



MANUAL RANGE MULTIMETER

Model: **B-550**



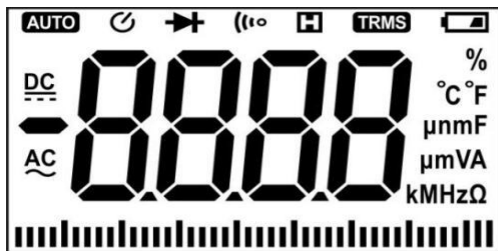
Instruction Manual





FRONT PANEL DESCRIPTION



- 1) Flashlight
- 2) LCD display
- 3) Function keys
- 4) Rotary switch
- 5) Input jack


SYMBOLS OF LCD DISPLAY




Symbols	Description	Symbols	Description
H	Data Hold		Low Battery indication
	Diode test		Continuity check
Hz, KHz, MHz	Units of frequency	nF, uF, mF	Units of Capacitance
Ω KΩMΩ	Units of resistance	uA, mA, A	Units of Current
DC	Direct current	AC	Alternating Current
°F	Fahrenheit	°C	Centigrade
TRMS	True RMS		Analog bar display


DESCRIPTION OF FUNCTIONAL KEYS

- **H:** Data Hold Button, slightly press this button, the meter will maintain the display without updating during the measurement
- **FUNC:** Function Shift Button
- **VFC Mode:** Under the range 750V of AC voltage, hold and press this button to activate VFC measurement.

Note: slightly press this button to activate the functional shift between °C/°F, Hz/%, , ACV/Hz, ACA/Hz.

- : Flashlight Button

Press this button to activate flashlight, press again to exit

- : Backlight Button

Hold and press this button to activate backlight, to exit Press the Button Again.

- **REL:** Relative Measurement Button

Slightly press this button to activate relative measurement function, the meter reads the value as reference, after that the displayed values, is the real measurement minus the reference value, press this button again to exit.

REPLACING THE FUSE

1. Turn power off and disconnect the test leads from the meter.
2. Remove the battery cover and the battery.
3. Remove the screws by securing the rear cover.
4. Gently remove the old fuse and install the new fuse into the fuse holder.
5. Replace and secure the rear cover, battery and battery cover.


INTRODUCTION

Congratulations on your purchase of **B-550** manual range digital multimeter, which has been designed according to IEC-61010-2-032 concerning electronic measuring instruments with CAT III 1000V& CAT IV 600V and pollution 2.


B-550 multimeter is stable, highly reliable and with excellent accurate A/D converter as the core for large scale integrated circuit to ensure accurate measurement of AC/DC Voltage, AC/DC current, Resistance, Capacitance, Frequency, Diode, Continuity and Temperature. All these features make **B-550** multimeter to be an ideal tool for field application, laboratory, factory, hobbyist, as well as household applications.


To fully utilize this range multimeters, please keep this manual for reference carefully.

SAFETY SYMBOLS

 This symbol indicates that the operator must refer to an explanation in the Operating Instruction for further information.

 Earth ground

 Double insulation



 Danger voltage

MAINTENANCE



To avoid electric shock, disconnect the test leads from any source of voltage before removing the back cover or the battery or fuse covers.

To avoid electric shock, do not operate the meter until the battery and fuse covers are in place and fastened securely.

CAUTION

- Before operating the Instrument, warm-up for 30 seconds is required.
- Inspect the condition of the test leads and the meter for any damage before operating the meter.
- The multimeter can only be used with the provided test leads to meet the requirements of safety standards. If the test leads need to be replaced, they must be of the same electrical specification as the original test leads.
- If multimeter is operated in a noisy condition, the readings of meter might be unstable, or even with the large errors due to interference.
- Always remove the test leads before replacing the battery or fuses.
- Take great care when taking measurements, if the voltages are greater than 30VAC RMS or 60V DC, these voltages are considered a shock hazard.
- To avoid damage to the meter, do not exceed the maximum limits of the input values shown in the specification.
- Always discharge capacitors and remove power from the device under test before performing Diode, Resistance or Continuity tests.
- Once “” or “” appears in LCD, to replace the battery for accurate readings.

