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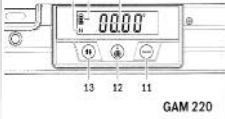
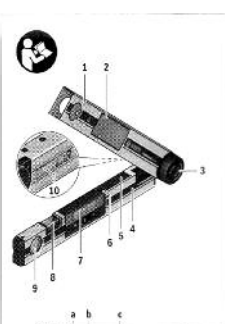


Bosch Digital Inclinometer

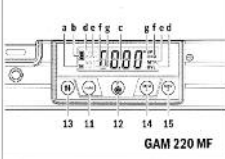
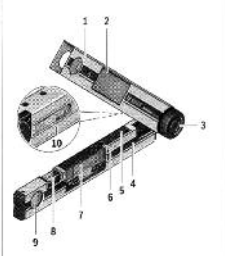


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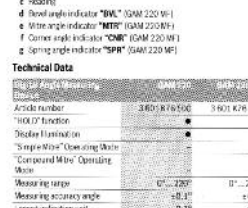
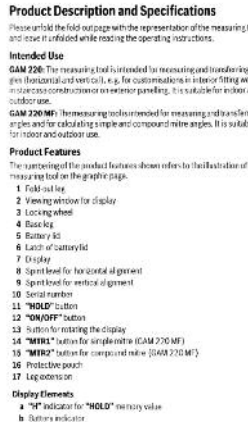
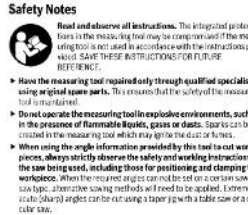
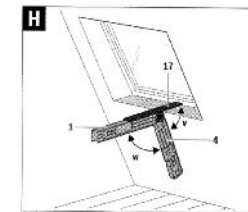
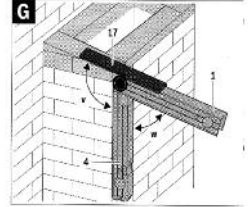
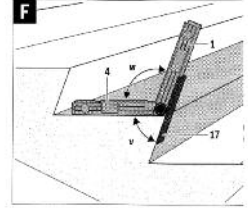
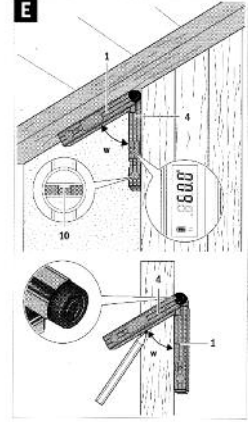
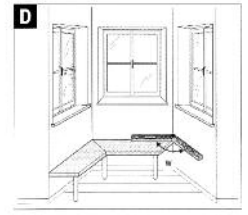
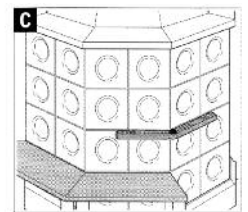
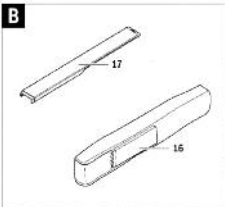
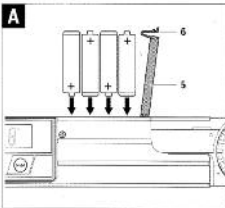
Operating Instructions



GAM 220



GAM 220 MF



Technical Data

IP67	IP67
Display	Display
Angle Number	360°/180°/90°/0°/90°/180°/360°
"HOLD" function	●
Display Illumination	●
"Simple Mitre" Operating Mode	●
"Compound Mitre" Operating Mode	●
Measuring range	0°...200°/0°...270°
Measuring accuracy angle	±0.1°
Power indication	●
Operating temperature	-10 °C...+50 °C / -10 °C...+50 °C
Storage temperature	-20 °C...+70 °C / -20 °C...+70 °C
Batteries	4 x 1.5 V LR6 (AA) / 4 x 1.5 V LR6 (AA)
Rechargeable batteries	4 x 1.2 V HR6 (AA) / 4 x 1.2 V HR6 (AA)
Operating lifetime	2000 h (AA) / 2000 h (AA)
Automatic switch-off after	30 s / 30 s
Display	●
Leg length	400 mm / 400 mm
Weight according to EPTA Procedure 01:2014	1.6 kg / 1.2 kg
Dimensions	447 x 37 x 65 mm / 447 x 37 x 65 mm
IP54 (dust and splash proof)	●

The measuring tool can be clearly identified with the serial number 18000000000000000000.

