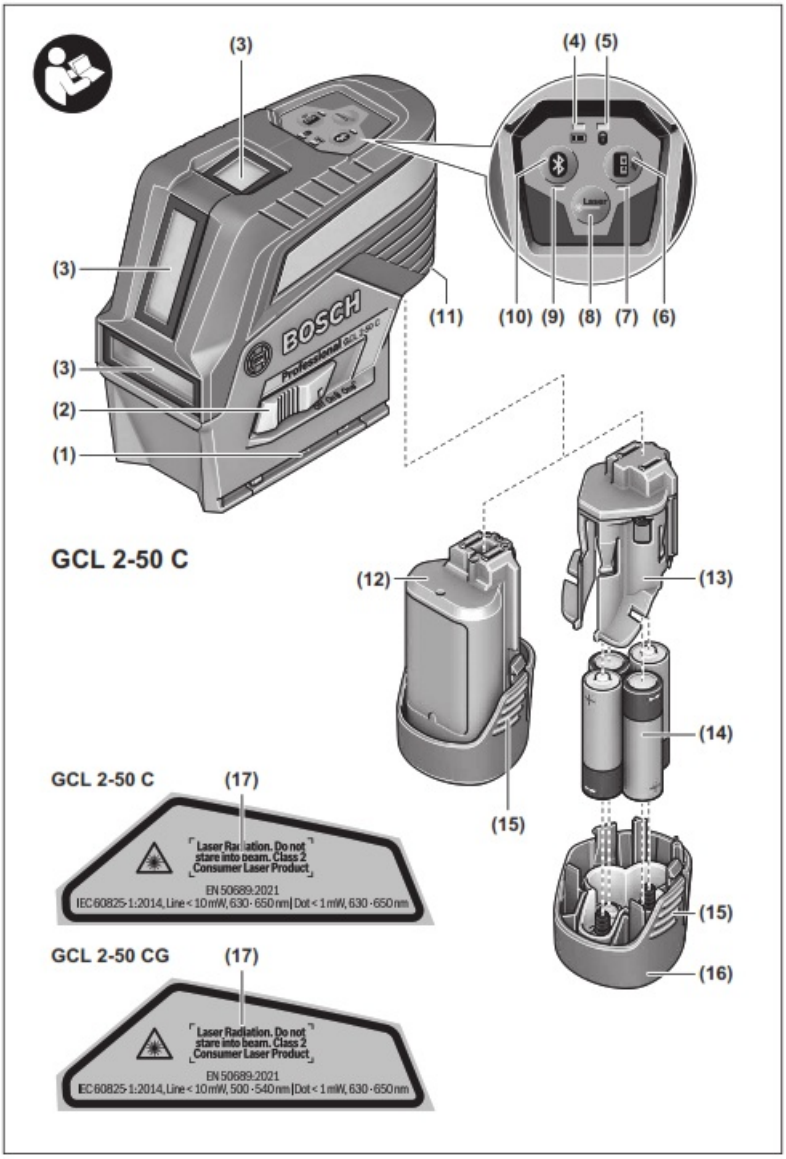
BOSCH GCL2-50C Point and Line Laser Instruction Manual

