Robert Bosch Power Tools GmbH
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PRO

GDM600-15

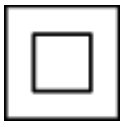
Safety Instructions

All instructions must be read and observed. The safeguards integrated into the measuring tool may be compromised if the measuring tool is not used in accordance with these instructions. STORE THESE INSTRUCTIONS IN A SAFE PLACE.

- **Do not perform any measurements on electric circuits with voltages exceeding 600 V.**
- **Take extra care when working with voltages over 30 V AC or 60 V DC!** Even at these voltages, contact with live cables can cause life-threatening electric shocks.
- **Do not carry out any 10 A current measurements for longer than 10 seconds. Allow an interval of 15 minutes between two measurements.** A current measurement that exceeds 10 seconds can damage the measuring tool and/or test probe.
- **Do not apply more than the rated voltage, as marked on the measuring tool, between terminals or between any terminal and earth ground.**
- **Only use test leads that have a voltage, category and current strength that is equal to or higher than that of the measuring tool.**
- **Check the insulation of the test leads regularly.**Damaged insulation of the test leads can lead to an electric shock.
- **Do not use the measuring tool in a wet or damp environment.**
- **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.
- **Verify the function of the measuring tool by measuring a known voltage.** If in doubt, have the measuring tool serviced.
- **Use the measuring tool only as specified in this manual. The protection provided by the measuring tool might be impaired.**
- **Use the measuring tool or the test leads only if they do not appear damaged.**
- **Have the measuring tool repaired only by a qualified specialist using only original replacement parts.** This will ensure that the safety of the measuring tool is maintained.
- **Do not modify or open the battery.** There is a risk of short-circuiting.
- **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 additional 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 rechargeable battery against heat, e.g. including prolonged sun exposure, fire, water, and moisture. There is a risk of explosion and short circuit.

Symbols

Symbols and their meaning	
	Device with double or reinforced insulation
	Caution: Risk of electric shock!
⏚	Connection for earth

Product Description and Specifications

Please unfold the fold-out page with the diagram of the measuring tool and leave it open while reading the instruction manual.

Intended Use

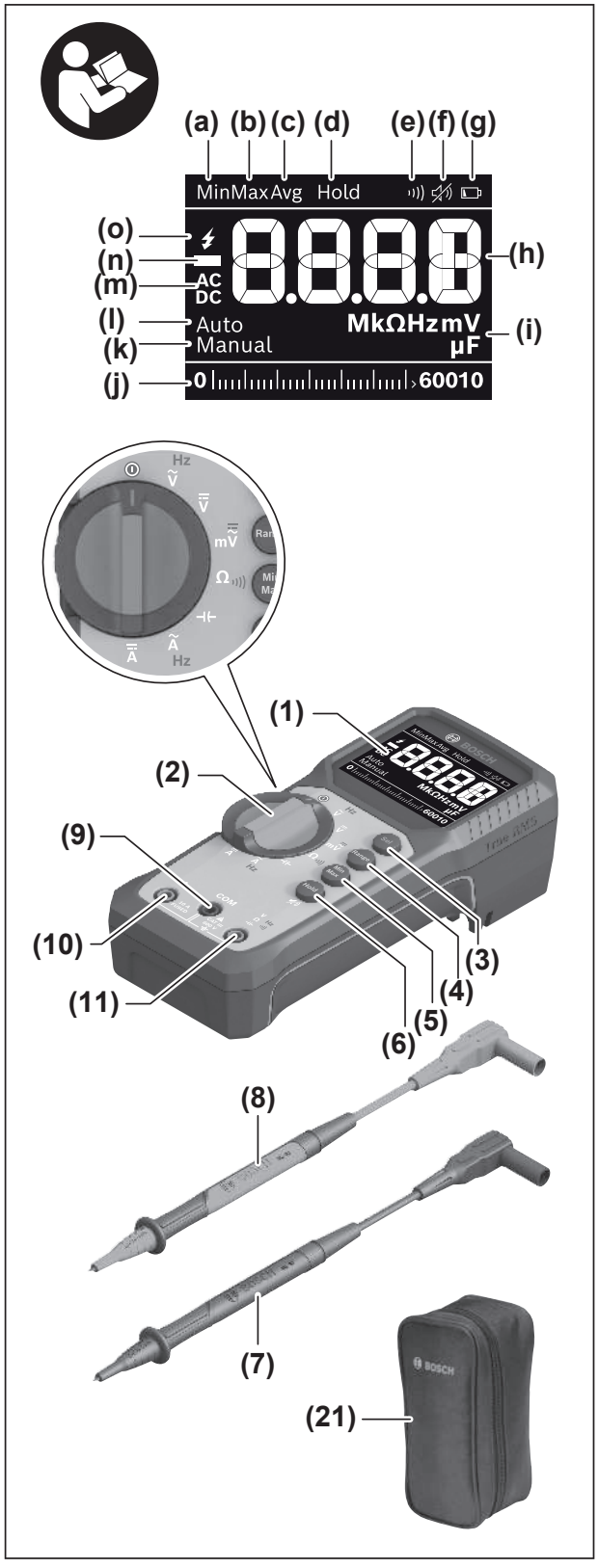
The Digital Multimeter is intended for measuring voltage, current, resistance, capacity and frequency, and for continuity testing.

The Digital Multimeter may only be used in circuits with a rated voltage ≤ 600 V DC/AC.

The measuring tool is suitable for indoor use.

Product Features

The numbering of the product features refers to the representation of the measuring tool in the images.



(1) Display

(2) Rotation switch (for selecting the measuring function)

(3) **Sel** button (second assignment of measuring function)

(4) **Range** button (change to measuring range)

(5) **Min Max** button (display of minimum, maximum or average value)

(6) **Hold** button (holding of the measured value on the display or sound on/off)

(7) Black test lead

(8) Red test lead

(9) **COM** input terminal (earth connection (return conductor) for all measuring functions)

(10) **10 A** input terminal (input terminal for measuring current up to 10 A)

(11) **V** input terminal (input terminal for measuring voltage, continuity, resistance, capacitance and frequency)

(12) Screw (3×) for attaching the battery compartment cover

(13) Battery compartment cover

(14) Fuse

(15) Inlay in the battery compartment cover

(16) Battery pack locking mechanism

(17) Li-ion battery pack[A)]

(18) Locking mechanism of the Li-ion battery pack[A)]

(19) Kick stand

(20) Magnetic hanger[A)]

(21) Protective bag

(22) Protective caps

A) **This accessory is not part of the standard scope of delivery.**

Display Elements

(a) Minimum value

(b) Maximum value

(c) Average value

(d) Measured value "frozen"

(e) Continuity testing

(f) Sound off

(g) Battery warning

(h) Measured value

(i) Unit of measurement

(j) Analogue display (bar graph display)

(k) Manual measuring range selection

(l) Automatic measuring range selection

(m) Direct current/alternating current display

(n) Sign of measured value (polarity)

(o) Warning if voltage > 30 V

Technical data

Digital Multimeter	GDM600-15
Article number	**3 601 K77 3K.**
Measuring range for voltage	600 V AC/DC
Measuring range for current	10 A AC/DC
Measuring range for frequency	50 kHz AC V 2 kHz AC A
Measuring range for resistance	40 MΩ
Measuring range for capacitance	1000 µF
Continuity testing	●
True RMS (root mean square measurement)	●
General	
Operating temperature	–10 °C to +50 °C
Storage temperature[A)]	–40 °C to +70 °C
Relative air humidity max.	90 %
Max. altitude	2000 m
Pollution degree according to IEC 61010-1[B)]	2
Automatic switch-off after approx.	20 min
Weight[C)]	0.37 kg
Protection rating	IP 65
Safety class	CAT III 600 V[D)]
Dimensions	78.3 × 59.3 × 177.3 mm
Test leads MS 90	
Safety class with protective caps	CAT III 1000 V[D)] CAT IV 600 V[E)]

