

User Manual

English



Before using the product for the first time, please read carefully through the Safety Instructions and the User Manual. The person responsible for the instrument must ensure that all users understand these directions and adhere to them.

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Start up

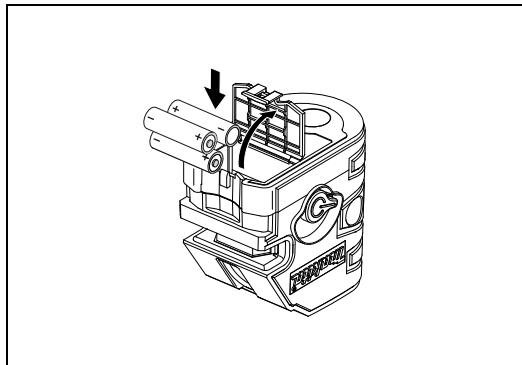
Inserting / replacing batteries

Pull the battery cover outwards to unlock the battery compartment. Open the battery compartment cover and insert the batteries, observing the correct polarity. Then press the battery compartment cover back down until it engages.

- Insert the batteries observing the correct polarity
- Use alkaline batteries or rechargeable batteries only

- Remove the batteries if the instrument is not to be used for a long period of time (to prevent corrosion)

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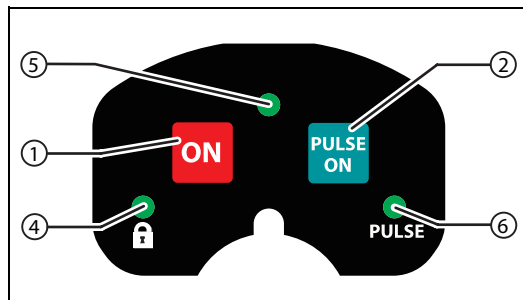
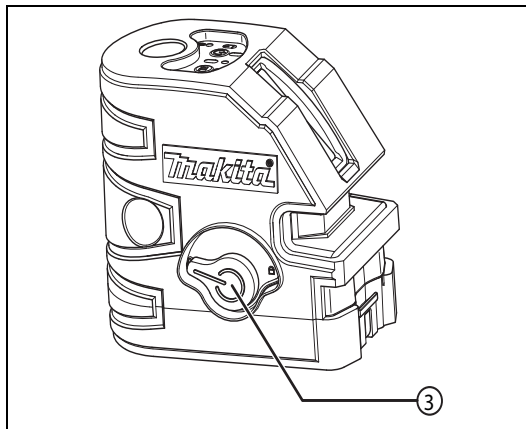
Operation

Keypad and control elements

- ① On/Set key
- ② Pulse key
- ③ Lock switch

Display

- ④ Locked
- ⑤ Laser active
- ⑥ Pulse/Power save mode ON



Switching on/off

- ON: Briefly press the On/Set key ①.
- OFF: Press and hold down the On/Set key ①.

Laser functions

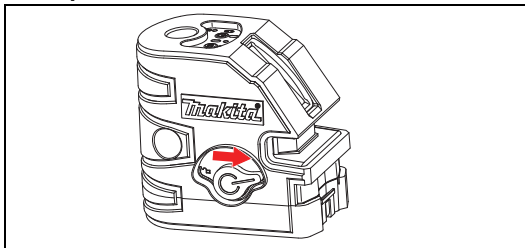
Pressing the On/Set key ① activates the following laser functions:

Action	SK104	
	not in Lock mode	in Lock mode
1x	only horizontal line	only horizontal line
2x	only vertical line	only vertical line
3x	horizontal and vertical line	again as 1x

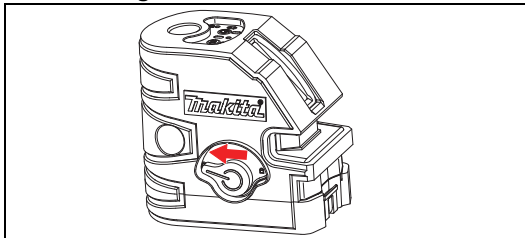
Self-levelling and Lock functions

The instrument automatically levels itself within the specified grade range (Refer to "Technical data") . Turn the Lock switch ③ in order to transport or tilt the instrument beyond the self-levelling range. When locked, the pendulum is fixed and the self-levelling function is deactivated.

