PRECISION DATA HOLD DIGITAL MULTIMETER WITH TEMPERATURE MEASUREMENT

MODEL BBT858L

Caution - Safety first

Always use the test leads when making measurements.
Voltages above 60Vdc and 30Vac are dangerous.
Any voltage can be harmful. Always keep your fingers behind the test lead's finger stops.
Never use meter with Category II installations above 600V.
Resistance measurements should not be made on live circuits.
Always have the selector switch in a range *above the actual voltage* or damage may occur.
Never operate meter with back cover removed.

Limited Warranty

The manufacturer warrants to the original consumer that this product is in good working order for a period of one year from the date of manufacture or date of purchase. During this period the product will be repaired or replaced without charge for either parts or labor. The warranty does not cover damage caused by improper use (measurement with meter not set to proper range) . Repair or replacement as provided under this warranty is the exclusive remedy of the purchaser.

1. Features

3 1/2 large digit display with backlighting
Polarity indicator
Hold button
Temperature measurement (includes K type thermocouple)
Continuity buzzer
Soft silicone test leads for safety
150-200 hour battery life (9V alkaline)

2. Operation

2.1 DC Volts & AC Volts Measurement

1) Turn the dial to the "V"ac or "V"dc range position. Always pick a voltage range above what you expect and work down. Protects meter from damage.
2) Connect the black test lead to “COM” terminal and red test lead to the “VΩmA” terminal.
3) Connect test leads to the source to be measured. Read the display value (polarity of the red lead is also displayed).
Note: Never measure voltage above 600V! Damage to the tester will occur.

2.2 DC Current Measurement

1) Connect the black test lead to “COM” and the red test lead to “VΩmA””(for current > 200mA, move the red lead to the 10A terminal).
2) Turn the dial to the "A" range.
3) Connect test leads *in series* with the source to be measured. Read the display value (polarity of the red lead is also displayed).
Note:
a) If the current range is unknown beforehand, *set the dial to the highest range and work down* to protect the meter from damage.
b) When only the figure “1” is displayed, "over range" is indicated. Rotate the dial to the next higher range.
c) Excessive current through the VΩmA terminal will *blow the fuse*. If this happens, the fuse must be replaced.
d) The fuse does not protect the 10A range. If the current is over 10A, the meter will be damaged.

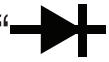
2.3 Resistance Measurement

1) Connect black test lead to “COM” terminal and red test lead to the “VΩmA” terminal (the red test lead is positive polarity (+). Circuit must be unpowered.
2) Turn the dial to the Ω (ohm) range.
3) Connect the test leads across the resistance to be measured.
4) Read the display for the resistance value.
Notes:
a) An open circuit displays “1” (for the over range condition).
b) If the resistance value exceeds the maximum value of the range selected, an over range indication “1” will be displayed and dial must be turned to a higher range.

2.4 Temperature Measurement

1) Turn the dial to the °F position. The LCD will show the ambient temperature when the thermocouple is not connected.
2) Connect the thermocouple by plugging the black end into “COM”. Connect the red plug to "**VΩmA".**
3) Place the probe inside the air stream to measure the temperature.
4) The temperature (in degrees) is shown on the display.

2.5 Diode Test

1) Turn the dial to the “  “ position.
2) Connect the black test lead to “COM” and red test lead to the “VΩmA” terminal (the polarity of the red test lead is “+”).
3) Connect the red test lead to the anode and the black to the cathode.
The forward voltage drop of the diode will be displayed. If the connection is reversed, the display will show "1" as if open (overload).

2.6 Audible Continuity Test ("Buzzer")

1) Turn the dial the_  _ position.
2) Connect the black test lead to “COM” terminal and red test lead to “VΩmA”. The polarity of the red test lead is “+”.
3) Built-in buzzer sounds if the resistance between leads is < 30±15Ω.
Note: An open circuit displays “1” (for the over range condition).

3. Specifications (64°F to 82°F at a relative humidity of 80%)

3.1 DC Voltage Input impedance = 1MΩ

Range	Resolution	Accuracy
200mV	100uV	±(0.5% of reading + 3 digits)
2V	1mV	±(0.8% of reading + 2 digits)
20V	10mV	
200V	100mV	
600V	1V	

Overload Protection: 600V DC/peak AC on all ranges

3.2 AC Voltage Input impedance 1MΩ

Range	Resolution	Accuracy (50Hz ~ 500Hz)
200V	100mV	±(2.0% of reading + 10 digits)
600V	1V	

Overload Protection: 600V AC/DC on all ranges

3.3 DC Current

Range	Resolution	Accuracy
200uA	0.1uA	±(1.8% of reading + 2 digits)
2mA	1uA	
20mA	10uA	
200mA	100uA	±(2.0% of reading + 2digits)
10A	10mA	±(2.0% of reading + 10 digits)

Overload Protection: 500V DC/rms AC on all ranges.

3.4 Resistance

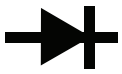
Range	Resolution	Accuracy
200Ω	100mΩ	±(1% of reading + 10 digits)
2KΩ	1Ω	±(1% of reading + 4 digits)
20KΩ	10Ω	
200KΩ	100Ω	
2MΩ	1KΩ	

Overload Protection: 500V DC/rms AC on all ranges.

3.5 Temperature (K type thermocouple included)

Range	Resolution	Accuracy	
		0°F ~750°F	750°F~1380°F
32°~1300°F	1°F	±1% ± 4d	±1.5% ± 15d

3.6 DC Continuity and Diode Testing

	Buzzer sounds if continuity
	Measure a diode’s forward voltage

3.7 Transistor checker (hFE gain test)

Range	Tested range	Tested current	Tested voltage
NPN&PNP	0-1000	I_b = 1uA	Vcd = 3V

4. Technical Characteristics

Measurement method: Dual slope integration A/D converter
Reading rate: 3 reading/sec.
Polarity: Automatic, indicated minus, assumed plus.
Overload indication: "1" appears on the display.
Power: 9V Battery alkaline (NEDA 1604, 6F22).
Battery indication: Battery icon appears when approx. 20% of battery life remains.
Display: LCD 3 ½ digits (1999 count) 0.5” high
Data hold: All functions and ranges.
Dimension: 5.75"×3"×1.75" Weight: 3/4# with battery.

5. Contents

User’s manual
DMM (digital multimeter) and protective boot
Soft silicone test leads
9V battery
K-type thermocouple (temperature)

6. Battery and Fuse Replacement

6.1 Battery and fuse replacement should only done after the test leads have been disconnected and power is off.

6.2 Loosen screws with suitable screwdriver and remove back cover.

6.3 9V alkaline battery (IEC 6F22, NEDA 1604, JIS 006P).

6.4 The meter is protected fast fuse 0.5A/250V, dimensions is 5x20mm.

6.5 Replace the case bottom and reinstall the 2 screws. Never operate the meter unless the case bottom is fully closed.

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