Assembly

Inserting/Replacing the Batteries (see figure A)

Using a flat screwdriver, insert the batteries into the battery compartment of the measuring tool.

To open the battery lid 5, press on the latch 6 and fold the battery lid open. Insert the batteries, when inserting, pay attention to the correct polarity according to the representation on the inside of the battery lid.

Battery Indicator

The rechargeable battery indicator always displays the current battery status:

- The battery is over 90% charged
- The battery is between 80% and 90% charged
- The battery is between 50% and 80% charged
- The battery is between 30% and 50% charged
- The battery is between 10% and 30% charged

The battery charge status is indicated by the battery charge status indicator 10%. You can measure for approximately another 30 - 20 minutes from when the warning begins until the tool shuts down.

Always replace all batteries/rechargeable batteries at the same time. Do not use different brands or types of batteries/rechargeable batteries together.

► **Remove the batteries/rechargeable batteries from the measuring tool when not using it for longer periods of time.** For longer periods, the batteries/rechargeable batteries can corrode or self-discharge.

Mounting the Leg Extension

Slide the leg extension 17 into the tool out leg 1 from the front. Observe the position of the leg extension when starting to fit the leg extension on so far as possible over the angle of the measuring tool.

Operation

► **Protect the measuring tool against moisture and direct sunlight.**

► **Do not subject the measuring tool to extreme temperatures or variations in temperature.** As measuring tool is not used for a long time. In case of large variations in temperature, allow the measuring tool to adjust to the ambient temperature before putting into operation. In case of extreme temperatures or variations in temperature, the accuracy of the measuring tool can be impacted.

► **The contact surfaces and contact edges of the measuring tool must be clean.** Protect the measuring tool against impact and shock. Serious particles or deformations can lead to faulty measurements.

Switching On and Off

Press the "ON/OFF" switch 12 to switch the measuring tool on or off. When the "HOLD" indicator lights up, the last measured value is displayed. This value can be deleted by pressing the "ON/OFF" switch 12. After approx. 30 minutes without button activation or angle change, the measuring tool switches off automatically to preserve battery life.

Aligning with the Spirit Levels

The measuring tool can be aligned horizontally with spirit level 8 and vertically with spirit level 9.

Retaining the Display

To make the displayed value easier to read, press button 11 to activate the display.

Angle Measurement Operating Mode

The measuring tool is in the "Angle Measurement" operating mode every time it is switched on.

Measuring Angles (see figures C - D)

Place the measuring tool on the surface against the surface against the angle. The displayed measuring value corresponds with the angle between the tool and the side of the angle.

This measuring value is shown on the display 7. If you change the angle between the tool and the side of the angle, the displayed value will change.

Transferring Angles (see figure E)

Measure the angle to be transferred by applying the tool against the side of the angle to be transferred.

The position of the legs can be locked mechanically by engaging the locking wheel 8. The displayed value is not saved.

Place the measuring tool in the desired position against the workpiece, use the legs as a straight edge to transfer the angle.

Save measured values

Briefly press the "HOLD" memory button 11 to save the current measured value. The indicator will flash on the display confirmation. The memory displayed value is frozen and will not change even when the legs is moved. If you press the "HOLD" memory button again, the indicator will be shown permanently on the display. The displayed value will change depending on the leg movement. The previously frozen value is now shown in the background. If the "HOLD" memory button 11 is pressed again, the previously saved value is displayed and the indicator flashes.

To delete the hold value, briefly press button 12.

To be able to save new values, a previously saved value has to be deleted. Saved values cannot be overwritten.

The hold value is saved when the measuring tool is switched off manually or automatically. However, it is deleted when changing battery or when the batteries are empty.

Measuring with Leg Extension (see figures F - H)

The extension 17 enables angle measurement when the contact surface is shorter than the tool out leg 1.

Place the base leg 4 and the extension part on or against the edges to be measured.