Transportation and lock

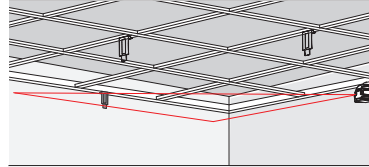
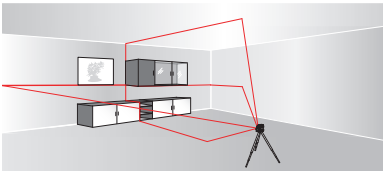
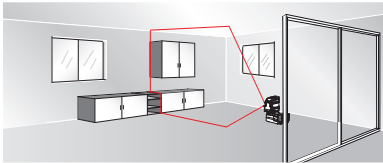
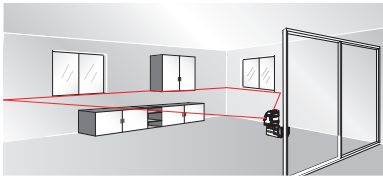


Self levelling



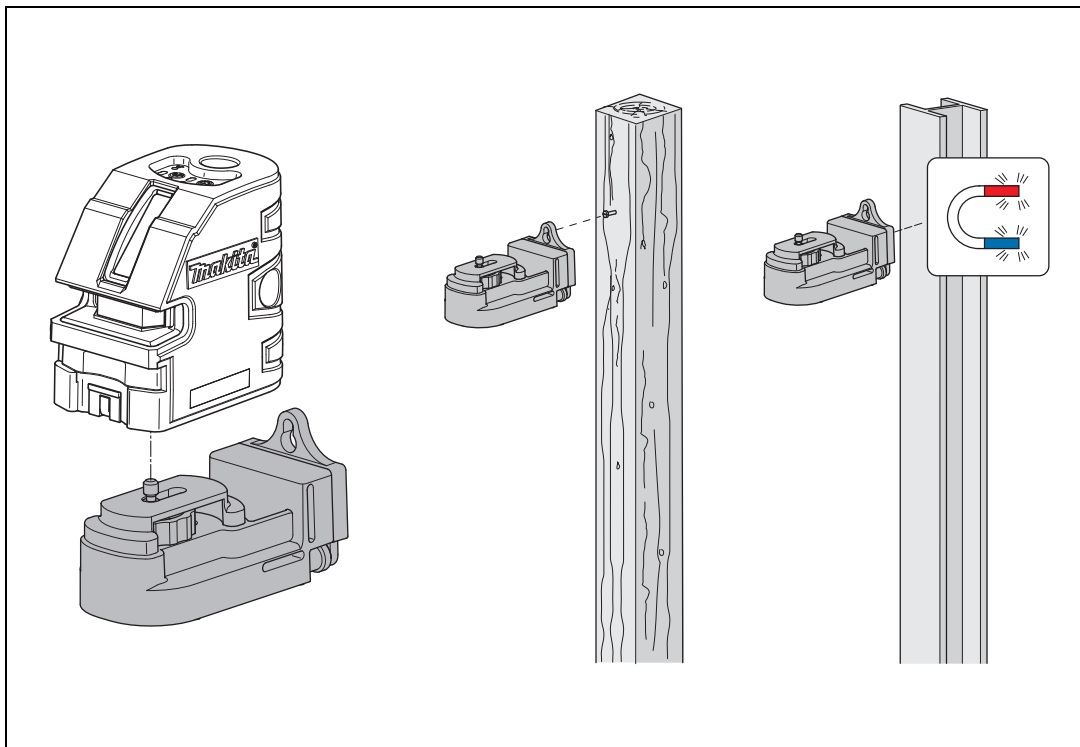
Pulse

To be able to detect the laser lines over long distances (> 15 m) or in unfavourable lighting conditions, a laser detector can be used. The detector is able to locate the laser beam in Pulse mode, even over long distances. (Laser detector refer to accessories)




How to use the wall mount bracket:

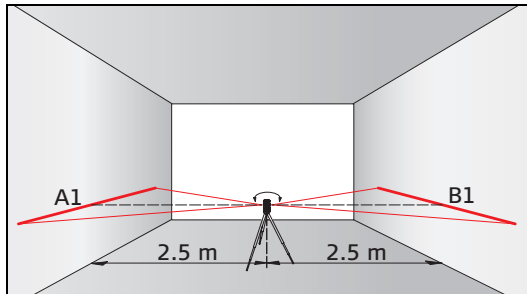
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Checking the accuracy

 Check the accuracy of your SK104 regularly and particularly before important measuring tasks.