Digital Multimeter	GDM600-15
Safety class without protective caps	CAT II 1000 V[F)]
Fuse	
Type	F
Rated voltage	600 V
Rated current	10 A
Switching capacity	10 kA
Dimensions	6.3 × 32 mm
Non-rechargeable batteries	2 × 1.5 V LR06 (AA)
Battery pack (accessory)	**Li-ion**
Recommended ambient temperature during charging	+10 °C to +35 °C
Recommended ambient temperature during operation and during storage	–10 °C to +45 °C
Type	BA 3.7V 1.0Ah A
Article number	**1 607 A35 0N8** **1 607 A35 17H**
USB charging connection	Type-C®
Recommended USB Type-C® cable[G)]	**1 600 A01 6A8**
Rated voltage	3.7 V ⎓
Capacitance	1.0 Ah
Number of battery cells	1
Power supply (accessory)	
Output voltage	5.0 V ⎓
Output current	500 mA

A) Without batteries and/or rechargeable batteries

B) Only non-conductive deposits occur, whereby occasional temporary conductivity caused by condensation is expected.

C) Weight without batteries

D) MEASUREMENT CATEGORY III is applicable to test and measuring circuits connected to the distribution part of the building's low-voltage mains installation.

E) MEASUREMENT CATEGORY IV is applicable to test and measuring circuits connected to the supply point of the building's low-voltage mains installation.

F) MEASUREMENT CATEGORY II is applicable to test and measuring circuits connected directly to utilization points (socket outlets and similar points) of the low-voltage mains installation.

G) USB Type-C® and USB-C® are trademarks of USB Implementers Forum.

Operation

Starting Operation

- **Never leave the measuring tool unattended when switched on, and ensure the measuring tool is switched off after use.**
- **Protect the measuring tool from moisture and direct sunlight.**
- **Do not expose the measuring tool to any extreme temperatures or variations in temperature.** For example, do not leave it in a car for extended periods of time. In case of large variations in temperature, allow the measuring tool to

adjust to the ambient temperature before putting it into operation. The precision of the measuring tool may be compromised if exposed to extreme temperatures or variations in temperature.

- ▸ **Avoid substantial knocks to the measuring tool and avoid dropping it.**

Switching On and Off

» Turn the rotation switch **(2)** to the required measuring function to switch on the Digital Multimeter.

» Turn the rotation switch to the ⏻ position to switch off the Digital Multimeter.

If no button is pressed on the Digital Multimeter for approx. 20 min or the rotation switch is not adjusted, the Digital Multimeter will automatically switch itself off to preserve the non-rechargeable batteries. To disable automatic shutdown, press and hold the **Hold** button while switching on the Digital Multimeter (e.g. by turning the rotation switch to any position). **d.APO** will then appear in the display. The idle state is always disabled in **Min Max Avg** mode.

You can then switch the Digital Multimeter back on by turning the rotation switch **(2)** or pressing one of the buttons.

Buttons

Sel Button

» Briefly press the **Sel** button to switch between two measuring functions that have the same position on the rotation switch **(2)**. The respectively selected measuring function is shown on the display **(1)**.

→ If the position on the rotation switch is not doubly assigned, an audio signal is output when the **Sel** button is pressed.

Range Button

ⓘ Disconnect the test leads **(7)** and **(8)** from the circuit to be tested before adjusting the measuring range. Failure to do so poses a risk of injury from electric shock and/or damage to the Digital Multimeter.

» Briefly press the **Range** button within the automatic measuring range selection to switch to the manual measuring range selection. **Manual** is shown on the display **(1)**.

» Briefly press the **Range** button within the manual measuring range selection to run through various measuring ranges.

» Press and hold the **Range** button within the manual measuring range selection to switch back to the automatic measuring range selection. **Auto** is shown again on the display **(1)**.

Min Max Button

» Briefly press the **Min Max** button to show the minimum, maximum or mid-point values of the measurements. **Min**, **Max** or **Avg** is shown on the display.

» Press and hold the **Min Max** button to end the process.

Hold Button

"Freezing" a Value on the Display

» Briefly press the **Hold** button to "freeze" the measured value on the display **(1)**. **HOLD** is shown on the display and an audio signal is output.

» Briefly press the **Hold** button again to re-enable the display **(1)**.

Switching Sound Off/On

» Press and hold the **Hold** button to switch the sound output of the Digital Multimeter off. The 🔇 symbol is shown on the display.

» Press and hold the **Hold** button again to switch the sound output of the Digital Multimeter back on.

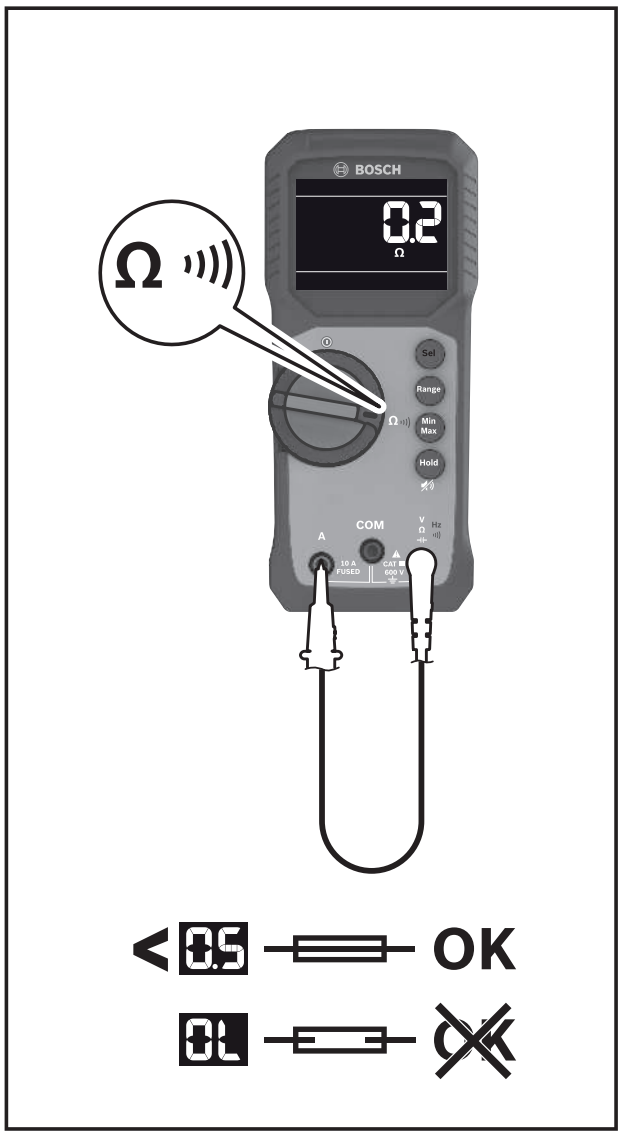
ⓘ Do not use the **Hold** button when determining the voltage. The voltage displayed does not change and there is a risk of injury due to electric shock.

Connecting/Disconnecting Test Leads

» Always connect the black test lead **(7)** to the **COM** input terminal first, and then connect the red test lead **(8)** to the **V** input terminal or the **10 A** input terminal. Proceed in reverse when disconnecting the test leads.