GCL Professional
2-50 C | 2-50 CG
Original instructions

Contents

GCL2-50C Point and Line Laser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EN 50689:2021
IEC 60825-1:2014, Line < 10 mW, 630 - 650 nm | Dot < 1 mW, 630 - 650 nm
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EN 50689:2021
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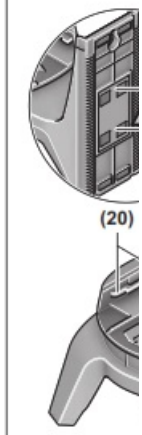
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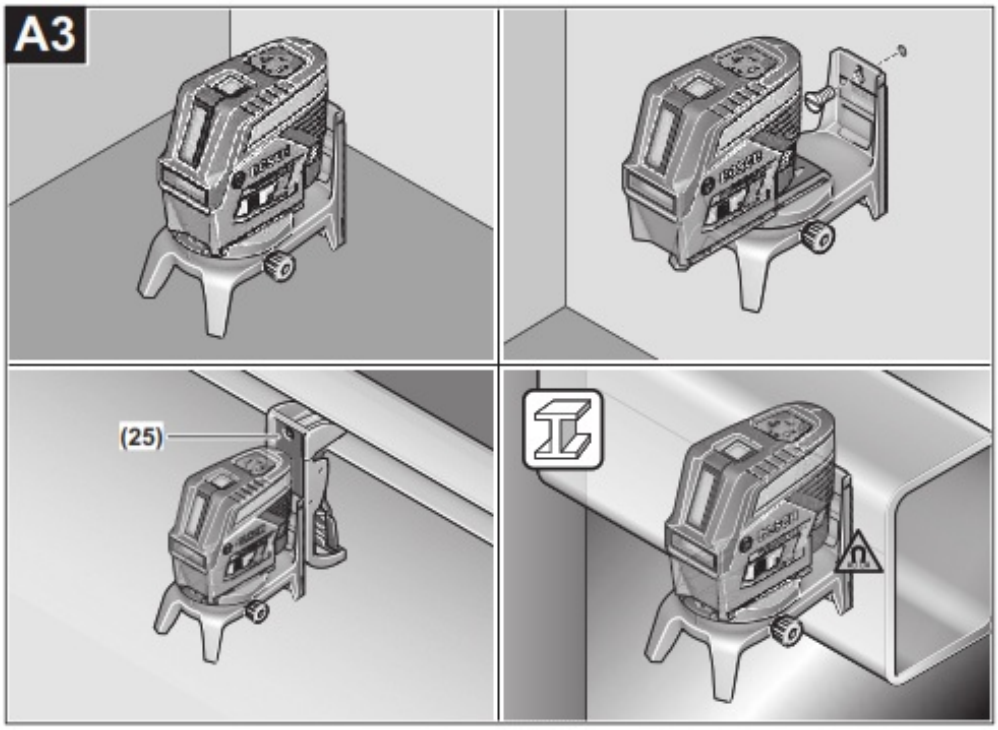
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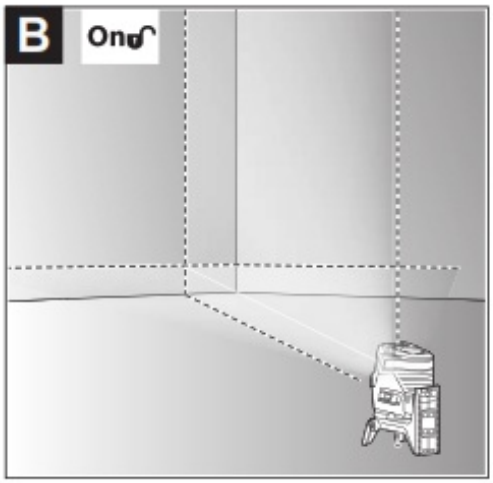
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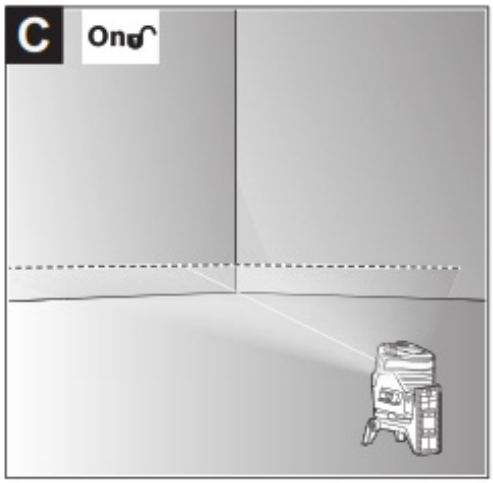
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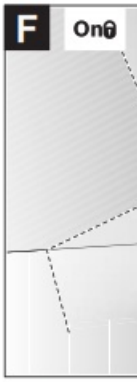
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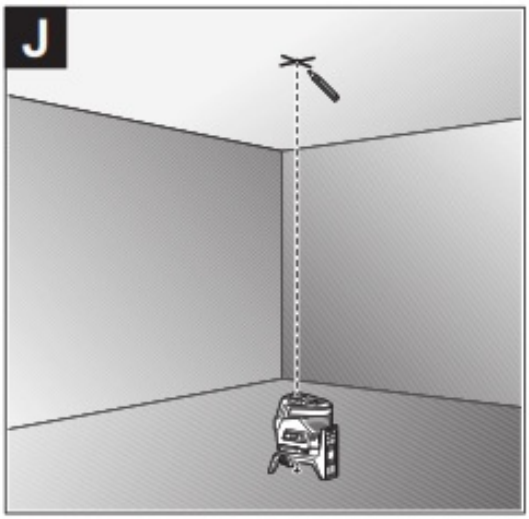

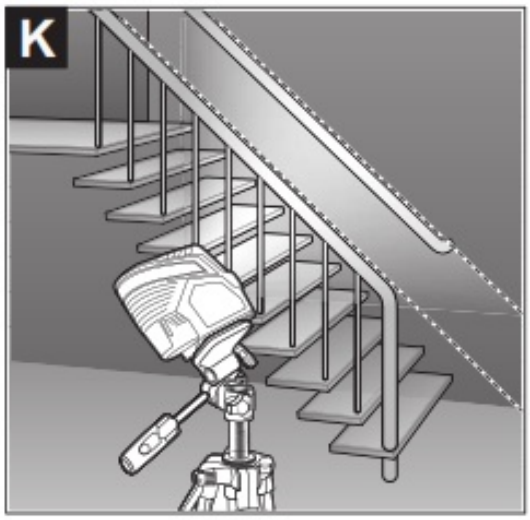

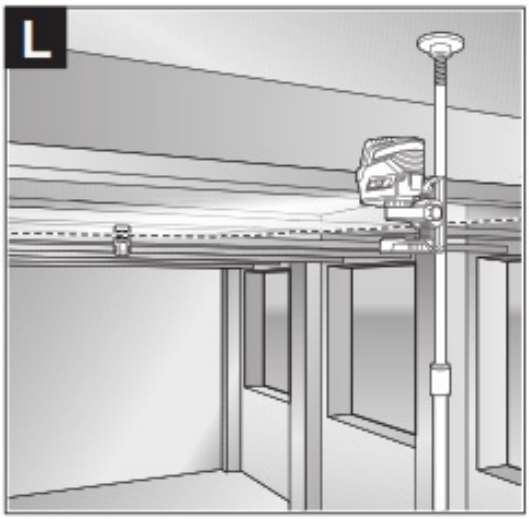

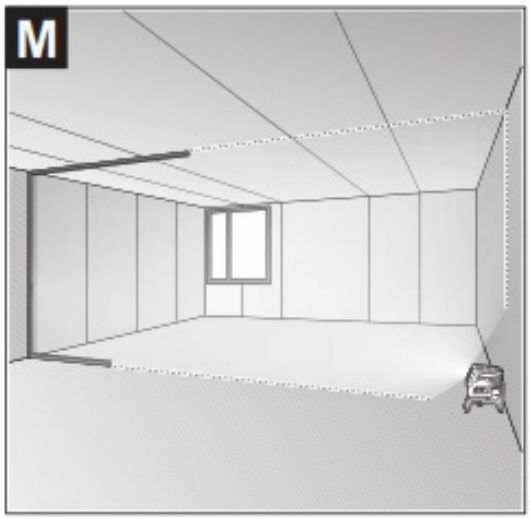

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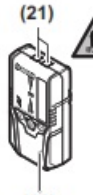
0 601 015 D



(21)

(29)
LR 6
0 601 069 H00
(GCL 2-50 C)

(32)
BT 150
0 601 096 B00

(36)
L-BOXX 13
1 600 A01 2G

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 unrecognizable. 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 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.
- 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 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 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.
- Do not open the battery. There is a risk of short-circuit- ing.
- 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 dditional 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.