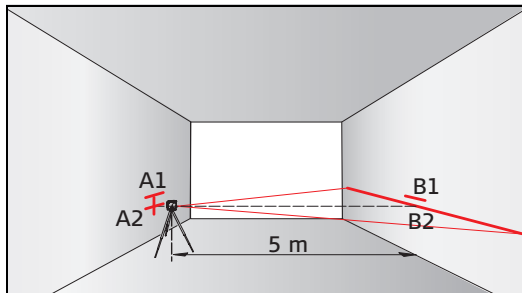
Checking the accuracy of the levelling



Set the instrument on a tripod half-way between two walls (A+B) that are approx. 5 m apart.

Place the Lock switch  in the "Unlocked" () position.

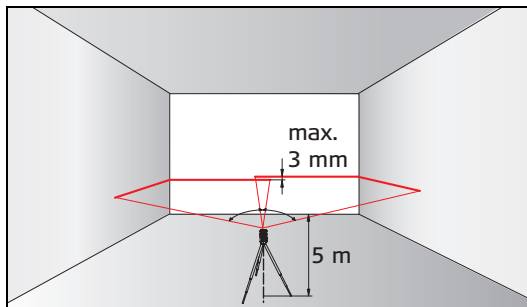
Direct the instrument at wall A and switch on the instrument. Activate the horizontal laser line or laser dot and mark the position of the line or the dot on wall A (-> A1). Rotate the instrument by 180° and mark the horizontal laser line or the laser dot in exactly the same way on wall B (-> B1).




Then place the instrument at the same elevation as close as possible to wall A and again mark the horizontal laser line or the laser dot on wall A (-> A2) . Rotate the instrument by 180° again and mark the laser on wall B (-> B2). Measure the distances of the marked points A1-A2 and B1-B2. Calculate the difference of the two measurements. If the difference does not exceed 2 mm, then the SK104 is within tolerance.

$$| (A1 - A2) - (B1 - B2) | \leq 2 \text{ mm}$$

Checking the accuracy of the horizontal line:

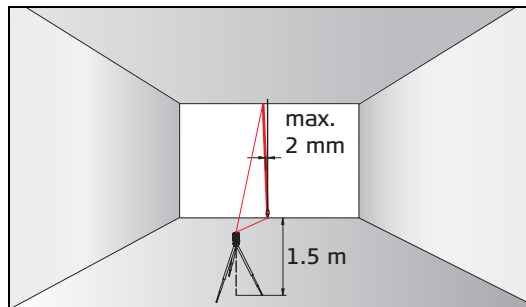



Place the Lock switch ③ in the "Unlocked" () position.

Position the instrument approx. 5 m away from the wall. Direct the instrument at the wall and switch on with the On/Set key ①. Activate the laser line with the On/Set key ① and mark the intersection point of laser crosshairs on the wall.

Swivel the instrument to the right and then to the left. Observe the vertical deviation of the horizontal line from the marking. If the difference does not exceed 3 mm, then the SK104 is within tolerance.

Checking the accuracy of the vertical line:




Place the Lock switch ③ in the "Unlocked" () position.

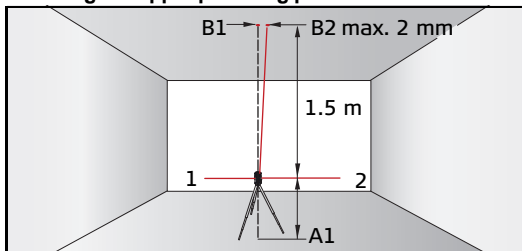
As reference, use a plumb-bob and attach it as close as possible to an approx. 3 m high wall.

