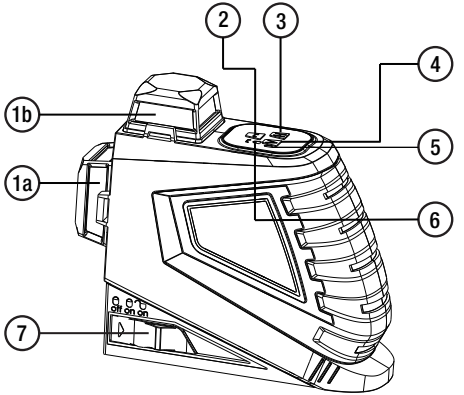
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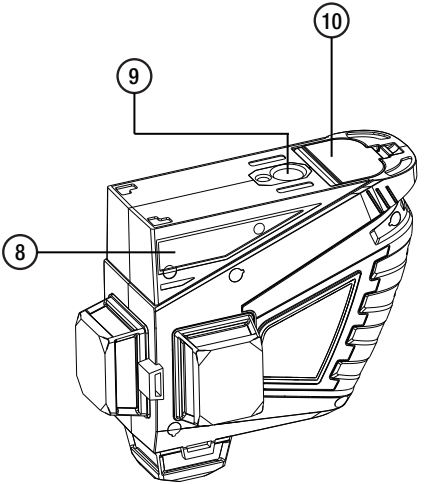
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SELF-LEVELING LASER

SAFETY NOTES

The measuring tool produces a class 2 laser beam radiation ac-cording to IEC 60825-1. This can cause damage to people's eyes, do not direct the laser beam at persons or animals and do not stare into the beam either direct or in reflected way or toward yourself. Do not allow children to use the laser measuring tool without supervision . Do not operate the measuring tool in explosive or flammable environments, such as in the presence of flammable liquids, gases or dusts.

FUNCTIONAL DESCRIPTION

Intended use

The measuring tool is intended for determining and checking ho-rizontal and vertical lines

TECHNICAL DATA

- Reference working Distance: 20m
- Reference working Distance: 30-50m (with laser receiver)
- Laser class: class 2
- Item: 520nm, < 1mw
- Leveling accuracy: ± 2mm / 10m
- Self-leveling range, typically: ±4°
- Leveling duration, typically: <4s
- Li-ion battery pack: 7.4V / 2600mAh lithium battery
- Qperation temperature: -10°C…. +40°C
- Storage temperature: -20°C…. +70°C
- Tripod mount: 1/4" & 5/8"
- Relative air humidity: max 90%
- Weight: 0.65kg
- Dimension: 160x75x136mm
- IP Rating: IP 54

PRODUCT FEATURES

1a. Exit opening for laser beam
1b. Exit opening for laser beam
2. "Pulse" function button (external function with detector)
3. Horizontal beam button
4. Vertical beam button
5 Battery low indicator
6. Indicator for operations without automatic leveling
7. On/off switch
8. Laser warning label
9. Tripod mount: 1/4" & 5/8"
10. Battery door

INSERTING /REPLACING THE BATTERY

7.4V Li-ion Battery pack is used for measuring tool.
To open the battery lid, insert the battery.

When the battery becomes weak, the battery low indicator continuously flashes red, the measuring tool can be operated for less than 2H.Take out weak battery, insert the battery into the adapter to recharge it. When battery charging is terminated, the indicator changes from red to green.

OPERATION

Initial Operation

Protect the measuring tool against moisture and direct sun light.

Do not expose the measuring tool to extreme temperatures or variations in temperature.

Do not leave it in vehicles for longer periods.

In case of significant variations in temperature, allow the me-asuring tool to adapt to ambient temperature before putting it into operation.

In case of extreme temperatures or variations in temperature, the accuracy of the measuring tool can be impaired.

Avoid heavy impact or falling of the measuring tool. After an he-avy impact on the measuring tool, an accuracy check should always be carried out before continuing to work.

Switch the measuring tool off during transport.