BATTERY INSTALLATION

To avoid the false readings, replace the battery as soon as the battery indicator  or  appears.

1. Turn power off and disconnect the test leads from the meter.
2. Open the rear battery cover by using a screwdriver.
3. Insert the battery into battery holder, observing the correct polarity.
4. Put the battery cover back in place, secure with the screws.

OPERATIONAL SPECIFICATION

VOLTAGE MEASUREMENT

1. According to voltage measurement requirements, select either DC or AC function.
2. Set the rotary switch to the desired range based on the demands of the voltage under test.
3. Insert the black test lead into COM jack, red test lead into V/ Ω jack.
4. Touch the black test probe tip to the negative side of the circuit; touch the red test probe tip to the positive side of circuit.
5. Read the value of voltage in the LCD display.

NOTE:

- **B-550** is equipped with ACV/DCV function, the threshold voltage is 1V, the meter can display value once measured voltage is bigger than threshold voltage, set the rotary switch to $\frac{\text{Lowz}}{\text{V}/\text{V}}$ position for measurement.
- In small range testing, even without input or connection of test leads, the meter may display the value that is normal and not affect the accuracy of the measurement.
- To avoid electrical shock and/or damage to the instrument, do not attempt to take any voltage measurement that might exceed 1000VDC or 750VAC RMS.

CURRENT MEASUREMENT

1. According to Current measurement requirements, select the DC or AC function.
2. Set the rotary switch to desired range based on the demands of the current under test.
3. Insert the black test lead into COM jack, red test lead into mA jack or A input jack.
4. Remove the power from the circuit under the test and discharge the capacitors of the circuit.
5. Connect the black test lead to the lower current end of the circuit under test, and connect the red test lead to the higher current end of the circuit under test. (In series with the circuit to be tested)
6. Read the value in the LCD display.

NOTE:

- According to current range and demands insert jack to select the measuring ranges, if the max. current is less than 600mA in mA jack, and max. current is less than 20A in A jack.
- Never attempt to input the current more than input jack requirements to avoid any damage to the meter.



RESISTANCE MEASUREMENT

1. Set the rotary switch to resistance range.
2. Insert the black test lead into COM jack, red test lead into V/ Ω jack.
3. Touch the test probe tips across the circuit, read the value in LCD display.

NOTE:

- Disconnect power to the unit under test and discharge all capacitors before test
- To avoid any damage to the meter, do not input any voltage.


DIODE AND CONTINUITY CHECK

1. Set the rotary switch to  or  range
2. Insert the black test lead into COM jack, red test lead into V/ Ω jack.
3. Place the red test lead on the anode of diode and black test lead on the cathode of diode, the meter will show the approx. forward voltage of diode, reverse voltage will indicate **OL**.
4. Touch the test probe tips to the circuit or wire you wish to check, the max. value of resistance under check will be shown in display, if the resistance is less than 50 Ω , the audible signal will be sounded.
5. Read the values in LCD display. (diode unit is "V"; continuity unit is " Ω ").

NOTE:

- Disconnect power to the unit under test and discharge all capacitors before taking test.
- To avoid damaging the meter, do not input any voltage.
- Please press "FUNC" button to activate diode or continuity test.

SQUARE WAVE OUTPUT

1. Set the rotary switch to  position.
2. Insert black test lead into COM jack, and red test lead into "V/ Ω " jack, the square wave signal is output from the test lead.

NOTE:

- To avoid any damage to the meter, do not input any voltage.

CAPACITANCE MEASUREMENT

1. Set the rotary switch to capacitance range.
2. Insert the black test lead into COM jack, red test lead into V/ Ω jack
3. Discharge all capacitors under testing.
4. Touch the test leads to the capacitor to be tested, black test lead connects the negative and red test lead connects the positive of capacitor.
5. Read the value in LCD display.
6. When measuring the small value capacitors, the meter may not return to zero due to interfering, subtracting the residual value in LCD displayed during the measurement.

