

Blue Gizmo 6 in 1 Digital Multimeter, BG68E

Thank you for choosing this instrument from Blue Gizmo.

- Please be sure to read the instruction manual carefully and understand it before operating the device to prevent the damage to the device and loss of your statutory rights arising from defects due to incorrect use.
- We shall not be liable for any damage occurring as a result of not following these instructions. Likewise, we take no responsibility for any incorrect readings for any consequences which may result from them.
- Please take particular note of the safety advice!
- Please keep this instruction manual for future use.

Safety Notes

- This meter is designed for safe use but must be operated with caution.
- Do not exceed the maximum allowable input range of any function.
- Do not apply voltage to meter when resistance function is selected.
- Set the function switch OFF when the meter is not in use.

Warnings

- Set function switch to the appropriate position before measuring.
- Do not switch to current or resistance modes when measuring volts.
- Always disconnect the test leads from the circuit under test when changing the range using the selector switch.
- Do not exceed the maximum rated input limits.


Cautions

Improper use of this meter can cause damage, shock, injury or death. Read and understand the manual before operating the meter

- Always remove the test leads before replacing the battery.
- Remove the battery if the meter is to be stored for a long period.
- Inspect the condition of the test leads and meter for any damage before use.
- Always discharge the capacitors and remove the power from the device under test before performing Diode, Resistance or Continuity tests.
- If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Maintenance

Battery and Fuse Replacement

If the sign “” appears on the LCD display, it indicates that the battery should be replaced. Remove screws on the back cover and open the case. Replace the exhausted battery with new batteries. (1pc x 9V battery NEDA 1604, 6F22 or equivalent)

Fuse rarely needs replacement and blow almost always as a result of the operator's error. Open the case as and replace the blown fuse with ratings specified.

Warning: Before attempting to open the case, be sure that test leads have been disconnected from measurement circuit to avoid electric shock hazard

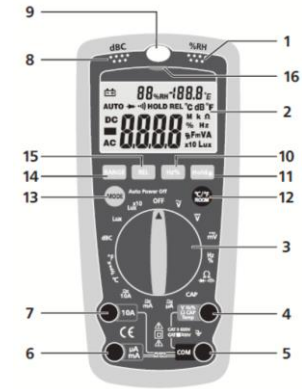
Replace fuse only with specified ratings:

Fuse 1: F10A / 600V fast blow

Fuse 2: F500mA / 600V fast blow

METER DESCRIPTION

1. Humidity & Temperature Sensor
2. LCD Display
3. Function switch (ON/OFF switch)
4. V/ Hz% / Ω / CAP / $^{\circ}$ C input jack
5. COM input jack
6. μ A / mA input jack
7. 10A input jack
8. Microphone
9. Photo Detector
10. Hz% button
11. HOLD Button
12. Backlight button
13. MODE button
14. RANGE button
15. REL button (relative measurement)
16. NCV indicate light



Input Limits	
Function	Maximum Input
VDC or VAC	600VDC / AC rms
mA AC/DC	500mA 660V fast acting fuse (500mA/660V)
A AC/DC	10A 600V fast acting fuse (20A for 30 seconds max every 15 mins)
Frequency, Resistance, Capacitance, Duty Cycle, Diode Test, Continuity	600VDC / AC rms
Temperature ($^{\circ}$ C/ $^{\circ}$ F)	600VDC/AC rmsp
Temperature / Humidity (Indoor)	0 to 50 $^{\circ}$ C / 33% to 99%RH
Temperature Probe	-20 to 750 $^{\circ}$ C

Warning: Never apply voltage or current to the meter that exceeds the specified maximum. Operators must refer to the explanation in this manual. Dangerous voltage maybe present at the terminals.

Operating Instruction

Measuring Sound Level

1. Set the function switch to the “dBC” position.
2. Place the meter and face the microphone to sound source in a horizontal position.
3. The C-weighting curve is nearly uniform over the frequency range from 30 to 10,000 Hz thus giving an indication of overall sound level.
4. The fast response is suitable to measure shout bursts and peak values from sound source.
5. The sound level will be display.

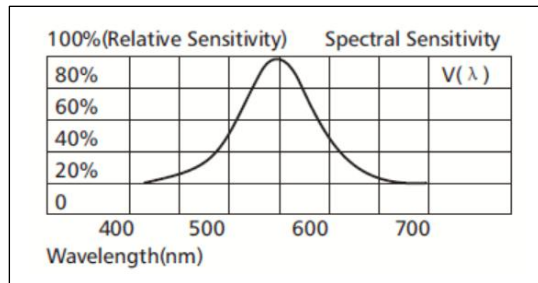
Note: Strong wind (over 10m/sec) striking the microphone can cause misreading for measurement in windy locations, a wind screen should be used in front of the microphone.

