

TRIPLETT

Model 1101-B

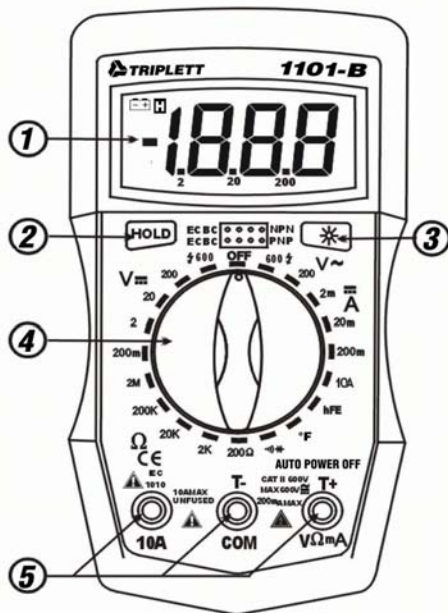
Compact Digital Multimeter

Instruction Manual

1. Introduction

The Triplett Model 1101-B is a 3 1/2 digit, handheld Digital Multimeter with Auto Power Off and a backlit LCD display. At its core is an LSI (Large Scale Integration) integrated circuit that uses dual slope A/D conversion for stability and accuracy. The meter can measure AC and DC Voltage and DC Current, Resistance, Temperature, Transistor gain, and perform a Diode and Continuity Test. Overload protection makes the meter resistant to damage from accidental overloads.

2. Panel Layout



- 1) LCD Display with ⏏ (Low Battery) and **H** (Hold) annunciators
- 2) Data-Hold Button (HOLD). Press to 'freeze' the present LCD reading. Press again to 'un-freeze' the reading.
- 3) Back Light Button / Auto Power Off Reactivate: Press to turn on the LCD backlight. The backlight will turn itself off automatically in a few minutes. If the meter turns itself off after approximately 30 minutes (Auto Power Off feature activates), press this button to reactivate the meter, or set the Rotary Switch to OFF and then to the desired range.
- 4) Rotary Switch: Use this switch to select functions and ranges
- 5) Input Jacks: Plug in test leads for the desired measurement type.

3. Safety Information

3-1 The 1101-B is designed for CAT II 600V applications. DO NOT USE THIS METER FOR CAT III OR CAT IV APPLICATIONS.

3-2 Follow all safety and operating instructions to ensure that the meter is used safely and is kept in good operating condition.

3-3 Safety Symbols:

- Important safety information, refer to the operating manual.
- Dangerous voltage may be present.
- Double insulation (protection Class II)

4. Cautions and Warnings

- 4-1 To maintain safety, use the provided test leads.
- 4-2 Do not use with the battery cover removed.
- 4-3 Always set Range Switch to correct position for measurement.
- 4-4 Do not exceed the input limits.
- 4-5 Do not change Range Switch setting when the test leads are connected to a circuit.
- 4-6 Use caution when measuring voltages higher than 60V DC or 30V AC.
- 4-7 Replace fuse with fuse of the same rating.

5. GENERAL CHARACTERISTICS

- 5-1 Max Voltage between input terminal and Earth Ground: CAT II 600V
- 5-2 Overrange Indication: displays "1" for the most significant digit.
- 5-3 Low Battery Indication: " ⏏ " displayed
- 5-4 Max LCD display: 1999 (3 1/2 digits)
- 5-5 Fuse: Fast Acting 200mA /500V, 6 x 30mm, TRIPLETT 3207-135
- 5-6 Battery: 9V, 6F22 or NEDA 1604, TRIPLETT 37-48
- 5-7 Operating Temperature: 32°F to 105°F (relative humidity <85%)
- 5-8 Storage Temperature: 14°F to 125°F (relative humidity <85%)
- 5-9 Dimensions: 2.7" x 5.5" x 1.2"
- 5-10 Weight: approx. 6 oz (including battery)

6. Specifications

Accuracy is specified at 64°F to 82°F with relative humidity below 75%.

