

IMPORTANT:
Read Before Using

IMPORTANT:
Lire avant usage

IMPORTANTE:
Leer antes de usar

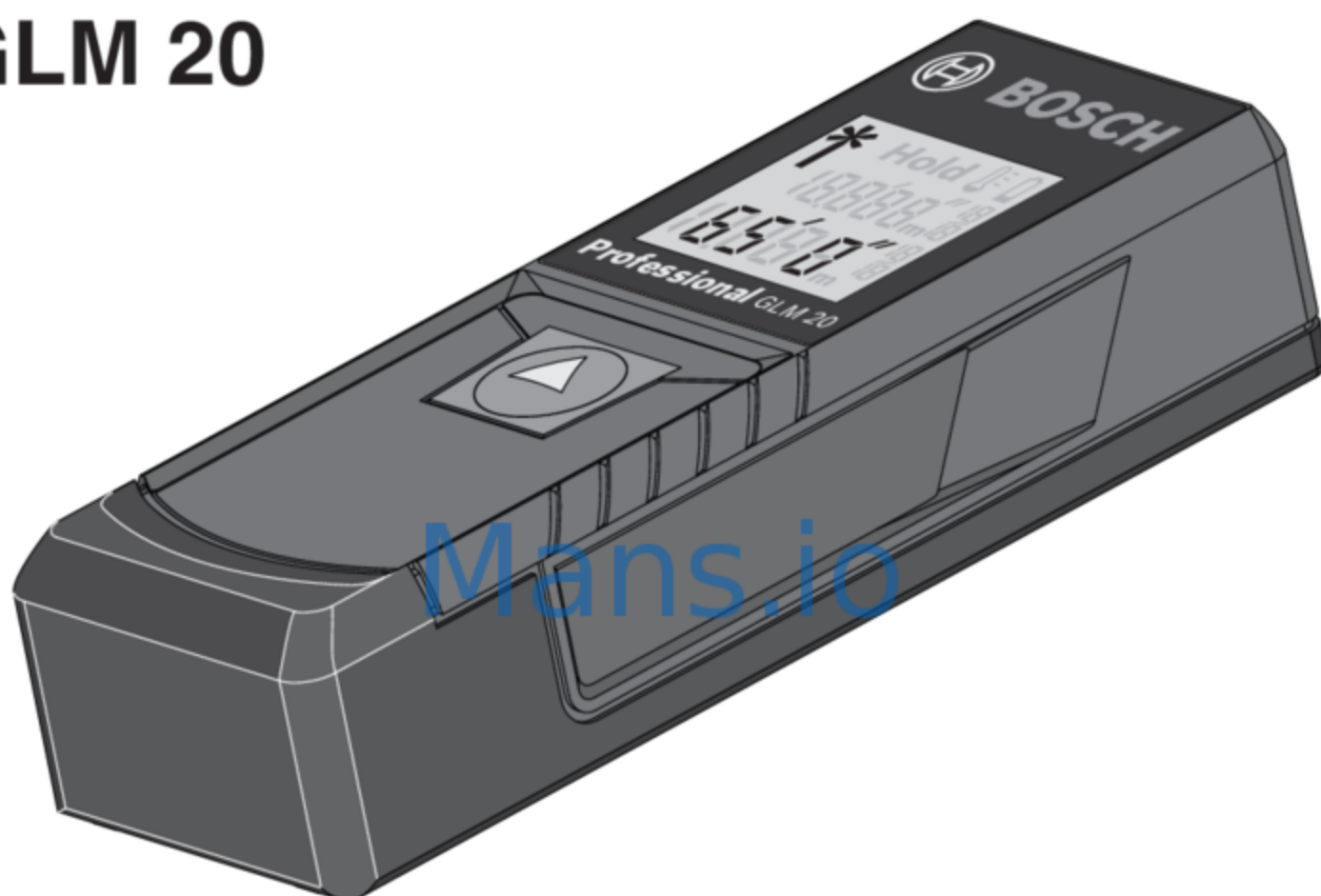


Operating/Safety Instructions

Consignes d'utilisation/de sécurité

Instrucciones de funcionamiento y seguridad

GLM 20



BOSCH

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1-877-BOSCH99 (1-877-267-2499) www.boschtools.com

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Versión en español
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Safety Symbols

The definitions below describe the level of severity for each signal word. Please read the manual and pay attention to these symbols.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.



Read manual symbol - Alerts user to read manual.