Position the instrument at a distance of approx. 1.5 m from the wall at an elevation of approx. 1.5 m. Direct the instrument at the wall and switch on with the On/Set key ①. Activate the laser line with the On/Set key ①. Rotate the instrument and align it with the bottom of the plumb line. Now read off the maximum deviation of the laser line from the top of the plumb line. If the difference does not exceed 2 mm, then the SK104 is within tolerance.

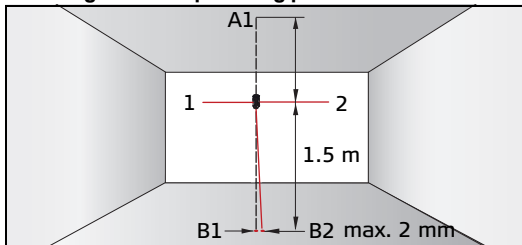
Checking the accuracy of the vertical plumbing of the SK104:

Place the Lock switch ③ in the "Unlocked" () position.

Checking the upper plumbing point:




Checking the lower plumbing point:



Set up the laser on its tripod or wall mount bracket near point A1 at a minimum distance of 1.5 m from point B1. The horizontal laser is aligned in direction 1. Mark the laser dots A1 and B1 with a pin.

Rotate the instrument by 180° so that it points in the opposite direction 2 to direction 1. Adjust the instrument so that the

laser beam hits point A1 exactly. If point B2 is no further than 2 mm away from point B1, then the SK104 is within tolerance.

 Should your SK104 be outside of the specified tolerance, please contact an authorised dealership of Makita.

Display notices

Falling below or exceeding the permissible temperature range:

The laser switches off and all symbols flash.

Outside of the self-levelling range:

The laser beam is flashing.

Pendulum locked:


The laser beam is not levelled and the Lock symbol ④ lights up.

Care and advice on operation

Do not immerse the instrument in water. Wipe off dirt with a damp soft cloth. Do not use aggressive cleaning agents or solvents. Treat the instrument with the same care that you would apply to binoculars or a camera.

Dropping or violent shaking of the instrument may damage it. Check the instrument for any damage before using it. Check the levelling accuracy of the instrument regularly.

Transport

To safely transport the instrument, set the Lock switch ③ to "Locked" ().

Technical data SK104

	Metric unit system
Range	up to 15 m*
Range with detector	up to 60 m
Levelling accuracy @ 10 m	± 3,0 mm
Self-levelling range	4° ± 1°
Accuracy of horizontal line @ 10 m	± 3,0 mm
Vertical accuracy @ 3 m line length	± 0,75 mm
Number of laser lines	2
Beam direction	vertical, horizontal
Laser type	635 nm, laser class II
Batteries Type	Typ AA 3 x 1,5 V
Protection class spray water / dust	IP 54
Operating temperature	-10°C to 40°C
Storage temperature	-25°C to 70°C
Dimensions (H x D x W)	111 x 117 x 72 mm
Weight without batteries	470 g
Tripod thread	1/4"

* depending on lighting conditions

	Non-metric unit system
Range	up to 50 ft*
Range with detector	up to 197 ft
Levelling accuracy @ 32 ft	± 1/8 "
Self-levelling range	4° ± 1°
Accuracy of horizontal line @ 32 ft	± 1/8 "
Vertical accuracy @ 10 ft line length	± 0.03 "
Number of laser lines	2
Beam direction	vertical, horizontal
Laser type	635 nm, laser class II
Batteries Type	Typ AA 3 x 1,5 V
Protection class spray water / dust	IP 54
Operating temperature	14°F to +104°F
Storage temperature	-13°F to +158°F
Dimensions (H x D x W)	4.25 x 4.6 x 2.83 in
Weight without batteries	16.6 oz
Tripod thread	1/4"

* depending on lighting conditions

Safety instructions

The person responsible for the instrument must ensure that all users understand these directions and adhere to them.

Symbols used

The symbols used have the following meanings



WARNING:

Indicates a potentially hazardous situation or an unintended use which, if not avoided, will result in death or serious injury.