The reading of the angle when base leg and fold out leg is indicated in the display. The required angle between base leg and leg extension is calculated as follows:

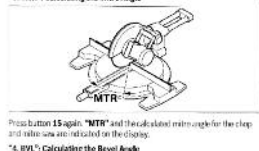
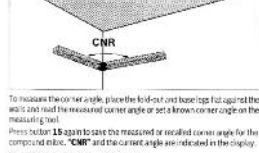
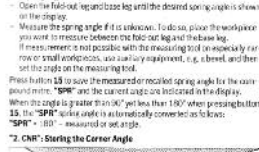
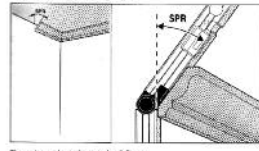
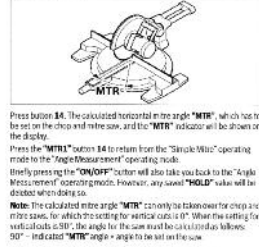
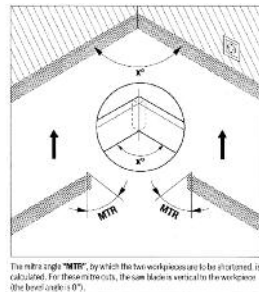
$$v = 180^\circ - w$$

GAM 220 MF: "Simple Mitre" Operating Mode

The "Simple Mitre" operating mode is used for calculation of the "MTR" operating mode. The measured corner angle or set known corner angle on the measuring tool.

The "Simple Mitre" operating mode is activated by pressing the "MTR" button. The displayed value is shown until the calculator of the "MTR" is saved value is being displayed (indicator 4 flashes). The calculation will be performed with the saved value regardless of the position of the legs.

When workpieces are to be fitted into a corner (e.g. for floor trimmings), measure the corner angle w by applying the fold out leg and base leg. For given angle w , the calculated corner angle v is displayed on the display. The desired angle v is indicated in the display and base leg against the desired angle v is indicated in the display.



Press button 15 again. "BVL" and the calculated bevel angle for the desired mitre saw is indicated on the display.

If required, the mitre and bevel angle can be recalled again, but only as long as the battery 12 is charging in the operating mode has not been pressed. Press button 15 to recall the angles. "MTR" and the calculated mitre angle is indicated in the display, after pressing the button 15 once more. "BVL" will show the next angle will be indicated.

Press button 14 for less than 1 s (return from the "Compound Mitre" operating mode to the "Angle Measurement" operating mode).

Note: The calculated mitre angle "MTR" can only be taken over the step and mitre saws, for which the setting for vertical cuts is 0°. When the setting for vertical cuts is 90°, indicated "MTR" angle = angle to be set on the saw.

Maintenance and Service

Maintenance and Cleaning

For safe and proper working, always use the measuring tool clean. 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.

When the measuring tool is exposed to rain for an extended period, the function may be impaired. However, after completely drying off, the measuring tool needs for operation. No calibration is required.

After-sales Service and Application Service

Our after-sales service researches and answers questions concerning maintenance and repair of your product as well as spare parts. Explored views and information on spare parts can also be found under:

www.bosch-pt.com

Search application services from all globally answer questions concerning our products and the accessories.

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

Great Britain

Bosch Power Tools (GB) Ltd., P.O. Box 50, Brackley Road, North Orbital Road, Darlington, UK

USA

At www.bosch-pt.com you can order spare parts and arrange the collection of a product in need of servicing or repair.

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Western Cape - BSC Service Centre
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Fax: 021 5513223
E-Mail: toolservice@bosch.com

Black Handicrafts
Michael, Graham
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Fax: 011 6512892
E-Mail: toolservice@bosch.com

Disposal

Measuring tools, accessories and packaging should be sorted for environmental recycling.

Do not dispose of measuring tools and batteries/rechargeable batteries into household waste.

Only for EC Countries:

According to the European Directive 2011/65/EU, measuring tools that are no longer usable, and according to the European Directive 2002/96/EC, batteries and other power tools, must be collected separately and disposed of in an environmentally correct manner.

Batteries are no longer suitable for use as they are not re-usable.

Great Britain

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