WARNING WARNING indicates a hazardous situation which, if not avoided, will result in death or serious injury.

General Safety Rules



WARNING Read all instructions. Failure to follow all instructions listed below may result in hazardous radiation exposure, electric shock, fire and/or serious injury. The term “tool” in the warnings listed below refers to your mains-operated (corded) tool or battery-operated (cordless) tool.

SAVE ALL WARNINGS AND INSTRUCTIONS FOR FUTURE REFERENCE

The following label is on your laser tool for your safety. **ALWAYS BE AWARE** of their location when using the tool.



DO NOT direct the laser beam at persons or animals and do not stare into the laser

beam yourself. This tool produces class 2 laser radiation and complies with 21 CFR 1040.10

and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007. This can lead to persons being blinded.



Safety Rules

Working safely with the measuring tool is possible only when the operating and safety information are read completely and the instructions contained therein are strictly followed. Never make warning labels on the Measuring tool unrecognizable.

Never aim the beam at a workpiece with a reflective surface. Bright shiny reflective sheet steel or similar reflective surfaces are not recommended for laser use. Reflective surfaces could direct the beam back towards the operator.

Take care to recognize the accuracy and range of the device. Measurement may not be accurate if used beyond the rated range of the device.

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

The use of optical instruments with this product will increase eye hazards.

Have the measuring tool repaired only through qualified specialist using original spare parts. This ensures that the safety of the measuring tool is maintained.

Do not allow children to use the measuring tool without supervision. They could unintentionally blind other persons.

Do not point the laser beam at persons or animals and do not look into the laser beam yourself, not even from a large distance.

Do not use the laser viewing glasses as safety goggles. The laser viewing glasses are used for improved visualization of the laser beam, but they do not protect against laser radiation.

Do not use the laser viewing glasses as sun glasses or in traffic. The laser viewing glasses do not afford complete UV protection and reduce color perception.

Safe Operating Procedures

Be sure to read and understand all instructions in this manual before using this product. Failure to follow all instructions

may result in hazardous radiation exposure, electric shock, fire, and/or bodily injury.

Use of controls or adjustments or performance of procedures other than those specified in this manual, may result in hazardous radiation exposure.

The use of optical instruments with this product will increase eye hazard.

ALWAYS: Make sure that any bystanders in the vicinity of use are made aware of the dangers of looking directly into the measuring tool.

DO NOT remove or deface any warning or caution labels. Removing labels increases the risk of exposure to laser radiation.

DO NOT stare directly at the laser beam or project the laser beam directly into the eyes of others. Serious eye injury could result.

DO NOT place the measuring tool in a position that may cause anyone to stare into the laser beam intentionally or unintentionally. Serious eye injury could result.

DO NOT use any optical tools such as, but not limited to, telescopes or transits to view the laser beam. Serious eye injury could result.

ALWAYS remove the batteries when cleaning the laser light aperture to laser lens.

DO NOT operate the measuring tool around children or allow children to operate the

measuring tool. Serious eye injury could result.

ALWAYS turn the measuring tool “OFF” when not in use.

Leaving the measuring tool “ON” increases the risk of someone inadvertently staring into the laser beam.

DO NOT operate the measuring tool in combustible areas such as in the presence of flammable liquids, gases or dust.

ALWAYS position the measuring tool securely.

Damage to the measuring tool and/or serious injury to the user could result if the measuring tool falls.

ALWAYS use only the accessories that are recommended by the manufacturer of your measuring tool.

Use of accessories that have been designed for use with other measuring tools could result in serious injury.

DO NOT leave measuring tool “on” unattended in any operation mode.

Repair and servicing must always be performed by a qualified repair facility. Repairs performed by unqualified personnel could result in serious injury.

DO NOT use this measuring tool for any purpose other than those outlined in this manual. This could result in serious injury.

DO NOT disassemble the

measuring tool. There are no user serviceable parts inside. **Disassembling the laser will void all warranties on the product. Do not modify the product in any way.** Modifying the measuring tool may result in hazardous laser radiation exposure.

Electrical safety

Batteries can explode or leak, cause injury or fire. To reduce this risk, always follow all instructions and warnings on the battery label and package. DO NOT short any battery terminals. DO NOT charge alkaline

batteries.

DO NOT mix old and new batteries. Replace all of them at the same time with new batteries of the same brand and type.

DO NOT mix battery chemistries.

Dispose of or recycle batteries per local code.

DO NOT dispose of batteries in fire.

Keep batteries out of reach of children.