When switching off the leveling unit is locked in order to avoid damage during transport.

SWITCHING ON AND OFF

To turn on the measuring tool, slide the On/Off switch to the position (when working without automatic leveling) or to the position (when working with automatic leveling).

Immediately after switching it on, the measuring tool issues an horizontal laser plane by the exist openings.

To turn on or off the horizontal beam press “H” button. To turn on or off the vertical beam, press “V” button.

Do not point the laser beam at person or animal and do not look into the laser beam yourself, not even from far away.

To switch off the measuring tool, slide the On/Off switch to the “off” position, when switch off, the leveling unit is locked.

When the maximum internal operating temperature of 45° C is exceeded, the measuring tool switches off to protect the laser diode. After cooling down, the measuring tool is ready for operation and can be switched on again.

AUTOMATIC LEVELING

Operation with Automatic Leveling

Position the measuring tool on a plane and firm support, or mount it to the tripod. To operate with automatic leveling push the on/off switch to position. After switching on, the leveling function automatically compensates irregularities within the self-leveling range of +/- 4°. The leveling is finished as soon as the laser beams do not move any more.

If automatic leveling is not possible - e.g. because the surface where the measuring tool is placed deviates by more than 4° from the horizontal plane - the laser lines begin to flash rapidly Set the measuring tool in a plane position and wait until the self-leveling is performed. As soon as the measuring tool is within the self-leveling range of +/- 4° , all laser beams light up con-tinuously.

Operation without Automatic leveling

To operate without automatic leveling, slide the On/Off switch to the 🔒.When automatic levelling is switched off, indicator 6 lights up red and for first 30s laser beams flash slowly. When automatic levelling is switched off, you can hold the measuring tool freely in your hand or place it on an inclined surface.
Laser lines may not be perpendicular to each other.

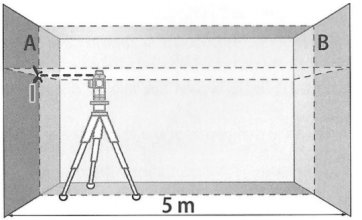
LEVELLING ACCURACY

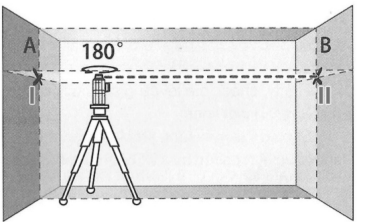
Influences on Accuracy

The greatest influence derives from the ambient temperature. Especially temperature differences occurring from the ground to the top can deflect the laser beam.
Since the greatest difference in temperature levels is close to the ground, the measuring tool should always be mounted on a tripod when measuring distances exceeding 20m, and if possi-ble, also place the measuring tool in the centre of the work area.In addition to external influences, device specific influences (such as heavy impact or falling down) can cause a deviation, therefore, check the accuracy of measuring tool each time be-fore starting a job.
Firstly, check the leveling accuracy of the horizontal laser line and then the leveling accuracy of the vertical laser lines.

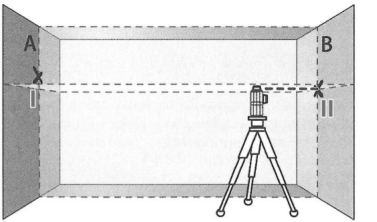
CHECKING THE HORIZONTAL LEVELING ACCURACY OF THE LATERAL AXES

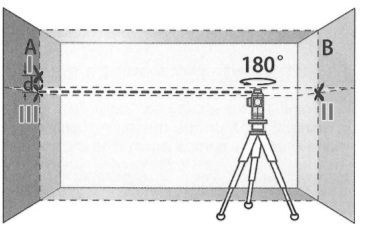
For this check, a free measuring distance of 5 meters on a firm surface between two walls A and B is required.
Mount the measuring tool onto a tripod, or place it on a firm and plane surface close to wall A.
Switch on the measuring tool to operate with automatic levelling function activated. Select the operation mode that generates a horizontal laser plane as well as a vertical laser plane in front of the measuring instrument.
Direct the laser against the close wall A and allow the measuring tool to level in and to perform the planes **I** . Mark with I the centre of the point where the laser lines cross each other on wall A Turn the measuring tool by 180°, allow it to level in and to per-form the planes. Mark with **II** the cross point of the laser planes on the opposite wall B
Without rotating the measuring tool, place it close to wall B. Switch the measuring tool on and allow it to level in.