 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.
- 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.
- The measuring tool is equipped with a wireless interface. Local operating restrictions, e.g. in aero planes 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 li- cense.

- **Caution!** When using the measuring tool with Bluetooth®, a fault may occur in other devices and systems, aero planes 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

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 and plumb points.
You can use the RM 2 rotating mount to rotate the measuring tool 360° around a central, always visible plumb point. This enables you to align the laser lines precisely, without having to change the position of the measuring tool.
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 shown refers to the illustration of the measuring tool on the graphic page.

(1) Guide groove	(19) Serial number
(2) On/off switch	(20) Guide rail a)
(3) Laser beam outlet aperture	(21) Magnet a)
(4) State of charge of rechargeable battery/non-rechargeable batteries	(22) Fastening slot a)
(5) Pendulum lock indicator	(23) Rotating mount a)
(6) Receiver mode button	(24) Fine adjustment screw of the rotating mount a)
(7) Receiver mode indicator	(25) Ceiling clip a)
(8) Button for laser operating mode	(26) Universal holder a)
(9) Bluetooth® connection indicator	(27) Rotating platform a)
(10) Bluetooth® button	(28) Remote control a)
(11) Battery bay	(29) Laser receiver a)
(12) Rechargeable battery a)	(30) Laser viewing glasses a)
(13) Battery adapter cover a)	(31) Laser target plate a)
(14) Non-rechargeable batteries a)	(32) Tripod a)
(15) Rechargeable battery/chargeable battery adapter release button a)	(33) Telescopic rod a)
(16) Battery adapter sealing cap	(34) Protective bag a)
(17) Laser warning label	(35) Battery adapter a)
(18) 1/4″ tripod mount	(36) Case a)

Technical Data

Point and line laser	**GCL 2-50 C**	**GCL 2-50 CG**
Article number	3 601 K66 G..	3 601 K66 H..
Working range A)		
– Standard laser lines	20 m	20 m
– With laser receiver	5–50 m	5–50 m
– Laser point facing up	10 m	10 m
– Laser point facing down	10 m	10 m
Levelling accuracy B)C)		
– Laser lines	±0.3 mm/m	±0.3 mm/m
– Laser points	±0.7 mm/m	±0.7 mm/m

Point and line laser	**GCL 2-50 C**	**GCL 2-50 CG**
Typical self-levelling range	±4°	±4°
Typical 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 D)	2 D)
Laser class	2	2
Pulse frequency		
– Operating without receiver mode	23 kHz	23 kHz
– Operating with receiver mode	10 kHz	10 kHz
Laser line		
– Laser type	< 10 mW, 630–650 nm	< 10 mW, 500–540 nm
– Colour of the laser beam	Red	Green
– C_6	10	10
– Divergence	50 × 10 mrad (full angle)	50 × 10 mrad (full angle)
Laser point		
– Laser type	< 1 mW, 630–650 nm	< 1 mW, 630–650 nm
– Colour of the laser beam	Red	Red
– C_6	1	1
– Divergence	0.8 mrad (full angle)	0.8 mrad (full angle)
Compatible laser receivers	LR 6, LR 7	LR 7
Tripod mount	1/4″	1/4″
Power supply		
– Rechargeable battery (Li-ion)	10.8 V/12 V	10.8 V/12 V
– Non-rechargeable batteries (alka line manganese)	4 × 1.5 V LR6 (AA) (with battery ada pter)	4 × 1.5 V LR6 (AA) (with battery ad apter)
Operating duration in operating mo de B)E)	Rechargeable battery/non-recharge able batteries	Rechargeable battery/non-rechargeable batteries
– Cross-line and point mode	18 h/10 h	10 h/4 h
– Cross-line mode	25 h/16 h	13 h/6 h
– Line mode	35 h/28 h	15 h/12 h
– Point mode	60 h/32 h	60 h/32 h
Bluetooth® measuring tool		

– Compatibility	Bluetooth® 4.2 (Classic and Low Energy) F)	Bluetooth® 4.2 (Classic and Low Energy) F)
– Operating frequency range	2402–2480 MHz	2402–2480 MHz
– Max. transmission power	2.5 mW	2.5 mW
Bluetooth® smartphone		
– Compatibility	Bluetooth® 4.0 (Classic and Low Energy) F)	Bluetooth® 4.0 (Classic and Low Energy) F)
– Operating system	Android 6 (and above) iOS 11 (and above)	Android 6 (and above) iOS 11 (and above)
Weight according to EPTA-Procedure 01:2014		
– With rechargeable battery G)	0.62–0.63 kg	0.62–0.63 kg
– With non-rechargeable batteries	0.58 kg	0.58 kg
Dimensions (length × width × height)		
– Without holder	136 × 55 × 122 mm	136 × 55 × 122 mm
– With rotating mount	Dia.: 188 × 180 mm	Dia.: 188 × 180 mm
Protection rating H)	IP54 (dust and splash-proof)	IP54 (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 +50 °C	–10 °C to +50 °C
Permitted ambient temperature during storage	–20 °C to +70 °C	–20 °C to +70 °C
Recommended rechargeable 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) The values stated presuppose normal to favorable environmental conditions (e.g. no vibration, no fog, no smoke, no direct sunlight). Extreme fluctuations in temperature can cause deviations in accuracy.
D) Only non-conductive deposits occur, whereby occasional temporary conductivity caused by condensation is expected.
E) Shorter operating times in Bluetooth® operation and/or in conjunction with RM 3
F) When using Bluetooth® Low Energy devices, it may not be possible to establish a connection depending on the model and operating system. Bluetooth® devices must support the SPP profile.
G) Depends on battery in use
H) The lithium-ion battery and the AA1 battery adapter are excluded from IP54.
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: 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. To insert the charged battery (12), slide it into the battery bay (11) until you feel it engage. To remove the battery (12), press the release buttons (15) and pull it out of the battery bay (11). 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 (13) of the battery adapter into the battery bay (11). Place the batteries into the cover as per the illustration on the sealing cap (16). Slide the sealing cap over the cover until you feel it click into place.