NOTE:

- Disconnect power to the unit under test and discharge all capacitors before test.
- To avoid damaging the meter, do not input any voltage

FREQUENCY MEASUREMENT

1. Set the rotary switch to frequency range, and press "FUNC" to choose "Hz" or "%" mode.
2. Insert the black test lead into COM jack, red test lead into V/ Ω jack.
3. Touch the test lead tips to the circuit under test.
4. Read the frequency value in the LCD display.

NOTE:

- To avoid electric shock, do not apply more than 250VAC before taking frequency measurement.

TEMPERATURE MEASUREMENT

1. Set the rotary switch to °C or °F range (press “FUNC” to select °C or °F mode).
2. LCD displays values of environmental temperature.
3. Insert the K-type temperature probe red plug into the input V/Ω jack, insert black plug of thermocouple probe into COM jack, making sure to observe the correct polarity.
4. Read the temperature value in the LCD.

NOTE:

- Since there is a cold junction compensating circuit inside the meter due to good sealing of meter, it takes long time to reach the thermal balance with the measuring environment, the meter needs to be placed in the measuring environment for a longer time to get the more accurate readings.

LIVE WIRE RECOGNITION (LIVE)

1. Set the rotary switch to **NCV/Live** position. (press “FUNC” to select “Live” mode)
2. Put red test lead into V/Ω jack and connect test lead tip with AC voltage, once the meter beeps up and red LED lights up, which means the live wire is detected.

NOTE:

- When there is a leakage in the circuit, the red test leads even contacts earth line, the buzzer of meter will be sounded, and LED will be flickered.



NON-CONTACT VOLTAGE (NCV)

1. Set the rotary switch to **NCV/Live** position (press “FUNC” to select NCV mode), the LCD display “EF”.
2. Approach the top part of the meter with the circuit under test, the audible alert signal will be sounded and LED blinked, the LCD shows voltage intensity, a greater number of grids appears, which means voltage strong.

NOTE:

- The detection result is for reference; do not determine the voltage by NCV detection ONLY.
- Detection may interfere with socket design, insulation thickness and other variable conditions.
- External interference sources, such as flashlights, motor, etc., may cause the wrong detection.
- To avoid damaging the meter, do not measure voltage under NCV range.

TECHNICAL SPECIFICATION

Measurement principle	Double integral A/D conversion
Maximum input voltage between input socket and the earth	AC750VRMS, DC 1000V
Sampling rate	Approx. 2 times/sec
Input polarity indicator	Automatically display “-”
Voltage low impedance measurement	The internal impedance is around 900k Ω , a meter can identify AC/DC voltage automatically
Operating Temperature	0°C-40°C (<80%RH)
Storage Temperature	-10°C-60°C (<70%RH, Battery excluded)
Low battery indication	When battery is running low,  or  will appear in LCD display
Dimension	185W x 88L x 54H mm
Weight	about 355g (include batteries)
Accuracy	\pm (%readings + digit)
Environmental temperature	18°C~28°C, humidity: \leq 80%
Accessories: <ul style="list-style-type: none">• User manual• Temperature probe• Test leads.	

DC VOLTAGE

Range	Resolution	Accuracy
600mV	0.1mV	±(0.5%+2d)
6V	0.001V	
60V	0.01V	
600V	0.1V	
1000V	1V	±(0.7%+10d)

- Input impedance: 10MΩ
- Max. input voltage: mV range at 250V DC or 250V AC RMS, other ranges at 1000V DC

AC VOLTAGE

Range	Resolution	Accuracy
6V	0.001V	±(0.8%+3d)
60V	0.01V	
600V	0.1V	
1000V	1V	±(1.0%+5d)

- Input impedance: 10MΩ
- Frequency response: 40-1000Hz
- Max. input voltage: 1000 VDC or AC RMS.