Measuring Humidity

1. Humidity measurement for indoor.
2. Set the function switch to any of the function position.
3. Place the meter place to the room.
4. Read the %RH in the display for about two hours.

Measuring Light

1. Set the function switch to the “LUX” position and set the range to desired (“Lux” or “x10 Lux”) range.
2. Place the meter and face the photo detector to the light source in a horizontal position.
3. Read the illuminance nominal from the LCD display.
4. Over range: If the instrument only display “1” in the M.S.D the input signal is too strong and higher range should be selected.
5. When the measurement is completed. Replace the photo detector from the light source.
6. Spectral sensitivity characteristics: To the detector, the applied photo diode with filters makes the spectral sensitivity characteristics almost meet C.I.E (International Commission on Illumination) photopia curve $V(\lambda)$ as the following chart described.



Recommended Illumination

Place Categories	Location	Lux
Office	Conference, Reception room	200 to 750
	Clerical work	700 to 1500
	Typing drafting	1000 to 2000
Factory	Packing work, Entrance passage	150 to 300
	Visual work at production line	300 to 750
	Inspection work	750 to 1500
	Electronic parts assembly line	1500 to 3000

Hotel	Public room, cloakroom	100 to 200
	Reception, cashier	200 to 1000
Store	Indoors stairs corridor	150 to 200
	Show window, Packing table	750 to 1500
	Forefront of show window	1500 to 3000
Hospital	Sickroom, Warehouse	100 to 200
	Medical Examination room	300 to 750
	Operating room	300 to 750
	Emergency Treatment	750 to 1000
School	Auditorium, Indoor Gymnasium	100 to 300
	Classroom	200 to 750
	Laboratory, Library, Drafting room	500 to 1500

Measuring Temperature

1. Set the function switch to the “ °C / °F” position.
2. Then the display will show the environment temperature reading value °C directly.
3. Insert the black plug of the temperature probe, the COM jack and red plug to the “V / Hz% / Ω / CAP / Temp / \rightarrow \rightarrow \rightarrow ” jack.
4. Touch the end of the temperature sensor to the area or surface of the object to be measured. The display will show the temperature reading value °C directly.

Measuring DC Voltage

1. Insert the black test lead banana to the COM jack and red test lead banana to the “V / Hz% / Ω / CAP / Temp / \rightarrow \rightarrow \rightarrow ” jack.
2. Set the function switch to the “V \rightarrow ” ranges to be used and connect test leads connect test leads across the source or load under measurement.
3. Set the function switch at “ mV \rightarrow ” position to be used connect test leads across the source or load under measurement.
4. Read LCD display. The polarity of red connection will be indicated when making a DC measurement.
5. Press the Hz% button to indicate “Hz”.
6. Read the frequency in the display.
7. Press the Hz% button again to indicate “%”.
8. Read the % of duty cycle in the display.

Measuring AC Voltage

1. Insert the black test lead banana to the COM jack and red test lead banana to the “V / Hz% / Ω / CAP / Temp / \rightarrow \rightarrow \rightarrow ” jack.
2. Set the function switch to the “V \sim ” position to be used and connect test leads connect test lead across the source or load under measurement.
3. Read LCD display. The polarity of red connection will be indicated when making a AC measurement.
4. Press the Hz% button to indicate “Hz”.
5. Read the frequency in the display.
6. Press the Hz% button again to indicate “%”.
7. Read the % of duty cycle in the display.



Measuring DC Current

1. Insert the black test lead banana plug into the negative COM jack and the red test lead banana plug into the “ μA / mA” or “10A” jack.
2. For current measurements up to 4000 μA DC, set the function switch to the μA position and insert the red test lead banana plug into the $\mu\text{A}/\text{mA}$ jack.
3. For current measurements up to 400mA DC, set the function switch to mA position and insert the red test lead banana plug into the $\mu\text{A}/\text{mA}$ jack.
4. For current measurements up to 10A DC, set the function switch to the yellow 10A position and insert the red test lead banana plug into the 10A jack.
5. Press the MODE button to indicate “DC” on the display.
6. Remove power from the circuit under test, then open up the circuit at the point where you wish to measure current.
7. Touch the black test probe tip to the negative side of the circuit. Touch the red test probe tip to the positive side of the circuit.
8. Apply power to the circuit and read the current in the display.