To remove the batteries (14), press the release buttons (15) of the sealing cap (16) 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 (11) facing upward. Remove the batteries. To remove the cover (13) 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 (4) shows the state of charge of the rechargeable battery/non-rechargeable batteries:

LED	State of charge
Green continuous light	100–75%
Yellow continuous light	75–35%
Red flashing light	<35%
No light	– Rechargeable battery defective – Non-rechargeable 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.
Working with the RM 2 rotating mount (see figures A1–A3)
You can use the rotating mount (23) to rotate the measuring tool 360° around a central, always visible plumb point. This enables you to set up the laser lines without having to change the position of the measuring tool.
You can use the fine adjustment screw (24) to align vertical laser lines precisely with reference points.

Place the measuring tool with the guide groove (1) on the guide rail (20) of the rotating mount (23) and slide the measuring tool all the way onto the platform.
To disconnect the measuring tool, pull it off the rotating mount in the opposite direction.
Rotating mount positioning options:
– Standing on a flat surface,
– Screwed to a vertical surface,
– On metallic ceiling strips using the ceiling clip (25),
– On metallic surfaces using the magnets (21).

- Keep your fingers away from the rear side of the magnetic accessory while attaching the accessory to surfaces. The strong pulling force of the magnets may jam your fingers.

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 26). 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 26).
- 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 (2) 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 beams from the outlet apertures (3).

- 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 (2) 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 50 °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.
Automatic Shut-Off
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 (2) to the “Off” position first and then switch the measuring tool back on, or press the laser operating mode

button (8).

Temporarily Deactivating Automatic Shut-Off

To deactivate the automatic shut-off function, hold down the laser mode button (8) 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.

Note: If the operating temperature exceeds 45 °C, automatic shut-off can no longer be deactivated.

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

Setting the Operating Mode

The measuring tool has several operating modes, which you can switch between at any time:

- Cross-line and point mode: The measuring tool generates a horizontal and a vertical laser line as well as two vertical laser points, one facing up, the other down. The laser lines cross at a 90° angle.
- Horizontal line mode: The measuring tool generates a horizontal laser line in front of it.
- Vertical line mode: The measuring tool generates a vertical laser line in front of it. Positioning the measuring tool in the room displays the vertical laser line on the ceiling beyond the top laser point. If the measuring tool is positioned directly against a wall, the vertical laser line almost encircles the entire space (360° line).
- Point mode: The measuring tool generates two vertical laser points, one facing up, the other down. All operating modes, apart from point operation, can be selected with both automatic levelling or the pendulum lock. To change the operating mode, press the laser mode button (8).

Sequence of actions	**Horizontal line mode**	**Vertical line mode**	**Point mode**	**Pendulum lock indicator (5)**	**Figure**
On/off switch (2) in position ” On”	●	●	●		B
	Cross-line mode				
 Press the laser operating mode button (8) once	●	–	–		C
 Press the laser operating mode button (8) twice	–	–	●		D
 Press the laser operating mode button (8) three times	–	–	–		E
 Press the laser operating mode button (8) four times	●	●	●		B
	Cross-line mode				

If, during work with automatic levelling, you switch to “work On), the first combination option of this mode’s indicators ing with pendulum lock” mode (on/off switch (2) in position is always activated.

Working with the pendulum lock

Sequence of actions	Horizontal line mode	Vertical line mode	Point mode	Pendulum lock indicator (5)	Figure
On/off switch (2) in position ” On”	●	●	–		F
	Cross-line mode				
Laser Press the laser operating mode button (8) once	●	–	–		
Laser Press the laser operating mode button (8) once	–	●	–		
Laser Press the laser operating mode button (8) three times	●	●	–		F

If, during work with pendulum lock, you switch to “working with automatic levelling” mode (on/off switch (2) in position On), the first combination option of this mode’s indicators is always activated.

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 (6). The receiver mode indicator (7) 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 (6) again to work without a laser receiver. The receiver mode indicator (7) will go out.

Automatic Levelling

Working with Automatic Levelling (see figures B–E) Position the measuring tool on a level, firm surface or attach it to the rotating mount (23).

For work with automatic levelling, slide the on/off switch (2) to the ” On” position.

The automatic levelling function automatically levels irregularities within the self-levelling range of ±4°. The measuring tool has been levelled as soon as the laser beams stop flashing.

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 beams will flash quickly.

If this is the case, set up the measuring tool in a level position and wait for the self-levelling to take place. As soon as the measuring tool is within the self-levelling range of ±4°, the laser beams will light up continuously.

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

Upon levelling, check the position of the laser beams with regard to the reference points to avoid errors arising from a change in the measuring tool’s position.