ⓘ To avoid electric shocks, injuries or damage to the Digital Multimeter before performing resistance, continuity or capacitance tests, ensure that the mains power connection is disconnected and all high-voltage capacitors are discharged.

Checking the Fuse



» Turn the rotation switch **(2)** to the position in the figure.

» Insert the test lead **(8)** into the **V** input terminal.

» Use the test probe to make contact with the **10 A** input terminal.

→ The measured value is shown on the display **(1)**.
If a value lower than 0.5 Ω is displayed, the fuse is intact.
If **0L** is displayed, the fuse **(14)** is defective and must be replaced (see "Changing the Fuse", page 14).

Measuring functions

The Digital Multimeter offers the following measuring functions:

– Measurement of alternating voltage
– Measurement of the frequency of alternating voltage
– Measurement of direct voltage
– Measurement of alternating or direct voltage in the millivolt range
– Measurement of resistance
– Continuity testing
– Measurement of the capacitance
– Measurement of alternating current
– Measurement of the frequency of alternating current
– Measurement of direct current

Using the Bar Display

The bar graph display **(j)** resembles the needle of an analogue multimeter. As the bar graph display reacts faster than the digital display, it is suitable for setting peak points and zero points.

The bar graph display is deactivated while measuring the capacitance and the temperature. For frequency measurements, the bar graph display and measuring range display show the underlying voltage or current up to 1 kHz.

The number of segments indicates the measured value and is relative to the full scale value of the selected measuring range, which is displayed on the right-hand side of the bar graph display.

Measuring Process

▸ **Use for measurements always the proper input terminals, switch position and measuring range.**

▸ **Check the test leads for continuity before use. Do not use if the readings are high or noisy.**

▸ **Keep your fingers behind the finger guards while using the test leads.**

» Turn the rotation switch **(2)** to the position in the figure.

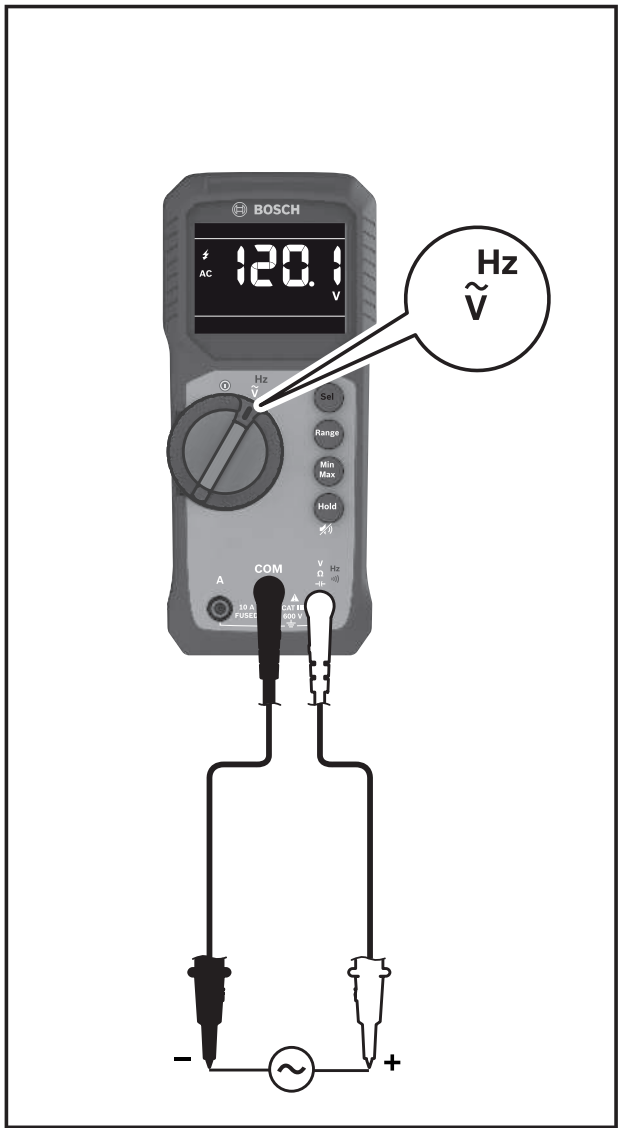
» Press the **Sel** button when it is shown in the figure.

» Connect test leads **(7)** and **(8)** as shown in the figure.

» Contact the test points with the test probes.

→ The measured value is shown on the display **(1)**.

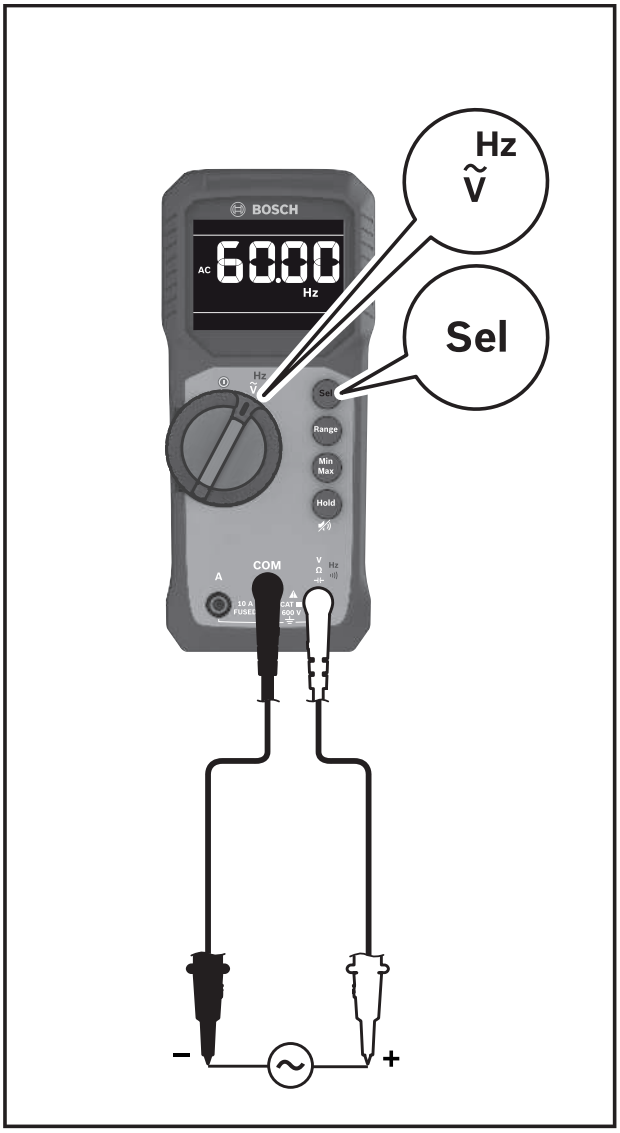
Measurement of alternating voltage



» Take the measurement via (see "Measuring Process", page 6).