DC Voltage		
Range	Resolution	Accuracy
200mV	0.1mV	±(0.8% rdg + 4 digits)
2V	1mV	±(0.8% rdg + 4 digits)
20V	10mV	±(0.8% rdg + 4 digits)
200V	100mV	±(0.8% rdg + 5 digits)
600V	1V	±(1.2% rdg + 5 digits)

Input Impedance: All ranges are 10MΩ
 Overload Protection: 250V for 200mV range, 600V all other ranges
 CAT II 600V

AC Voltage		
Range	Resolution	Accuracy
200V	100mV	±(1.5% rdg + 5 digits)
600V	1V	±(1.5% rdg + 8 digits)

Input Impedance: Approx 500KΩ
 Frequency: 40Hz to 100Hz
 Overload Protection: 600V for both ranges, CAT II 600V
 Response: Average, calibrated equivalent to rms sine wave)

DC Current		
Range	Resolution	Accuracy
2mA	1μA	±(1.2% rdg + 5 digits)
20mA	10μA	±(1.2% rdg + 5 digits)
200mA	100μA	±(2.0% rdg + 5 digits)
10A	10mA	±(3.0% rdg + 5 digits)

Overload Protection: Fast Acting 200mA / 500V fuse
 **10A Range NOT FUSED. Apply 10A max for less than 10 seconds

Resistance		
Range	Resolution	Accuracy
200Ω	0.1Ω	±(1.5% rdg + 5 digits)
2KΩ	1Ω	±(1.2% rdg + 5 digits)
20KΩ	10Ω	±(1.2% rdg + 5 digits)
200KΩ	100Ω	±(1.2% rdg + 5 digits)
2MΩ	1KΩ	±(1.5% rdg + 5 digits)

Overload Protection: 500V AC/DC

Temperature		
Range	Resolution	Accuracy
-4 to 302°F	1°F	±(3.0% rdg + 5 digits)
302 to 572°F	1°F	±(3.0% rdg + 6 digits)
572 to 1832°F	1°F	±(3.5% rdg + 15 digits)

Overload Protection: 500V AC/DC
 Thermocouple Type: K

Transistor hFE (Gain) Test		
Transistor Type	hFE Range	Test Current / Voltage
NPN or PNP	0 to 1000	I _b = 10μA / V _{ce} = 3V

Diode Test		
Range	Resolution	Function
0 to 2000mv	1mV	Voltage of Diode

Overload Protection: 500V
 Test Current: Approximately 1mA
 Open Circuit Voltage: Approximately 3V

Continuity	
Range	Function
0 to 2000 Ω	Beeper sounds if Resistance is lower than 50 Ω

Overload Protection: 500V
 Open Circuit Voltage: Approximately 3V

7. Operating Instructions

7-1 Before Operation

7-1-1 Check battery. If the battery is low, " ⏏ " will show in the display. Replace by removing screw and lifting the battery cover up from the screw location.

7-1-2 The " ⚡ " symbol beside the input jacks warns of limitations in the input voltage and current. DO NOT EXCEED THESE LIMITS.

7-1-3 The Range Switch must be positioned to desired range BEFORE connecting the test leads to the circuit to be measured.

7-2 Measuring DC Voltage

7-2-1 Connect black test lead to COM jack and red lead to V Ω mA jack.

7-2-2 Set the Rotary Switch to the desired V $\overline{\text{---}}$ position.

7-2-3 Observing polarity, connect test leads across the circuit to be measured and read voltage from LCD.

NOTE:

1. When the quantity to be measured is unknown, set the Range Switch to its highest DC range (i.e. 600V) before connecting test leads to circuit.
2. If '1' or '-1' is displayed, it indicates 'overrange'. Either select a higher range or do not measure.
3. Although the 1101-B may measure voltages higher than 600V, the 1101-B may be damaged, or may pose a shock hazard or other injury.
4. Use caution when measuring high voltages.

7-3 Measuring AC Voltage

7-3-1 Connect black test lead to COM jack and red lead to V Ω mA jack.