Working with a pendulum lock (see figure F)

For work with the pendulum lock, slide the on/off switch (2) to the ” On” position. The pendulum lock indicator

(5) lights up red and the laser lines continuously flash slowly. For work with the pendulum lock, 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 beams are no longer levelled and no longer necessarily run perpendicular to one another.

Remote control via Bluetooth®

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

Information about 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.

Bosch applications (apps) are available for remote controlling. They can be downloaded in the respective stores, depending on the terminal/device:

Switching on Bluetooth®

To switch on Bluetooth®, press the Bluetooth® button (10).

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 (9) 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 (9) will
flash.

Switching off Bluetooth®

To switch off Bluetooth® for remote control, press the Bluetooth® button (10) or switch off the measuring tool.

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.

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.

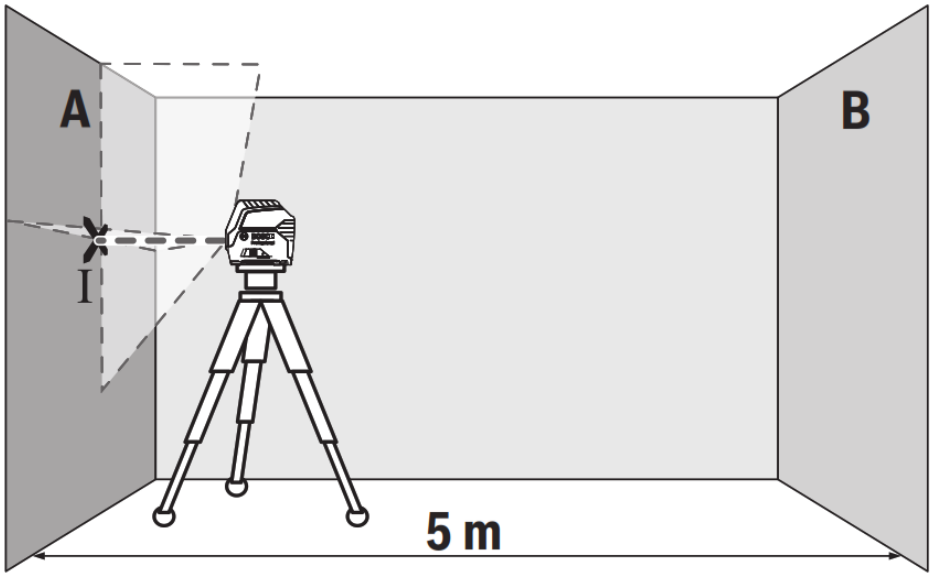
For this reason, check the levelling accuracy each time before beginning work.

First check the height accuracy and levelling accuracy of the horizontal laser line, then the levelling accuracy of the vertical laser line and the plumb accuracy.

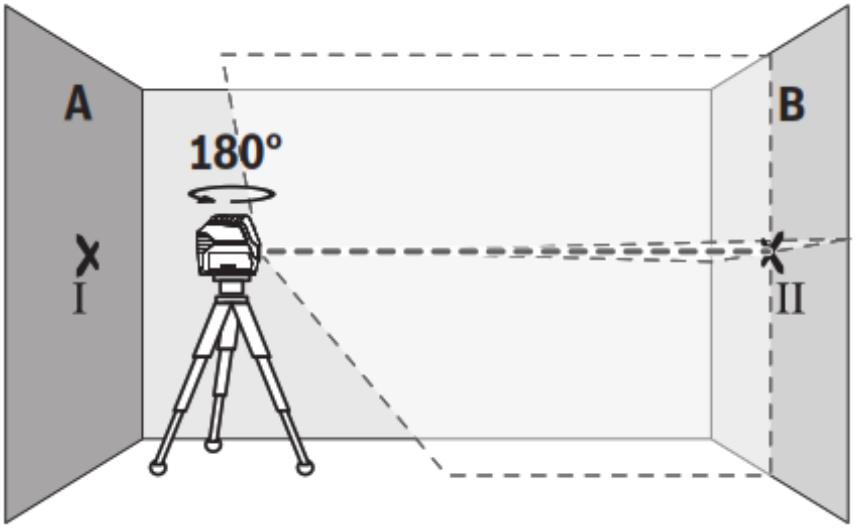
Should the measuring tool exceed the maximum deviation during one of the tests, please have it repaired by a Bosch after-sales service.

Checking the Height Accuracy of the Horizontal Line

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, level surface. Switch on the measuring tool. Select cross-line mode with automatic levelling.

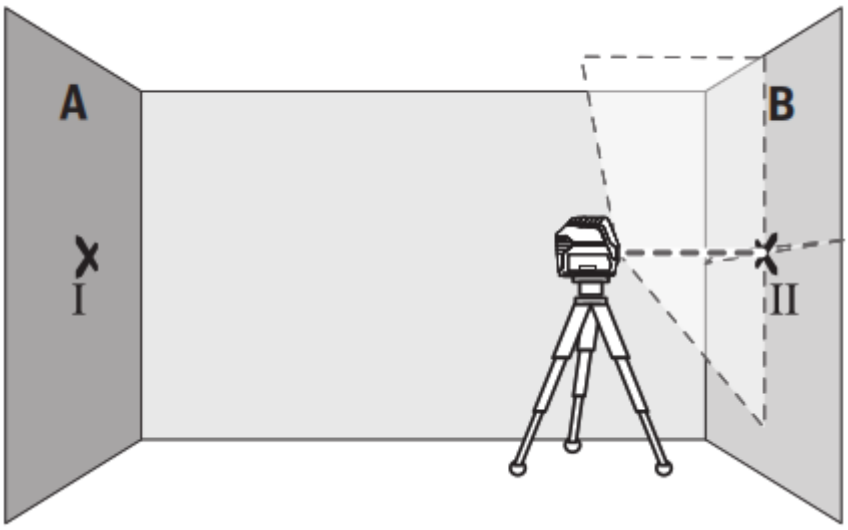


- Aim the laser at the closer wall A and allow the measuring tool to level in. Mark the middle of the point at which the laser lines cross on the wall (point I).
-