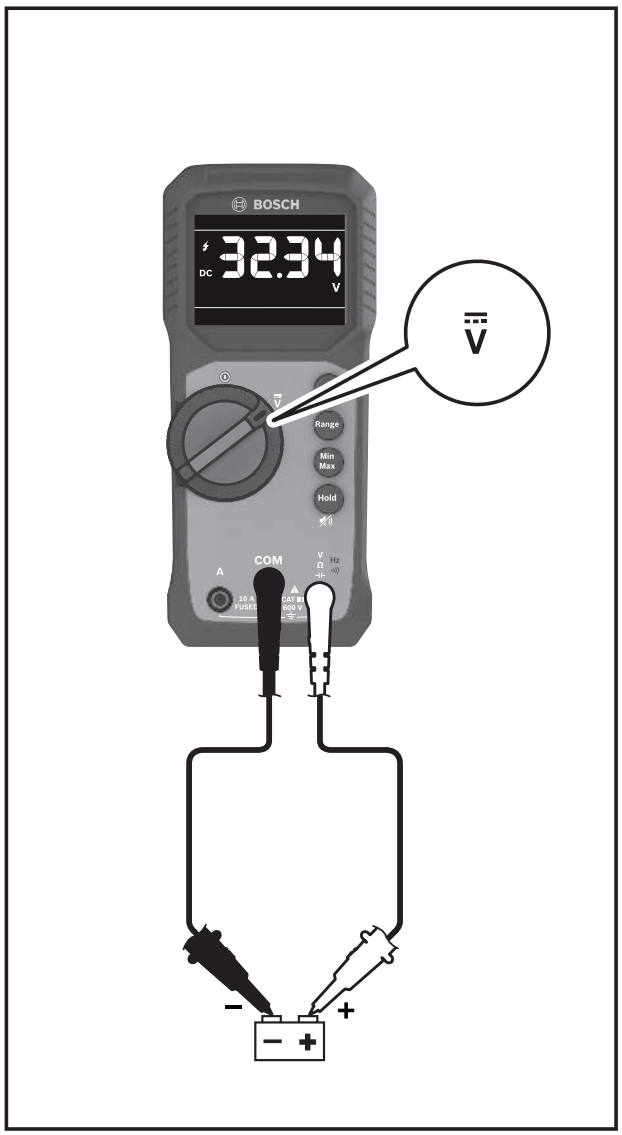
Measurement of the frequency of alternating voltage

Frequency measurement is only carried out with alternating voltage.



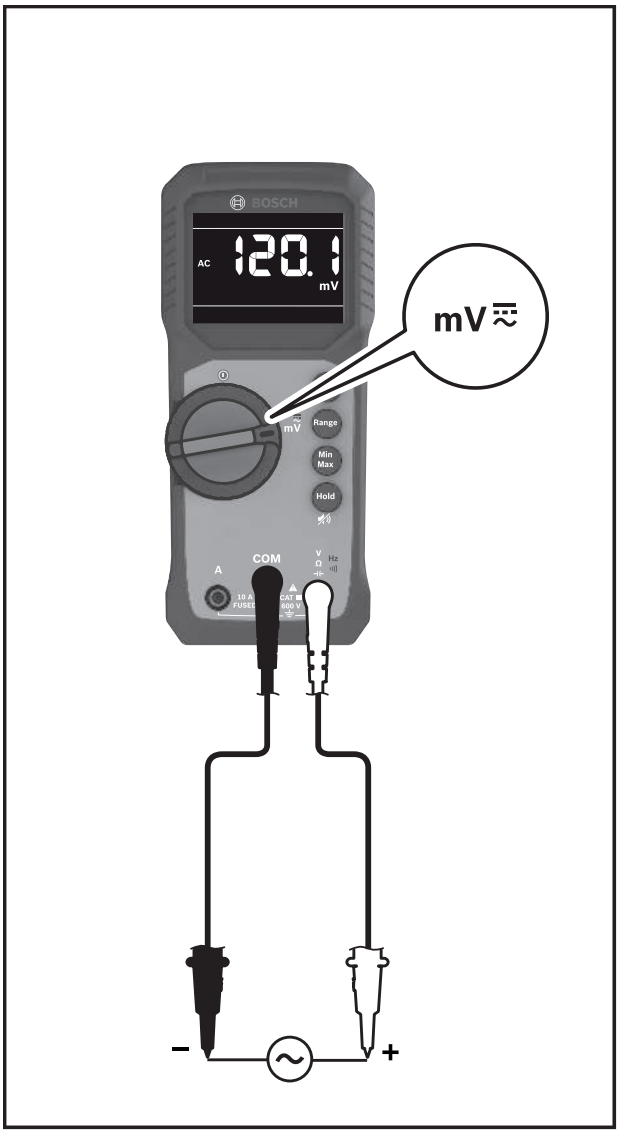
» Take the measurement via (see "Measuring Process", page 6).

Measurement of direct voltage



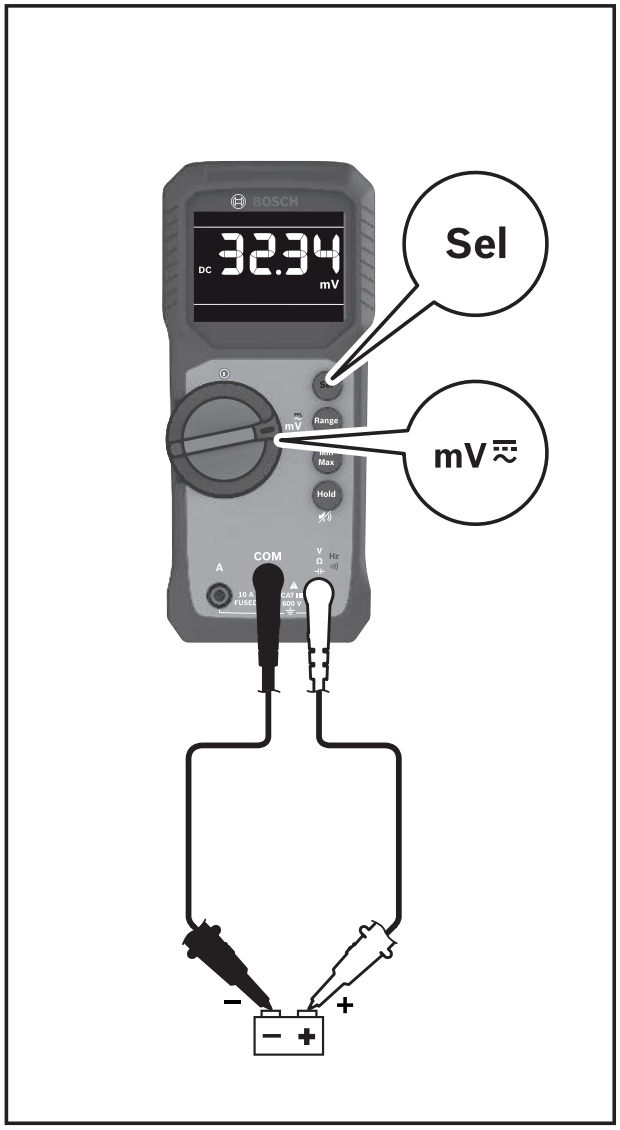
» Take the measurement via (see "Measuring Process", page 6).