Measuring AC Current

1. Insert the black test lead banana plug into the negative COM jack and the red test lead banana plug into the “ μA / mA” or “10A” jack.
2. For current measurements up to 4000 μA AC, set the function switch to the μA position and insert the red test lead banana plug into the μA / mA jack.
3. For current measurements up to 400 mA AC, set the function switch to mA position and insert the red test lead banana plug into the μA / mA jack.
4. For current measurements up to 10A AC, set the function switch to the 10A position and insert the red test lead banana plug into the 10A jack.
5. Press the MODE button to indicate “AC” on the display.
6. Remove power from the circuit under test, then open up the circuit at the point where you wish to measure current.
7. Touch the black test probe tip to the neutral side of the circuit. Touch the red test probe tip to the “hot” side of the circuit.
8. Apply power to the circuit.
9. Read the current in the display.
10. Press and hold the Hz% button to indicate “Hz”.
11. Read the frequency in the display.
12. Momentarily press the Hz% button again to indicate “%”.
13. Read the % duty cycle in the display.
14. Press and hold the Hz% button to return to the current measurement.

Measuring Capacitance

1. Set the function switch to the CAP position.
2. Insert the black test lead banana plug into the negative COM jack and the red test lead banana into the “V / Hz% / Ω / CAP / Temp / \rightarrow \rightarrow \rightarrow ” jack.
(If value is no zero in the display. Press EL button to zero)
3. Touch the test probe tips across the part under test.
4. Read the capacitance value shown on the display.
5. The display will indicate the proper decimal point and value.

Measuring Frequency

1. Set the function switch to the Hz position.
2. Insert the black test lead banana plug into the negative (COM) jack.
3. Insert the red test lead banana plug into the “V / Hz% / Ω / CAP / Temp / \rightarrow \rightarrow \rightarrow ” jack.
4. Touch the test probe tips to the circuit under test.
5. Read the frequency shown on the display.

6. The digital reading will indicate the proper decimal point, symbols (Hz, kHz, MHz) and value.

Measuring Resistance

1. Set the function switch to the Ω \rightarrow \rightarrow \rightarrow position.
2. Insert the black test lead banana plug into the negative COM jack. Insert the red test lead banana plug into the V / Hz% / Ω / CAP / Temp / \rightarrow \rightarrow \rightarrow jack.
3. Indicate “OL” “M Ω ” on the display.
4. Touch the test probe tips across the circuit or part under test. It is best to disconnect one side of the part under test so the rest of the circuit will not interfere with the resistance reading.
5. Read the resistance shown on the display.

Measuring Diode

1. Set the function switch to the Ω \rightarrow \rightarrow \rightarrow position.
2. Insert the black test lead banana plug into the negative COM jack and the red test lead banana plug into the V / Hz% / Ω / CAP / Temp / \rightarrow \rightarrow \rightarrow jack.
3. Press the MODE button to indicate “ \rightarrow \rightarrow \rightarrow ” and “V” on the display.
4. Touch the test probes to the diode under test. Forward voltage will typically indicate 0.400 to 0.700V. Reverse voltage will indicate “OL”. Shorted devices will indicate near 0V and an open device will indicate “OL” in both polarities.

Audible Continuity Test

1. Set the function switch to Ω \rightarrow \rightarrow \rightarrow position.
2. Insert the black test lead banana plug into the negative COM jack and the red test lead banana plug into the V / Hz% / Ω / CAP / Temp / \rightarrow \rightarrow \rightarrow jack.
3. Press the MODE button to indicate “ \rightarrow \rightarrow \rightarrow ” on the display.
4. Touch the test probe tips to the circuit or wire you wish to check.
5. If the resistance is less than approximately 50 Ω , the audible signal will sound. If the circuit is open, the display will indicate “OL”.

Non-Contact AC Voltage Test (NCV)

1. Set the function switch to the ON position.
2. Remove the meter and face the NCV detector to ACV source.
3. If source voltage in 50-1000V the NCV indicate lamp will light.

Intended usage, exclusion of warranty, safety information

- The instrument is not a toy. Keep it out of reach of children.
- The specifications of this instrument may change without prior notice.
- No part of this manual may be reproduced without written consent of Acez Instruments.
- Improper use or unauthorized opening of housing will mean the loss of warranty.