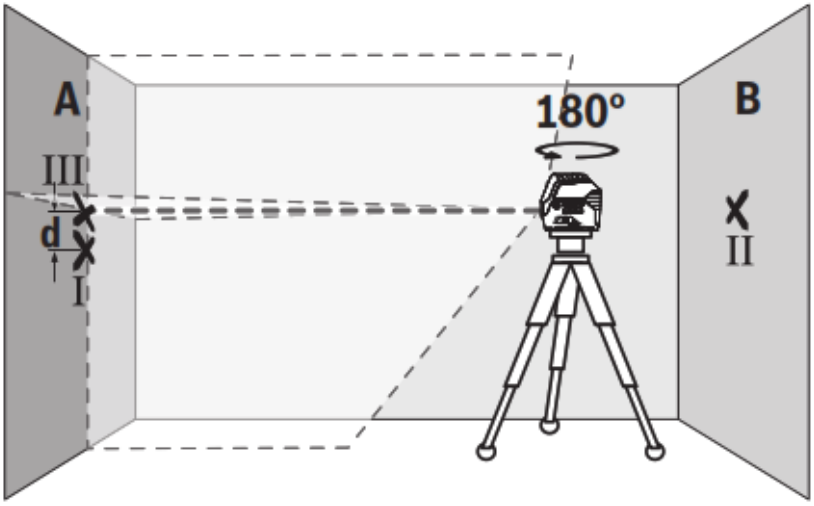


Turn the measuring tool 180°, allow it to level in and mark the point where the laser lines cross on the opposite wall B (point II).

- 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.



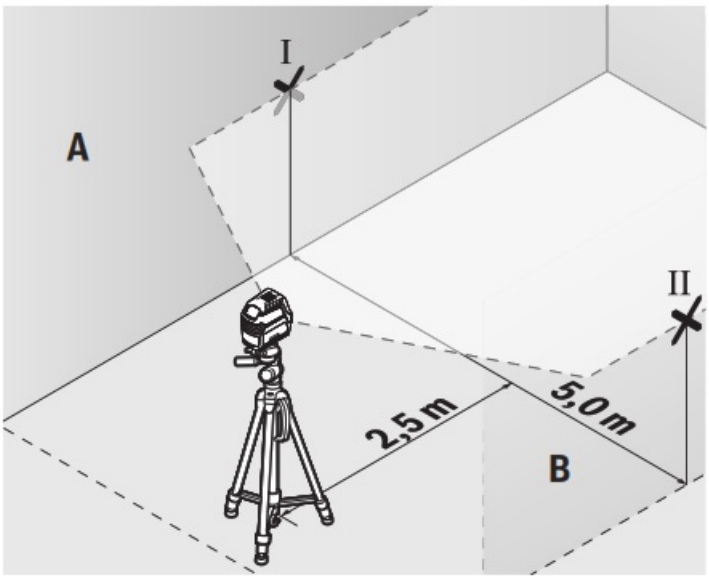
- Turn the measuring tool 180° without adjusting the height. Aim it at wall A such that the vertical laser line runs through the already marked point I. Allow the measuring tool to level in and mark the point where the laser lines cross on wall A (point III).
- The discrepancy d between the two marked 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 × 5 m = 10 m is as follows: 10 m × ±0.3 mm/m = ±3 mm. The discrepancy d between points I and III must therefore amount to no more than 3 mm.

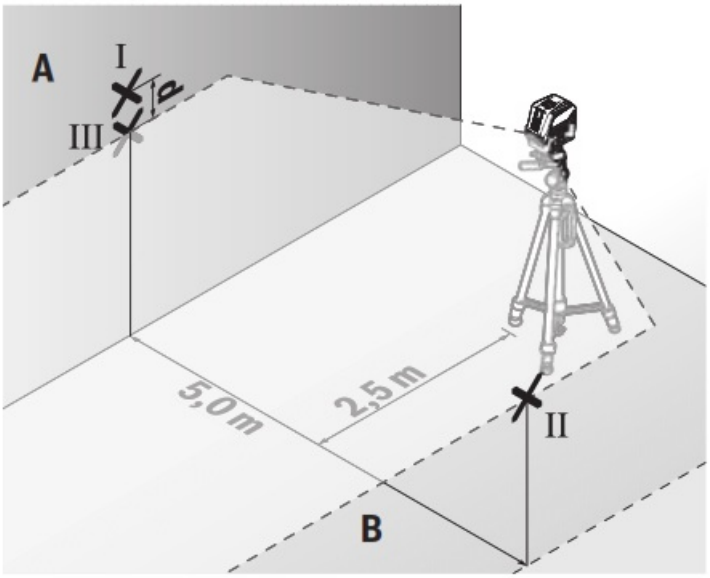
Checking the Level Accuracy of the Horizontal Line

For this check, you will need a free area of 5 × 5 m.

- Mount the measuring tool in the middle between walls A and B on a tripod, or place it on a firm, level surface. Select horizontal line mode with automatic levelling and allow the measuring tool to level in.



- At a distance of 2.5 m from the measuring tool, mark the centre of the laser line on both walls (point I on wall A and point II on wall B).