Measurement of alternating voltage in the millivolt range



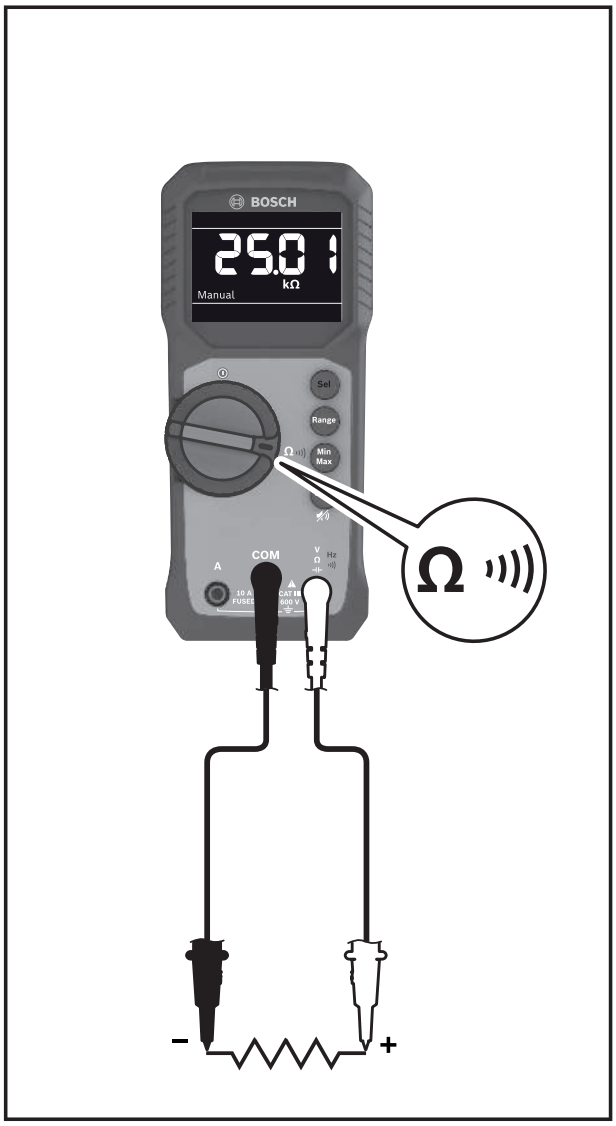
» Take the measurement via (see "Measuring Process", page 6).

Measurement of direct voltage in the millivolt range



» Take the measurement via (see "Measuring Process", page 6).

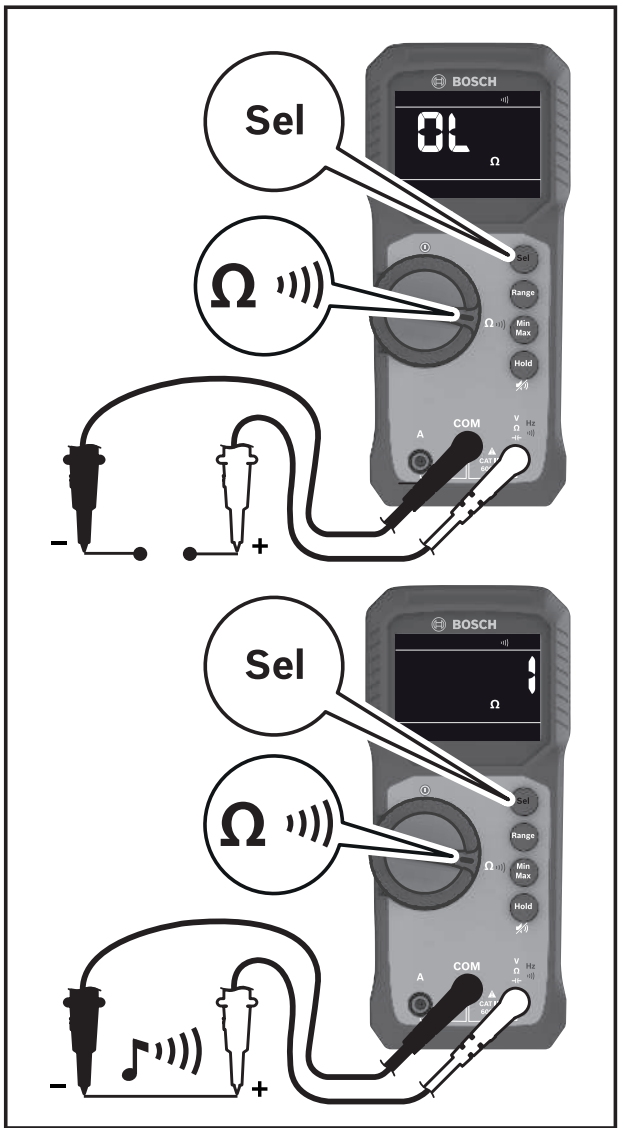
Measurement of resistance



» Take the measurement via (see "Measuring Process", page 6).

» If necessary, use the manual range selection (**Range** button) to select a suitable measuring range.

Continuity test

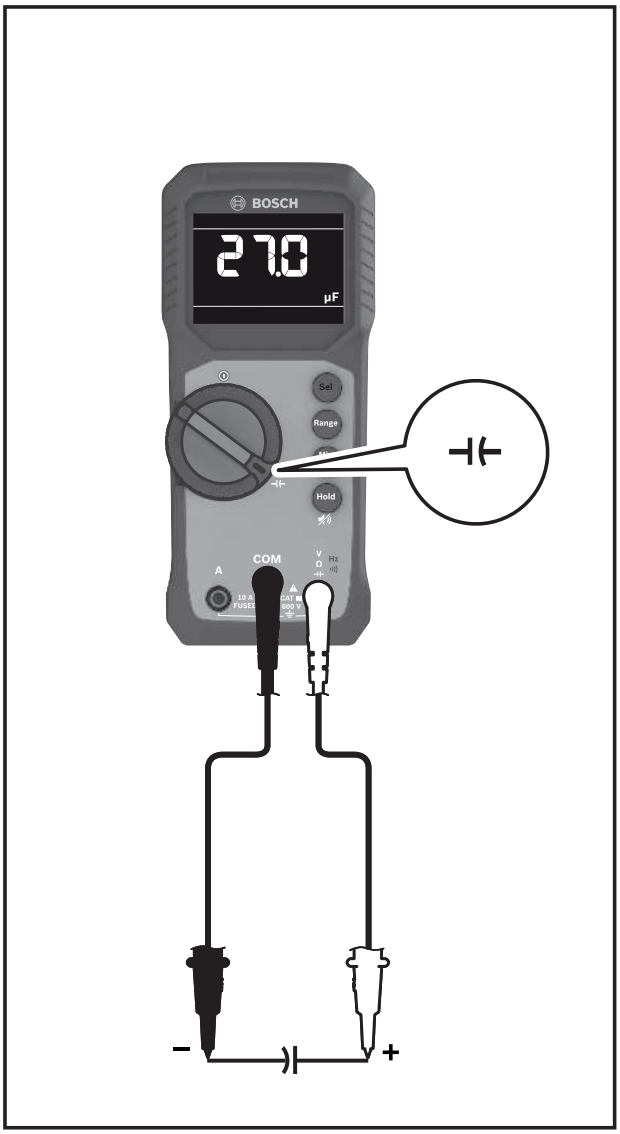


» Take the measurement via (see "Measuring Process", page 6).

→ If the continuity test is successful, a continuous tone is output.

Measurement of the capacitance

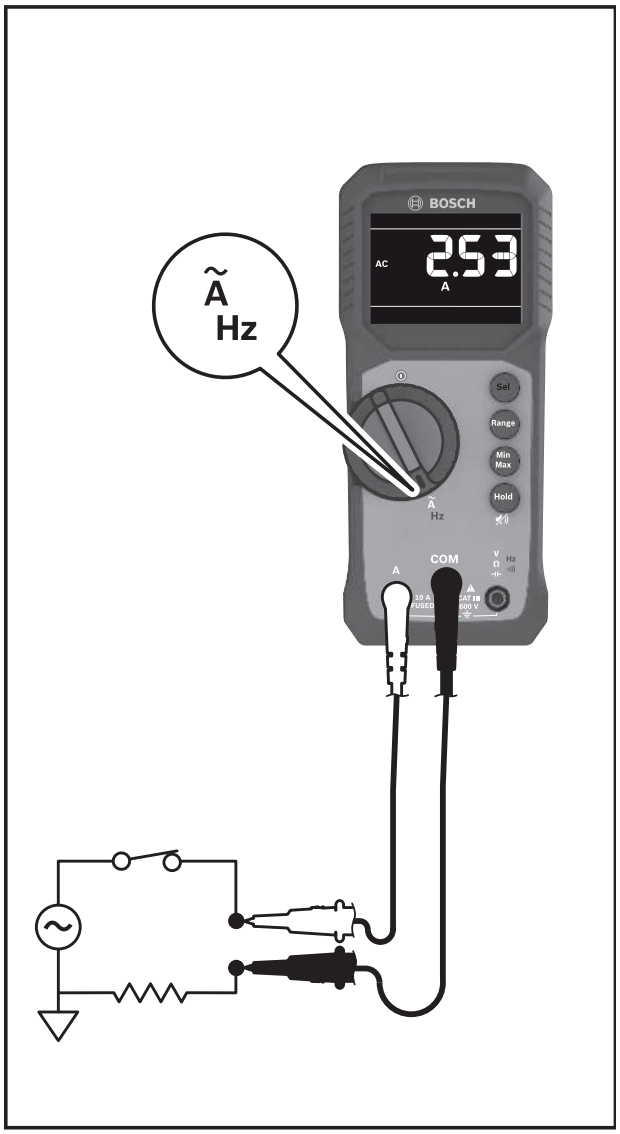
ⓘ Perform a measurement of the direct voltage to confirm whether the capacitor is discharged.