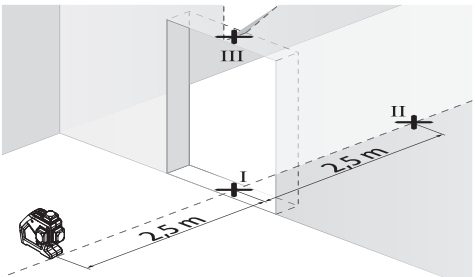
By using a tripod or a wall bracket, if necessary, align the height of the measuring tool in such a way that the cross point of the laser lines is projected against the previously marked point **II** on the wall B. Without changing the height, rotate the measuring tool by 180', direct the laser beam against the wall A so that the vertical laser line runs through the already marked point **I** , Allow the measuring tool to level in and mark with **III** the new cross point of the laser lines on the wall A. The difference D between the point **I** and the point **III** , on the wall A determines the actual deviation along the lateral axis. At a measuring distance of 2x5m = 10m, the maximum allowed deviation is: (± 0.2 mm / m = 0,2mmx10m = ± 2 mm). The difference between the marked points **I** and **III** indicates the error (accuracy) of the instrument and must not exceed 2 mm.



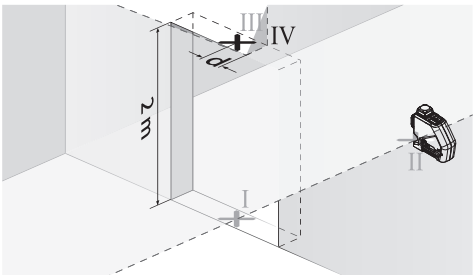


Checking the leveling Accuracy of the Vertical lines

For this check, a door opening is required with at least 2.5 meters of space(on a firm surface) to each side of the door. Point the measuring tool on a firm, level surface (not on a a tripod) 2.5m away from the door opening. Switch on the measuring tool to operation with automatic levelling. Select an operating mode in which a vertical laser plane is generated in front of the measuring tool.



Mark the centre of the vertical laser line at the floor of the door opening (point I), at a distance of 5 metres beyond the other side of the door opening (point II) and at the upper edge of the door opening (point III).



Rotate the measuring tool by 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 manner that its centre runs exactly through points I and II.

Mark the centre of the laser line at the upper edgr of the door opening as point IV.

The difference d of both marked points III and IV results in the actual deviation of the measuring tool to the plumb line. Measure the height of the door opening.
Repeat the measuring procedure for the second vertical laser plane, for this, select an operating mode in which a vertical laser plane is generated aside of the measuring tool, and turn the measuring tool by 90° before beginning with the measuring procedure.
The maximum admissible deviation is calculated as follows.
Doubled height of the door openning × 0.2mm/m
Example:For a door-opening height of 2m, the maximum deviation may be
2 × 2m × (± 2)mm/m= ± 0.8mm.Consequently, points III and IV may be no more than 0.8mm (max.)
apart from each other for each of both measurments.

WORKING ADVICE

Always use the centre of the laser line for marking. The width of the laser line changes with the distance.

MAINTENANCE AND SERVICE

Maintenance and Cleaning
Store and transport the measuring tool only in its protective case or into a box.
Keep the measuring tool clean at all times.
Do not immerse the measuring tool in water or other fluids Wipe off debris using a moist and soft cloth, do not use any cleaning agents or solvents.
In particular, regularly clean the surface of the laser exit opening Do not open the measuring tool by yourself.

DISPOSAL

Measuring instruments, accessories and packaging must be disposed respecting the rules on recycling and environmental care.