7-3-2 Set the Rotary Switch to the desired V~ position.

7-3-3 Observing polarity, connect test leads across the circuit to be measured and read voltage from LCD.

NOTE:

1. When the quantity to be measured is unknown, set the Range Switch to its highest AC range (i.e. 600V) before connecting test leads to circuit.
2. If '1' or '-1' is displayed, it indicates 'overrange'. Either select a higher range or do not measure.
3. Although the 1101-B may measure voltages higher than 600V, the 1101-B may be damaged, or may pose a shock hazard or other injury.
4. Use caution when measuring high voltages.

7-4 Measuring DC Current

7-4-1 Connect black test lead to COM jack and the red lead to the V Ω mA jack for a maximum 200mA current. For a maximum 10A current, move the red lead to the 10A jack.

7-4-2 Set the Rotary Switch to the desired A $\overline{\text{---}}$ range position.

7-4-3 Connect test leads in series with the load under measurement.

7-4-4 Read current from LCD.

NOTE:

1. When the quantity to be measured is unknown, set the Range Switch to its highest range (i.e. 200mA or 10A depending on the jack used.) before connecting test leads to circuit.
2. If '1' or '-1' is displayed, it indicates 'overrange'. Either select a higher range or do not measure.
3. Current above 200mA on the V Ω mA jack will blow the fuse. The 10A jack is not fused. Do not apply more than 10A. Do not measure 10A for longer than 10 seconds. Allow a 15 minute cooldown.
4. If fuse blows, replace by removing battery cover and battery, stretch red 'boot' to remove, remove case screw at bottom, open case.

7-5 Measuring Resistance

7-5-1 Connect the black test lead to COM jack and the red lead to the V Ω mA jack.

7-5-2 Set the rotary switch to the desired Ω range position.

7-5-3 Connect test leads across the resistance under measurement.

7-5-4 Read the resistance on the LCD.

NOTE:

1. DO NOT APPLY VOLTAGE WHEN MEASURING RESISTANCE.
2. If '1' or '-1' is displayed, it indicates 'overrange'. This means the test leads are not connected to the circuit, or the resistance exceeds the measurement ability of the selected range. Select a higher range to obtain a measurement.
3. When checking in-circuit resistance, be sure the circuit under test has all power removed and that all capacitors have been discharged fully.

7-6 Measuring Temperature

7-6-1 Set the rotary switch to the °F position.

7-6-2 The LCD will show the current temperature of the 1101-B.

7-6-3 To use the thermocouple temperature probe, insert the red plug of the thermocouple into the V Ω mA jack, and black plug into the COM jack.

7-6-4 The temperature of the thermocouple tip is displayed on the LCD.

7-6-5 The probe included with the 1101-B is useful up to 300°F. To measure higher temperatures, use a high temperature probe.

7-7 Transistor Test

7-7-1 Set the rotary switch to the 'hFE' position.

7-7-2 Determine whether the transistor under testing is NPN or PNP and locate the emitter, base and collector leads. Insert the leads into proper holes of the hFE socket on the front panel.

7-7-3 Read the approximate hFE value on the LCD.

7-8 Diode Test

7-8-1 Connect the black test lead to COM jack and the red test lead to V Ω mA jack. (the polarity of red lead is '+')

7-8-2 Set the rotary switch to the \rightarrow \rightarrow range position.

7-8-3 Connect the red lead to the anode and the black lead to the cathode of the diode under test.

7-8-4 Read the diode forward voltage on the LCD.

NOTE:

1. The meter will show approximate forward voltage drop of the diode.
2. If the leads are reversed or not connected, '1' should be displayed.

7-9 Continuity Test

7-9-1 Connect the black test lead to COM jack and the red test lead to V Ω mA jack.

7-9-2 Set the rotary switch to the \rightarrow \rightarrow position.

7-9-3 Connect test leads across two points of the circuit under test.

7-9-4 If continuity exists (i.e. resistance less than about 50 Ω), the built-in beeper will sound.