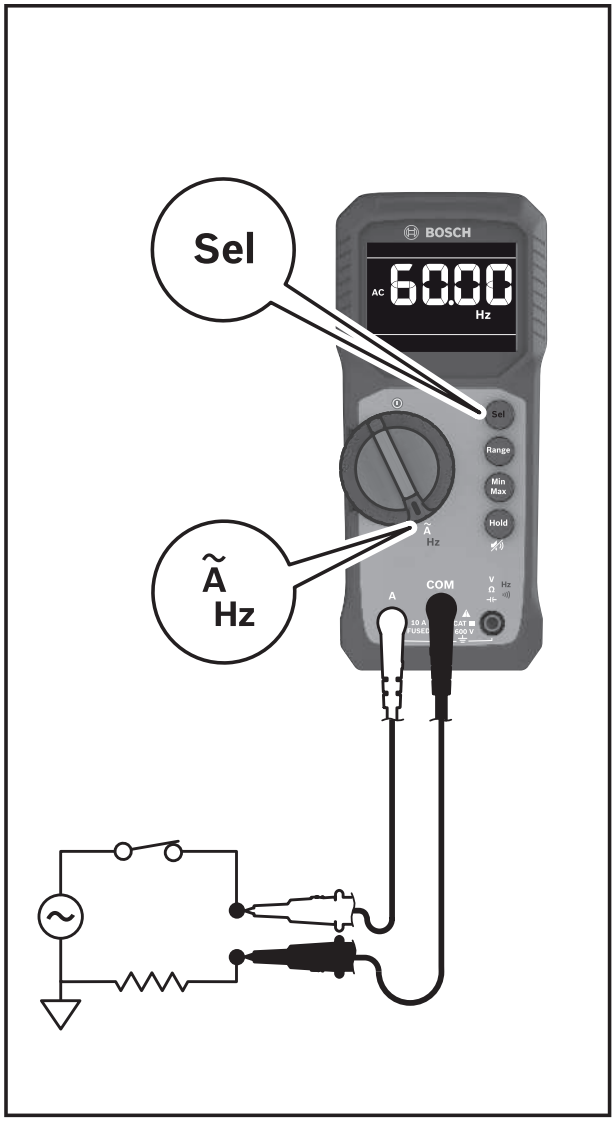


» Take the measurement via (see "Measuring Process", page 6).

Measurement of alternating current

- **Do not take any measurements if the open-circuit potential to earth is more than 600 V.**
- **Check the fuse of the Digital Multimeter before measuring** (see "Checking the Fuse ", page 6).
- **If the rotation switch is turned to position A or from position A, an audio signal will sound and LEAD will appear on the display. Then check whether the test leads are connected to the right sockets.**





» Disconnect the power supply in the circuit to be measured.

» Interrupt the circuit and insert the test leads/test probes in series.

» Switch the power supply back on.

» Take the measurement via (see "Measuring Process", page 6).

Measurement of the Frequency of Alternating Current

Frequency measurement is only carried out with alternating current.

» Disconnect the power supply in the circuit to be measured.

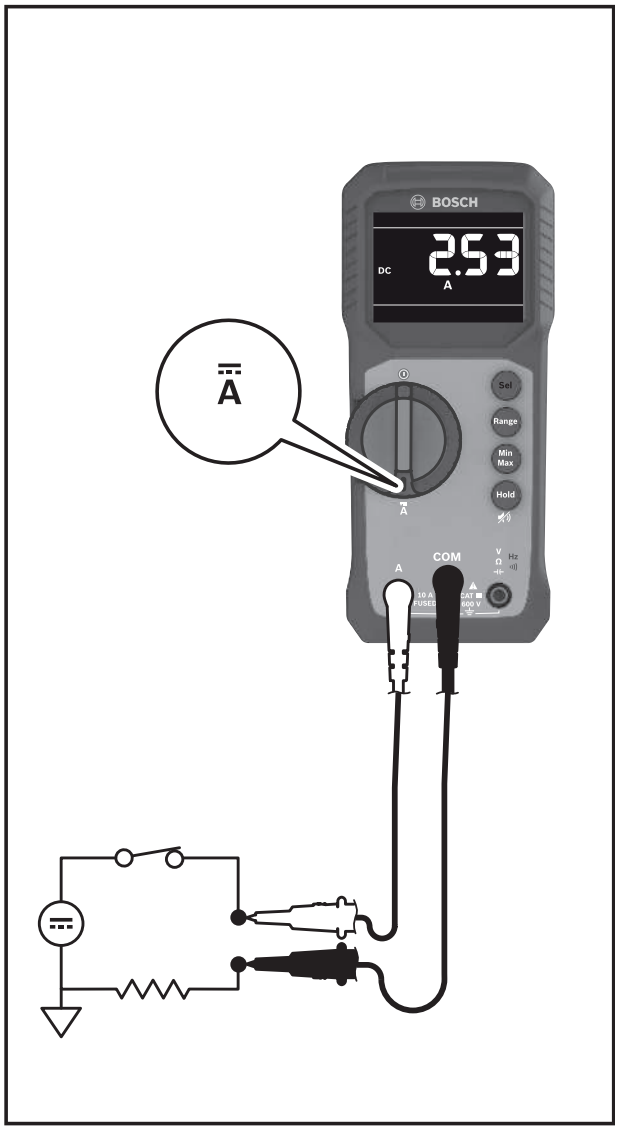
» Interrupt the circuit and insert the test leads/test probes in series.

» Switch the power supply back on.

» Take the measurement via (see "Measuring Process", page 6).

Measurement of Direct Current

- ▸ **Do not take any measurements if the open-circuit potential to earth is more than 600 V.**
- ▸ **Check the fuse of the Digital Multimeter before measuring** (see "Checking the Fuse ", page 6).



» Disconnect the power supply in the circuit to be measured.

» Interrupt the circuit and insert the test leads/test probes in series.

» Switch the power supply back on.

» Take the measurement via (see "Measuring Process", page 6).