CAUTION:

Indicates a potentially hazardous situation or an unintended use which, if not avoided, may result in minor injury and/or appreciable material, financial and environmental damage.



Important paragraphs which must be adhered to in practice as they enable the product to be used in a technically correct and efficient manner.

Permitted use

- Projection of horizontal and vertical laser lines and laser dots

Prohibited use

- Using the product without instruction
- Using outside the stated limits

- Deactivation of safety systems and removal of explanatory and hazard labels
- Opening of the equipment by using tools (screw-drivers, etc.), as far as not specifically permitted for certain cases
- Carrying out modification or conversion of the product
- Deliberate dazzling of third parties; also in the dark
- Inadequate safeguards at the surveying site.

Limits of use



Refer to section "Technical data".

The SK104 is designed for use in areas permanently habitable by humans. Do not use the product in explosion hazardous areas or in aggressive environments.

Areas of responsibility

Responsibilities of the manufacturer of the original equipment:

Makita Corporation Anjo, 3-11-8, Sumiyoshi-cho, Aichi 446-8502, Japan /

Makita, Jan-Baptist Vinkstraat 2, 3070, Belgium

Internet: www.makita.com (for short Makita):

- Makita is responsible for supplying the device, including the User Manual, in a completely safe condition.
- Makita is not responsible for third party accessories.

Responsibilities of the person in charge of the instrument:

The person in charge of the instrument has the following duties:

- To understand the safety instructions on the product and the instructions in the User Manual.
- To be familiar with local safety regulations relating to accident prevention.

Hazards in use



CAUTION:

Watch out for erroneous measurements if the instrument is defective or if it has been dropped or has been misused or modified.



Carry out periodic test measurements.

Particularly after the instrument has been subject to abnormal use, and before, during and after important measurements.

Refer to section "Checking the accuracy".



WARNING:

Flat batteries must not be disposed of with household waste. Care for the environment and take them to the collection points provided in accordance with national or local regulations.



The product must not be disposed of with the household waste.

Dispose of the product appropriately in accordance with the national regulations in force in your country.

Always prevent access to the product by unauthorised personnel.



WARNING

Using a battery charger not recommended by Makita can destroy the batteries. This can cause fire or explosions.

Precautions:

Only use chargers recommended by Makita to charge the batteries.

Electromagnetic Compatibility (EMC)



WARNING:

The SK104 conforms to the most stringent requirements of the relevant standards and regulations. Yet, the possibility of it causing interference in other devices cannot be totally excluded.

FCC statement (applic. in U.S.)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accor-

dance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

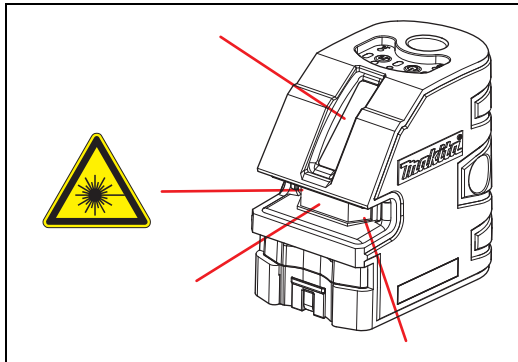


WARNING:

Changes or modifications not expressly approved by Makita for compliance could void the user's authority to operate the equipment.

Laser classification

The SK104 produces visible laser beams, which are emitted from the instrument:



Wavelength	635 nm
Maximum radiant output power for classification	0.95 mW
Pulse repetition frequency, PRF	10 kHz, cw
Pulse duration	50 μ s
Beam divergence line	$180^\circ \times 0.1^\circ$

It is a Class 2 laser product in accordance with:

- IEC60825-1: 2014 "Radiation safety of laser products"

Laser Class 2 products:

Do not stare into the laser beam or direct it towards other people unnecessarily. Eye protection is normally afforded by aversion responses including the blink reflex.

⚠ WARNING:
Looking directly into the beam with optical aids (e.g. binoculars, telescopes) can be hazardous.

⚠ CAUTION:
Looking into the laser beam may be hazardous to the eyes.

Labelling