NOTE:

If the leads are connected to an 'open circuit', '1' will be displayed.

8. Maintenance

8-1 Before attempting to remove the battery door or open the case, be sure that test leads have been disconnected from live circuitry to avoid electric shock hazard.

8-2 To avoid electrical shock or injury, remove test leads from live circuitry before replacing the fuse. For protection against fire or injury, replace fuse only with approved 200mA/500V fuse.

8-3 If the test leads are damaged or any wire is exposed, replace the leads before using the meter.

8-4 Do not use harsh chemicals or solvents to clean the meter.

8-5 Do not use the meter with the battery cover or back cover removed. User injury may result.

8-6 If the meter behaves abnormally, discontinue usage and have the meter serviced or replaced.

8-7 Remove battery if the meter will not be used for more than 1 month.

9. Accessories

1. Test Leads: Triplet 79-760

3. 'K' type Thermocouple: Triplet 79-795

2. Fuse: Fast 200mA/500V: Triplet 3207-135

4. Instruction Manual: Triplet 84-884

TRIPLETT PRODUCT RETURN INSTRUCTIONS

In the unlikely event that you must return your 1101-B for repair, the following steps must be taken.

- 1) Call 1-800-TRIPLETT to obtain a Return Material Authorization (RMA) number from Customer Service.
- 2) Enclose a copy of the original sales receipt showing date of purchase.
- 3) Print the RMA number on the outside of the shipping container.
- 4) Return to: Triplet / Jewell Instruments
850 Perimeter Road
Manchester, NH 03103
ATTN: Repair Dept.

Be sure to include a full description of the problem, and a telephone number, street address, or email address, where you can be contacted, and a return address where the meter can be shipped to upon repair.

Triplet Three Year Limited Warranty

Triplet / Jewell Instruments warrants instruments and test equipment manufactured by it to be free from defective material or workmanship and agrees to repair or replace such products which, under normal use and service, disclose the defect to be the fault of our manufacturing, with no charge within three years of the date of original purchase for parts and labor. If we are unable to repair or replace the product, we will make a refund of the purchase price. Consult the Instruction Manual for instructions regarding the proper use and servicing of instruments and test equipment. Our obligation under this warranty is limited to repairing, replacing, or making refund on any instrument or test equipment which proves to be defective within three years from the date of original purchase.

This warranty does not apply to any of our products which have been repaired or altered by unauthorized persons in any way so as, in our sole judgment, to injure their stability or reliability, or which have been subject to misuse, abuse, misapplication, negligence, accident or which have had the serial numbers altered, defaced, or removed. Accessories, including batteries and fuses, not of our manufacture used with this product are not covered by this warranty.

To register a claim under the provisions of this warranty, contact Triplet / Jewell Instruments Customer Service Department for a Return Authorization Number (RMA) and return instructions. **No returned product will be accepted without an RMA number.** Upon our inspection of the product, we will advise you as to the disposition of your claim.

ALL WARRANTIES IMPLIED BY LAW ARE HEREBY LIMITED TO A PERIOD OF THREE YEARS FROM DATE OF PURCHASE, AND THE PROVISIONS OF THE WARRANTY ARE EXPRESSLY IN LIEU OF ANY OTHER WARRANTIES EXPRESSED OR IMPLIED.

The purchaser agrees to assume all liability for any damages and bodily injury which may result from the use or misuse of the product by the purchaser, his employees, or others, and the remedies provided for in this warranty are expressly in lieu of any other liability Triplet / Jewell Instruments may have, including incidental or consequential damages.

Some states (USA ONLY) do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. No representative of Triplet / Jewell Instruments or any other person is authorized to extend the liability of Triplet / Jewell Instruments in connection with the sale of its products beyond the terms hereof.

Triplet / Jewell Instruments reserves the right to discontinue models at any time, or change specifications, price or design, without notice and without incurring any obligation.

This warranty gives you specific legal rights, and you may have other rights which vary from state to state.

Triplet Model 1101-B

Cat. No.: 1101

Made in China



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www.triplett.com

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