Accuracy Specifications

Measuring function	Measuring range	Resolution	Accuracy ± ([% of the measured value] + [count values])
Alternating voltage (AC V)	600.0 mV	0.1 mV	± (1.0 % + 3) (45–500 Hz)
	6.000 V	0.001 V	
	60.00 V	0.01 V	± (2.0 % + 3) (500–1000 Hz)
	600.0 V	0.1 V	
Alternating current (AC A)	6.000 A	0.001 A	± (1.5 % + 3) (45–500 Hz)
	10.00 A	0.01 A	
Frequency (AC V: 10 V to 600 V) (AC A: 600 mA to 10 A)	99.99 Hz	0.01 Hz	± (0.1 % + 2)
	999.9 Hz	0.1 Hz	
	9.999 kHz	0.001 kHz	
	50.00 kHz	0.01 kHz	
Direct voltage (DC V)	600.0 mV	0.1 mV	± (0.5 % + 2)
	6.000 V	0.001 V	
	60.00 V	0.01 V	
	600.0 V	0.1 V	
Direct current (DC A)	6.000 A	0.001 A	± (1.0 % + 3)
	10.00 A	0.01 A	
Resistance	600.0 Ω	0.1 Ω	± (1.0 % + 5)
	6.000 kΩ	0.001 kΩ	

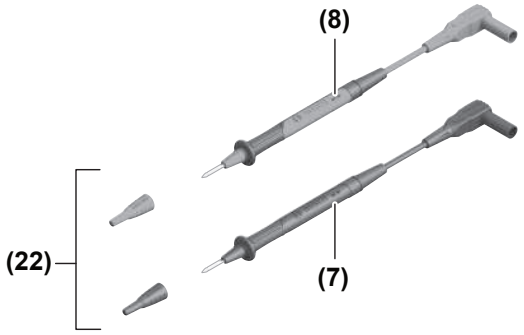
Measuring function	Measuring range	Resolution	Accuracy ± ([% of the measured value] + [count values])
	60.00 kΩ	0.01 kΩ	
	600.0 kΩ	0.1 kΩ	
	6.000 MΩ	0.001 MΩ	
	40.00 MΩ	0.01 MΩ	± (2.0 % + 5)
Capacitance	100.0 µF	0.1 µF	± (1.9 % + 2)
	1000 µF	1 µF	
Continuity	–	0.1 Ω	± (1.0 % + 5) ≤ 30 Ω: Sound signal ≥ 50 Ω: No sound signal

Accuracy is guaranteed for a period of one year from calibration at operating temperatures of -10 °C to 50 °C and a relative humidity of 0 % to 90 %.

The specifications apply for an ambient temperature of between 18 °C and 28 °C and a relative humidity of ≤ 75 %. If the temperature is outside the previously specified range, an additional temperature error factor of 0.1 x the specified accuracy must be taken into account for every 1 °C.

Protective Caps

» To ensure safety when using test leads, make sure that the corresponding CAT measurement category is set.



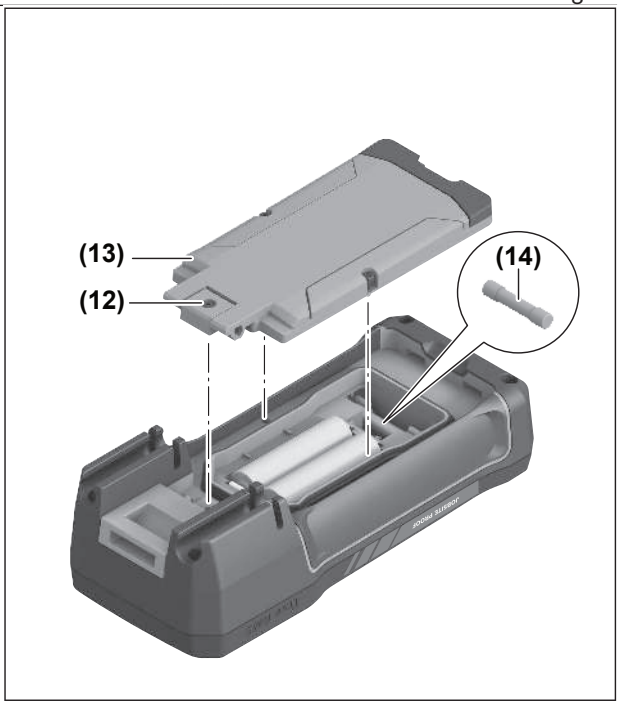
CAT III 1000 V CAT II 1000 V
CAT IV 600 V

» You can change the safety class of the test leads (**(8)**/**(7)**) by attaching the protective caps **(22)** to the test probes of the test leads or removing them from the test probes of the test leads .

Inserting/Changing the Battery

ⓘ The battery compartment cover **(13)** may only be opened with the test leads (**(7)** / **(8)**) removed. There is a risk of electric shock.

It is recommended that you use alkaline manganese non-rechargeable batteries to operate the measuring tool.



» Remove the test leads (**(7) / (8)**) from the Digital Multimeter.

» Unscrew the 3 screws **(12)** on the battery compartment cover **(13)** and remove the cover .

» Insert the non-rechargeable batteries.

» Reinsert the battery compartment cover **(13)** and secure it with the 3 screws **(12)**.

ⓘ The Digital Multimeter can only be switched on if the battery compartment cover **(13)** is screwed down correctly.

ⓘ Always replace all the non-rechargeable batteries at the same time. Only use non-rechargeable batteries from the same manufacturer and which have the same capacity.

ⓘ When inserting the batteries, ensure that the polarity is correct according to the illustration on the inside of the battery compartment.

When the battery symbol first appears on the display and an audio signal is output, only a few measurements will still be possible. When the non-rechargeable batteries are completely discharged, an audio signal is output and the Digital Multimeter switches off.

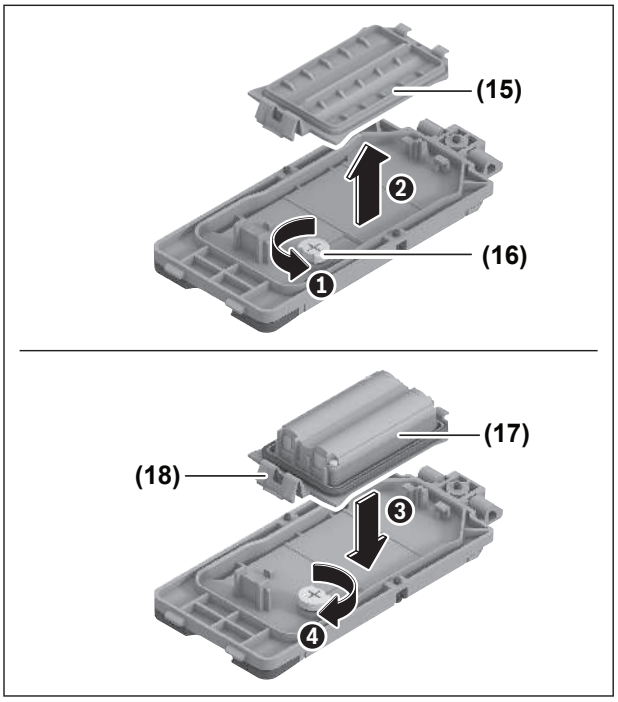
- ▸ **Take the batteries out of the measuring tool when you are not using it for a prolonged period of time**. The batteries can corrode during prolonged storage in the measuring tool.

ⓘ Never store the Digital Multimeter without an inserted battery compartment cover **(13)**, particularly in dusty or humid environments.

Lithium-ion battery pack (accessory)

ⓘ The battery compartment cover **(13)** may only be opened with the test leads (**(7)** / **(8)**) removed. There is a risk of electric shock.