Remove batteries if the device will not be used for several months.

Intended Use

The measuring tool is intended for measuring distances, lengths, heights and clearances. The measuring tool is suitable for measuring only indoors.

Features

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

- 1** On/Off (Hold button)
- 2** Display
- 3** Battery lid
- 4** Latch of battery lid
- 5** Serial number
- 6** Laser warning label
- 7** Reception lens
- 8** Laser beam outlet
- 9** Hand strap*

* Optional accessory

Display Elements

- a** Battery low indicator
- b** Temperature warning
- c** Laser switched on
- d** Measurement hold
- e** Previous measuring value
- f** Unit of measure
- g** Current measuring value

Technical Data

Digital Laser Measure GLM 20

Measuring range (typical)	6 in - 65 ft (0.15 –20 m ^A)
Measuring accuracy (typical)	±1/8 in (±3.0 mm ^B)
Lowest indication unit	1/16 in (1 mm)
Measuring duration	
– typical	0.5 s
– maximal	4 s
Operating temperature	+14° F to 104° F (-10° C to +40° C)
Storage temperature	-4° F to 158° F (-20° C to +70° C)
Relative air humidity, max.	90 %
Laser class	2
Laser type	635 nm, <1mW
Laser beam diameter 77° F (at 25 °C) and at 30 ft (10 m) distance, approx.	3/8 in (9 mm)
and at 65 ft (20 m) distance, approx.	3/4 in (18 mm)
Batteries	2 x 1.5V (AAA)
Battery service life in measuring operation, approx.	5 h
Weight	0.2 lb (0.1 kg)
Dimensions	4 x 1.4 x 0.9 in (100 x 36 x 23 mm)

A) The working range increases depending on how well the laser light is reflected from the surface of the target (scattered, not reflective) and with increased brightness of the laser point to the ambient light intensity (interior spaces, twilight). In unfavorable conditions, e.g., with extreme interior illumination or a badly reflecting surface, the measuring range may be limited.

B) In unfavorable conditions, e.g., with extreme interior illumination, badly reflecting surface or the room temperature deviating heavily from 77°F (25°C), the maximum deviation can be up to ±7 mm per 15 m. In favorable conditions, a deviation influence of ±0.05 mm/m must be taken into account.

The measuring tool can be clearly identified with the serial number **5** on the type plate.

Preparation

Inserting/Replacing the Batteries

AAA Alkaline batteries are recommended for the measuring tool.

To open the battery lid **3**, press the latch **4** in the direction of the arrow and remove the battery lid. Insert the batteries. When inserting, pay attention to the correct polarity according to the representation on the inside of the battery compartment.

When the battery symbol  appears for the first time on the display, measurements are still possible for approx. 15 minutes. When the battery symbol flashes, the batteries must be replaced; measurements are no longer possible.

Always replace all batteries at the same time. Only use batteries from one brand and with the identical capacity.

Remove the batteries from the tool when not using it for extended periods. When storing for extended periods, the batteries can corrode and discharge themselves.

Operation

Initial Operation



Protect the tool against moisture and direct sun irradiation.

Do not subject the tool to extreme temperatures or variations in temperature. As an example, do not leave it in vehicles for longer periods. In case of large variations in temperature, allow the tool to adjust to the ambient temperature before putting it into operation. In case of extreme temperatures or variations in temperature, the accuracy of the tool can be impaired.


Avoid heavy impact or falling of the tool. After heavy exterior impact on the tool, an accuracy check should always be carried out before continuing to work (see “Accuracy Check of the Distance Measurement”, page 13) each time before continuing to work.



Do not point the laser beam at persons or animals and do not look into the laser beam yourself, not even from a large distance.

Do not leave the switched on measuring tool unattended and switch the tool off after use. Other persons could be blinded by the laser beam.


Switching On and Off

To switch on the measuring tool, push down the On/Off button **1**. When switching on the measuring tool, the laser beam is switched on. The laser indicator  flashes on the display.


To switch off the measuring tool, push down the On/Off button **1** and hold for 3 seconds.

When no button on the measuring tool is pressed for approx. 5 minutes, the measuring tool automatically switches off to save the batteries.

Measuring Procedure

Measurements are taken from the rear edge of the tool as indicated by  icon located on the tool's rubber overmold.

After the measuring tool is switched on, continuous measurement starts. Aim the laser beam at the target surface. The current measuring value **g** is displayed in the bottom line of the display (see figure **A**). During continuous measurement, the measuring tool can be moved relative to the target, whereby the current measuring value **g** is updated approx. every 0.5 seconds in the bottom line of the display (see figure **B**).