AC CURRENT

Range	Resolution	Accuracy
60mA	0.01mA	±(1.5%+5d)
600mA	0.1mA	
20A	0.01A	±(1.0%+10d)

- Max. current: μ A mA jack: FF600mA/1000V fuse,
20A Max Jack: FF10A/1000V fuse
- Frequency response: 40-1000Hz

DC CURRENT

Range	Resolution	Accuracy
600 μ A	0.1 μ A	±(1.0%+5d)
6000 μ A	1 μ A	±(0.8%+5d)
60mA	0.01mA	
600mA	0.1mA	
6A	0.001A	±(1.0%+10d)
20A	0.01A	



- Max. current: μ A mA jack: FF600mA/1000V fuse,
20A Max Jack: FF10A/1000V fuse

RESISTANCE

Range	Resolution	Accuracy
600Ω	0.1Ω	±(0.8%+3d)
6kΩ	0.001KΩ	
60kΩ	0.01KΩ	
600kΩ	0.1KΩ	
6MΩ	0.001MΩ	
60MΩ	0.01MΩ	±(1.0%+25d)

- Overload protection: 250V DC or AC RMS
- Measured resistance value = displayed value – test lead circuit short value

DIODE/CONTINUITY TEST

Range	Description
	Built in buzzer will be sounded if resistance is less than 50Ω
	Display forward voltage drop of diode, opposite display "OL"

- Overload protection: 250V DC or AC RMS

TEMPERATURE

Units	Range	Resolution	Accuracy
°C	-20°C~ 0°C	1°C	±4°C
	0°C~400°C		±(2.0%+3d)
	400°C~1000°C		±(3.0%+3d)
°F	-4°F~50°F	1°F	±5°F
	50°F~750°F		±(2.0%+5d)
	750°F~1832°F		±(3.0%+5d)


- Overload protection: 250VDC or AC RMS

FREQUENCY

Range	Resolution	Accuracy
1Hz~10MHz	0.001Hz~0.01MHz	±(0.1%+2d)

- Overload protection: 250VDC or AC RMS

SQUARE WAVE OUTPUT

Range	Description
	Output frequency: 2kHz Vp-p>3V

CAPACITANCE

Range	Resolution	Accuracy
6mF~60mF	0.001mF~0.01mF	±(5%+25d)

- Overload protection: 250VDC or AC RMS

Note:

- It is normal that if the small value of capacitance does not return zero, deduct the readings during measurement for getting the accurate value.

LOWZ DCV & ACV

Range	Resolution	Accuracy
600V	0.1V	Auto identify \sqrt{V}/\sqrt{V} / ±(0.5%+10d), Min .DC identify voltage > 1.0V

- Input impedance: 900kΩ
- Max. input voltage: 600VDC or AC RMS

BEETECH WARRANTY POLICY

BEETECH Instruments are free from defects in workmanship and functioning, under normal and appropriate use and conditions, for a period of one 1 year from the original invoice date.

During the Warranty period of one year the original purchaser is warranted against the instruments purchased. During this period BEETECH will repair or replace (at its decision) the defective unit subject to verification of the defect or the malfunction (If a manufacturing defect) at Free of Cost (except shipping charges - to & from, handling charges, packing charges, insurance charges, etc., which must be incurred by the customer).

This warranty does not cover disposable batteries, or any damage caused due to abuse, neglect, accident, unauthorized opening or repair, alteration, contamination, or any other abnormal conditions of operation or handling.

Such repairs or replacements are primarily subject to verification of manufacturing defect or malfunction and proof of purchase as confirmed by inspecting the product and the original, dated, purchase invoice. Buyers are to retain purchase invoices for a minimum of one year for warranty

To summarize, warranty does not include:

- 1) Any condition resulting from other than ordinary and usual use for which the product was not intended.
- 2) Any condition resulting from incorrect or inadequate usage, application, maintenance, or care.
- 3) Damage resulting from misuse, incorrect application, abuse, negligence, accidents or shipping damage
- 4) Normal wear and tear or damage in transportation or in transit.
- 5) If the device has been opened, inspected, or modified by the user the warranty is void and cannot be claimed.
- 6) Batteries, Testing leads, and functional accessories are out of warranty policy.
- 7) Any defect which is not a manufacturing defect.



CALIBRATION CERTIFICATE

This Certificate guarantees that the product has been inspected and tested in accordance with the published specifications.

The instrument has been calibrated by using equipment which is calibrated to standards traceable to International and National standard.

(This instrument does not require further calibration until the period of one year from date of use)