Inserting/changing the lithium-ion battery pack (accessory)



- » Remove the test leads (**(7) / (8)**) from the Digital Multimeter.
- » Unscrew the 3 screws **(12)** on the battery compartment cover **(13)** and remove the cover.
- » Unscrew the locking mechanism **(16)** in the battery compartment cover by approx. 1/2 revolution and remove the inlay **(15)**.
- » Insert the lithium-ion battery pack **(17)** (accessory) and re-tighten the locking mechanism **(16)** by approx. 1/2 revolution.
- » Insert the battery compartment cover into the Digital Multimeter together with the lithium-ion battery pack **(17)** and secure the cover with the 3 screws **(12)**.
- » To remove the lithium-ion battery pack **(17)** (accessory), unscrew the 3 screws **(12)** on the battery compartment cover **(13)** and open the locking mechanism **(16)**. Press the locking mechanism **(18)** and remove the lithium-ion battery pack .

ⓘ The Digital Multimeter can only be switched on if the battery compartment cover **(13)** is screwed down correctly.

Charging the lithium-ion battery pack (accessory)

- ▸ **For charging, use a USB power supply unit whose output voltage and minimum output current comply with the requirements in the "Technical Data" section. Observe the operating manual of the USB power supply unit.** Recommended power supply unit: See "Technical Data".
- ▸ **Pay attention to the mains voltage.** The voltage of the power source must match the voltage specified on the rating plate of the power adaptor. Power adaptors marked with 230 V can also be operated with 220 V.

ⓘ Never recharge the lithium-ion battery in the Digital Multimeter.

ⓘ 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.

The lithium-ion battery pack **(17)** must be removed from the battery compartment cover **(13)** of the Digital Multimeter to charge it .

The USB port for connecting the USB cable and the charging indicator light can be found under the flap for the USB port on the lithium-ion battery pack **(17)** (accessory).

» Open the flap of the USB port.

» Connect the USB cable.

→ During charging, the charging indicator light lights up yellow.

→ When the lithium-ion battery pack **(17)** (accessory) is fully charged, the charging indicator light will light up green.

→ A red charging indicator light indicates that the charging voltage or charging current is unsuitable.

Changing the Fuse

ⓘ The battery compartment cover **(13)** may only be opened with the test leads (**(7)** / **(8)**) removed. There is a risk of electric shock.

» Remove the test leads (**(7) / (8)**) from the Digital Multimeter.

» Unscrew the 3 screws **(12)** on the battery compartment cover **(13)** and remove the cover .

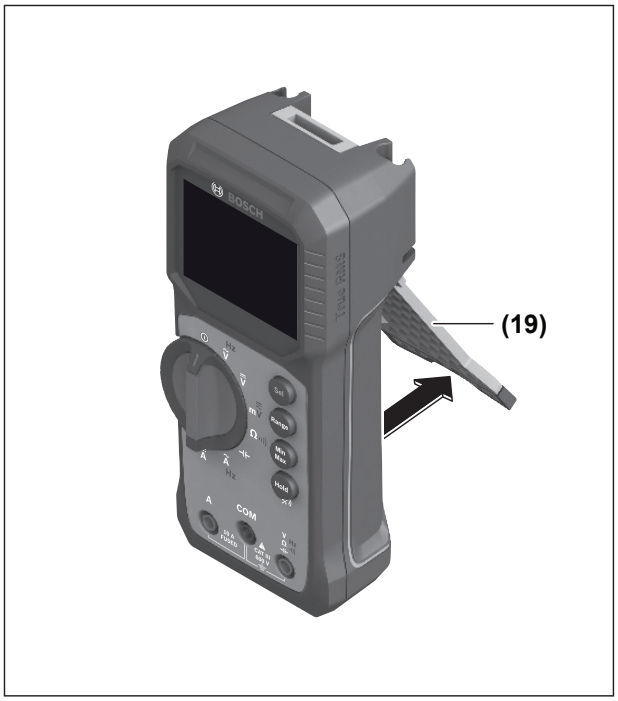
» Remove the defective fuse **(14)** and insert the new fuse.

» Reinsert the battery compartment cover **(13)** and secure it with the 3 screws **(12)**.

ⓘ Only use fuses with the given specification. (see "Technical data", page 4).

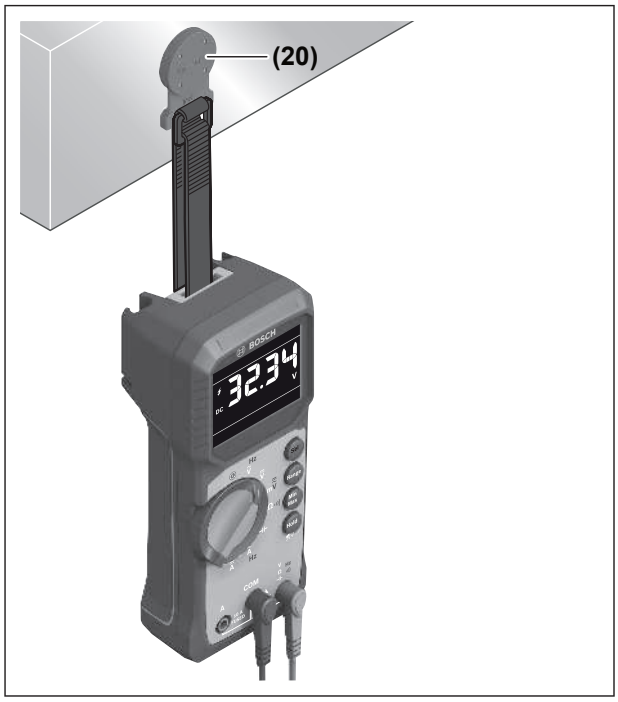
ⓘ The Digital Multimeter can only be switched on if the battery compartment cover **(13)** is screwed down correctly.

Kick stand



» Swivel the kick stand **(19)** out to the rear to place down the Digital Multimeter in an upright position .

Magnetic Hanger



» The magnetic hanger **(20)** can be used to attach the Digital Multimeter to metallic surfaces .

Troubleshooting

Battery warning

The symbol for battery warning appears and an audio signal is output

Cause: Battery voltage is dropping (measurement still possible)

Remedy: Change the non-rechargeable batteries or the lithium-ion battery pack (accessory) or charge the lithium-ion battery pack (accessory) outside the measuring tool

An audio signal is output and the Digital Multimeter switches off

Cause: Non-rechargeable batteries or lithium-ion battery pack (accessory) drained

Remedy: Change the non-rechargeable batteries or the lithium-ion battery pack (accessory) or charge the lithium-ion battery pack (accessory) outside the measuring tool

Digital Multimeter cannot be switched on

Cause: Non-rechargeable batteries or lithium-ion battery pack (accessory) drained

Remedy: Change the non-rechargeable batteries or the lithium-ion battery pack (accessory) or charge the lithium-ion battery pack (accessory) outside the measuring tool

Cause: Battery compartment cover not screwed on correctly or battery compartment cover (partially) open

Remedy: Screw on the battery compartment cover correctly

Current measurement not possible

Cause: Fuse **(14)** defective

Corrective measure: Change the fuse

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.

If the measuring tool needs to be repaired, send it off in the protective bag **(21)**.

After-Sales Service and Application Service

Malaysia
Tel.: (03) 79663194

You can find the link to our service addresses and warranty conditions on the last page.

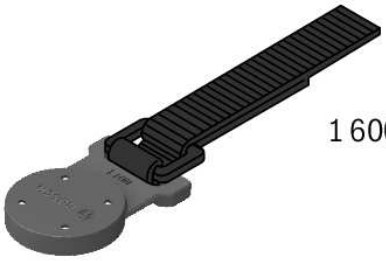
In all correspondence and spare parts orders, please always include the 10-digit article number given on the nameplate of the product.

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.

1 608 M00 C43
1 608 M00 C5D



1 600 A03 8CY

1 600 A03 8D2