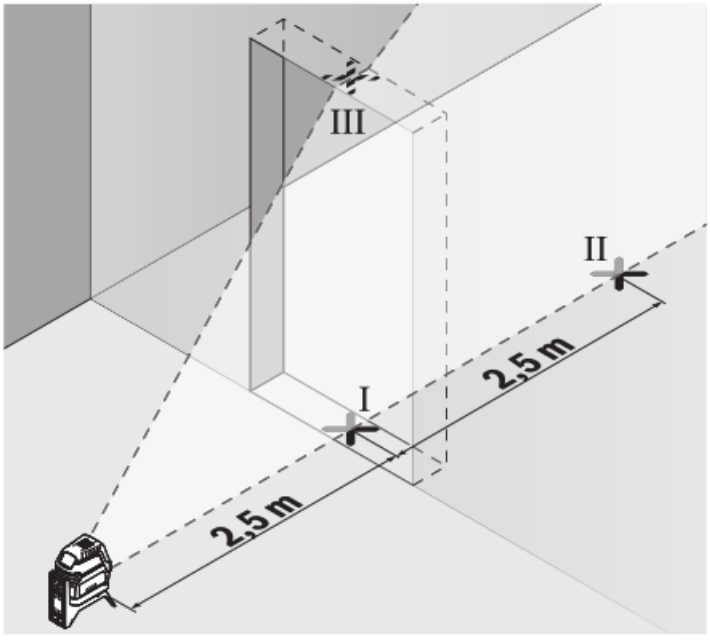
- Set up the measuring tool at a 5 m distance and rotated by 180° and allow it to level in.
- Align the height of the measuring tool (using the tripod or by placing objects underneath as required) so that the centre of the laser line exactly hits the previously marked point II on wall B.
- Mark the centre of the laser line on wall A as point III (ver- tically above or below point I).
- The discrepancy d between the two marked points I and III on wall A reveals the actual horizontal deviation of the measuring tool.

The maximum permitted deviation on the measuring distance of 2 × 5 m = 10 m is as follows: 10 m × ±0.3 mm/m = ±3 mm. The discrepancy d between points I and III must therefore amount to no more than 3 mm.

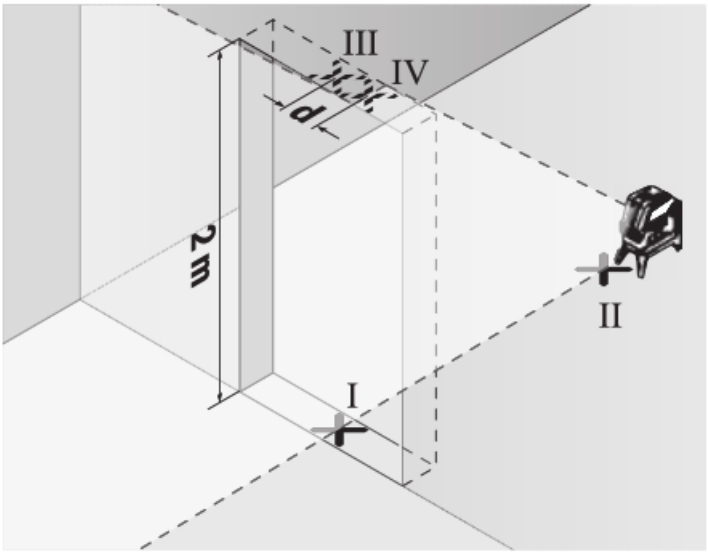
Checking the Level Accuracy of the Vertical Line

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). Select vertical line mode with automatic levelling. Aim the laser line at the door opening and allow the measuring tool to level in.



- 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).



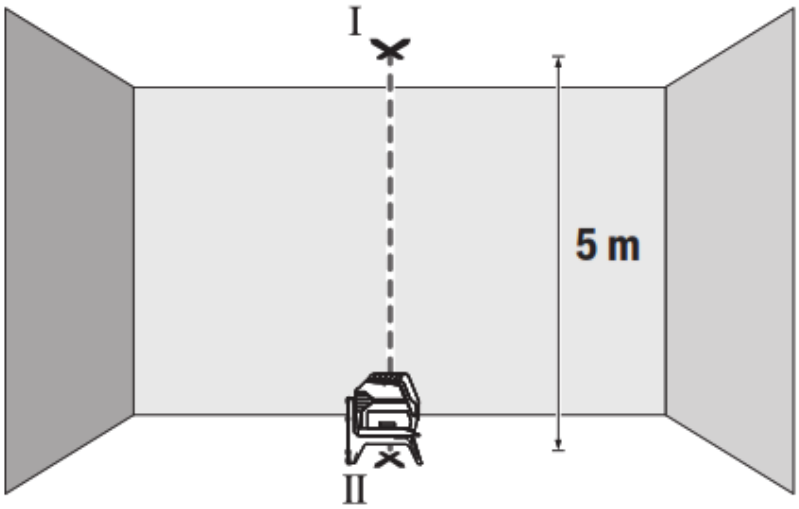
- Rotate the measuring tool 180° and position it on the other side of the door opening, directly behind point II. Allow the measuring tool to level in and align the vertical laser line in such a way that its centre passes through points I and II exactly.
- Mark the centre of the laser line on the upper 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.

You can calculate the maximum permitted deviation as follows:
Doubled height of the door opening × 0.3 mm/m
Example: At a door opening height of 2 m, the maximum deviation amounts to 2 × 2 m × ±0.3 mm/m = ±1.2 mm. The points III and IV must therefore be no further than 1.2 mm from each other.