In this manner, as an example, you can move a certain distance away from a wall, while the actual distance can always be read. The laser indicator  flashes on the display.

The rear edge of the measuring tool is preset as the reference plane for the measurement.

For a wall to wall measurement, as an example, position the measuring tool with its rear edge against the initial wall.

No Measurement Being Displayed

All dashes will display when the beam is moved too fast or if the object is out of range in continuous mode.




“HOLD” Function (see Figure **B**)



Press the “On/Off” button **1** to stop the measuring procedure. The laser beam is switched off and the **HOLD** indication appears on the display.

The current measuring value is still displayed in the bottom line of the display, but is no longer continuously updated.



Press the “HOLD” button **1** once more to switch the laser on again. The laser indicator  flashes on the display. The previous measuring value is displayed in the top line. The continuously updated/current measuring value is displayed in the bottom line.



Press the “HOLD” button **1** once more to stop the measuring procedure again. The laser beam is switched off and the **HOLD** indication appears on the display. The previous measuring value is displayed in the top line. The current measuring value is displayed in the bottom line, but is no longer continuously updated.

When no button on the measuring tool is pressed for approx. 5 minutes, the measuring tool automatically switches off to save the batteries.

“Err” occurs when trying to hold a measurement that is out of range or measurement cannot be read correctly by tool.



Changing the Unit of Measure

The unit of measure can be changed any time for display of the measured value, even for already measured or calculated values.



Switch off the measuring tool. Press the measuring button **1** and hold it down. The display will alternately show three units of measure. When the desired setting is displayed, release the measuring button **1**. The setting is saved.

Working Advice

General Information

The reception lens **7** and the laser beam outlet **8** must not be covered when taking a measurement.

Measurement takes place at the center of the laser beam, even when target surfaces are at a slope.

Influence Effects on the Measuring Range

The measuring range depends on the light conditions and the reflection properties of the target surface.

Influence Effects on the Measuring Result

Due to physical effects, faulty measurements cannot be excluded when measuring on different surfaces. Included here are:

- Transparent surfaces (e.g., glass, water),
- Reflecting surfaces (e.g., polished metal, glass),
- Porous surfaces (e.g. insulation materials),
- Structured surfaces (e.g., roughcast, natural stone).

Also, air layers with varying temperatures or indirectly received reflections can affect the measured value.

Accuracy Check of the Distance Measurement

The accuracy of the distance measurement can be checked as follows:

- Select a permanent measuring section with a length of approx. 3 ft to 33 ft (1 m to 10 m); its length must be precisely known (e.g. the width of a room or a door opening). The measuring distance must be indoors; the target surface for the measurement must be smooth and reflect well.
- Measure the distance 10 times after another.

The deviation of the individual measurements from the mean value must not exceed $\pm 1/8''$ ($\pm 3.0\text{mm}$). Log the measurements, so that you can compare their accuracy at a later point of time.

Troubleshooting

Cause

Corrective Measure

Temperature warning indicator (b) flashing; measurement not possible

Measuring tool not within the operating temperature range between $+14^{\circ}\text{F}$ and 104°F (-10°C and $+40^{\circ}\text{C}$)

Wait until the measuring tool has reached the operating temperature

Cause	Corrective Measure
Battery low indicator (a) appears	
Battery voltage decreasing (measurement still possible).	Replace batteries
Battery low indicator (a) flashing; measurement not possible	
Battery voltage too low	Replace batteries
All indicators on the display flash	
The measuring tool is defective.	Contact the Customer Service

Maintenance and Service

⚠ WARNING Keep the measuring tool clean at all times.

Do not immerse the measuring tool into water or other fluids.

Wipe off debris using a moist and soft cloth. Do not use any cleaning agents or solvents.

Maintain the reception lens 7 in particular, with the same care as required for eye glasses or the lens of a camera.

If the measuring tool should fail despite the care taken in manufacturing and testing procedures, repair should be carried out by an authorized after-sales service center for Bosch power tools. Do not open the measuring tool yourself.

In all correspondence and spare parts orders, please always include the 10-digit article number given on the type plate of the measuring tool.

ENVIRONMENT PROTECTION

Recycle raw materials & batteries instead of disposing of waste. The unit, accessories, packaging & used batteries should be sorted for environmentally friendly recycling in accordance with the latest regulations.



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