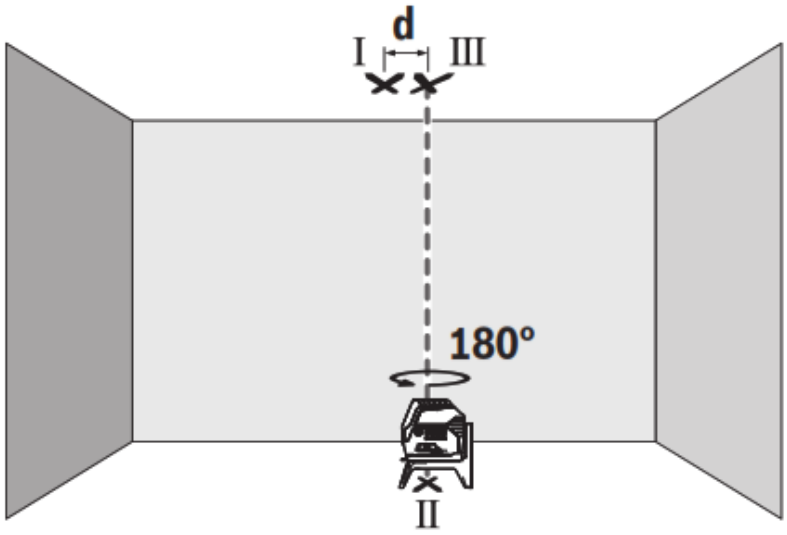
Checking Plumb Accuracy

For this check, you will need a clear measuring space on firm ground with a distance of approx. 5 m between the floor and the ceiling.

- Mount the measuring tool onto the rotating mount (23) and place it on the floor. Select point mode and allow the measuring tool to level in.



- Mark the centre of the top laser point on the ceiling (point I). Also mark the centre of the bottom laser point on the floor (point II).



- Turn the measuring tool by 180°. Position it so that the centre of the bottom laser point falls onto the marked point II. Allow the measuring tool to level in. Mark the centre of the top laser point (point III).
- The discrepancy d between the two marked points I and Ⅲ on the ceiling reveals the actual deviation of the measuring tool from the vertical plane.

You can calculate the maximum permitted deviation as fol-lows:
Doubled distance between floor and ceiling × 0.7 mm/m
Example: At a floor-to-ceiling distance of 5 m, the maximum deviation amounts to 2 × 5 m × ±0.7 mm/m = ±7 mm.
The points I and Ⅲ must therefore be no further than 7 mm from each other.
Working Advice

- Only the center of the laser point or laser line must be used for marking. The size of the laser point/the width of the laser line changes depending on the distance.

Working with the Laser Target Plate
The laser target plate (31) improves visibility of the laser beam in unfavorable conditions and at greater distances. The reflective surface of the laser target plate (31) improves visibility of the laser line. The transparent surface enables the laser line to be seen from behind the laser target plate.
Working with the Tripod (Accessory)
A tripod offers a stable, height-adjustable support surface for measuring. Place the measuring tool with the 1/4″ tripod mount (18) on the thread of the tripod (32) or a conventional camera 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 L)
You can secure the measuring tool, for example, on vertical surfaces or magnetizable materials using the universal holder (26). The universal holder is also suitable for use as a floor stand and facilitates the height adjustment of the measuring tool.

- Keep your fingers away from the rear side of the magnetic accessory while attaching the accessory to surfaces. The strong pulling force of the magnets may jam your fingers.

  Roughly align the universal holder (26) before switching on the measuring tool.

Working with the laser receiver (accessory) (see figure L)
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 25).
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 (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 colors.

Example applications (see figures G–M)
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.
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.
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
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.
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E-Mail: **boschservicecentre@bosch.com**
You can find further service addresses at: **www.bosch-pt.com/serviceaddresses**
Transport
The recommended lithium-ion batteries are subject to legislation on the transport of dangerous goods. The user can transport the batteries by road without further requirements.
When shipping by third parties (e.g.: by air transport or forwarding agency), special requirements on packaging and labelling must be observed. For preparation of the item being shipped, consulting an expert for hazardous material is required.
Dispatch battery packs only when the housing is undamaged. Tape or mask off open contacts and pack up the battery in such a manner that it cannot move around in the packaging. Please also observe the possibility of more detailed national regulations.

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:

According to the Directive 2012/19/EU on waste electrical and electronic equipment and its transposition into national law, measuring tools that are no longer usable, and, according to the Directive 2006/66/EC, defective or drained batteries must be collected separately and disposed of in an environmentally correct manner.

If disposed incorrectly, waste electrical and electronic equipment may have harmful effects on the environment and human health, due to the potential presence of hazardous substances.

Only for United Kingdom:

According to The Waste Electrical and Electronic Equipment Regulations 2013 (SI 2013/3113) (as amended) and the Waste Batteries and Accumulators Regulations 2009 (SI 2009/890) (as amended), products that are no longer usable must be collected separately and disposed of in an environmentally friendly manner.

Battery packs/batteries:

Li-ion:

Please observe the notes in the section on transport (see “Transport”, page 29).

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Hereby, Robert Bosch Power Tools GmbH declares that the radio equipment type GCL 2-50 C/GCL 2-50 CG is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: –> **http://eu-doc.bosch.com/**

Declaration of Conformity

Hereby, Robert Bosch Limited as authorised representative acting on behalf of Robert Bosch Power Tools GmbH declares that the radio equipment type GCL 2-50 C, GCL 2-50 CG is in compliance with the Radio Equipment Regulations 2017. The full text of the declaration of conformity is available at the following internet address: –> **https://gb-doc.bosch.com**

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Documents / Resources

	**BOSCH GCL2-50C Point and Line Laser** [pdf] Instruction Manual GCL2-50C, GCL2-50CG, GCL2-50C Professional, GCL2-50CG Professional, GCL2-50C Point and Line Laser, Point and Line Laser, Line Laser