



ATD-5536 Digital Multimeter Owner's Manual



Features:

- (20) Test ranges
- (7) Test functions
- 10 Amp test range
- Continuity beeper
- Fully fuse protected
- 10 Meg/Ohm impedance



WARNING

READ AND UNDERSTAND THIS MANUAL BEFORE USING THE INSTRUMENT.

Failure to understand and comply with the WARNINGS and operating instructions can result in serious or fatal injuries and/or property damage.

This digital multimeter has the compact design and functions you need for overall convenience. Its capabilities are equal to many higher priced multimeters. Comes with test leads, protective holster, instructions and installed 9V battery. Full range overload protection and low battery voltage indication are provided. It is an ideal instrument for use in laboratory, workshop, hobby and home applications.

FRONT PANEL DESCRIPTION

1. FUNCTION AND RANGE SWITCH

This switch is used to select the function and desired range as well as to turn on the instrument.

To extend the life of this battery, the switch should be in the "OFF" position when the instrument is not in use.

2. DISPLAY

3-1/2" digital, 7 segment, 0.5" high LCD.

3. "Common" JACK

Plug in connector for black (negative) test lead.

4. "V Ω mA" JACK

Plug in connector for red (Positive) test lead for all voltage and resistance and current (except 10A) measurements.

5. "10A" JACK

Plug in connector for red (positive) test lead for 10A measurement.



SPECIFICATIONS

Accuracies are guaranteed for 1 year, 73.4°F +/- 23°F, less than 75% RH

DC VOLTAGE

RANGE	RESOLUTION	ACCURACY
200mV	100 μ V	+/-0.5% of reading +/- 2D
2000mV	1mV	+/-0.5% of reading +/- 2D
20V	10mV	+/-0.5% of reading +/- 2D
200V	100mV	+/-0.5% of reading +/- 2D
1000V	1V	+/-0.5% of reading +/- 2D

OVERLOAD PROTECTION: 220V RMS AC for 200mV range and 1000V DC or 750V RMS AC for other ranges.

AC VOLTAGE

RANGE	RESOLUTION	ACCURACY
200V	100mV	+/-1.2% of reading +/- 10D
750V	1V	+/-1.2% of reading +/- 10D

OVERLOAD PROTECTION: 1000V DC or 750V RMS for all ranges.

RESPONSE: Average responding, calibrated in RMS of a sine wave.

FREQUENCY RANGE: 45Hz-450Hz.

DC CURRENT

RANGE	RESOLUTION	ACCURACY
200 μ A	100nA	+/-1% of reading +/- 2D
2000 μ A	1 μ A	+/-1% of reading +/- 2D
20mA	10 μ A	+/-1% of reading +/- 2D
200mA	100 μ A	+/-1.2% of reading +/- 2D
10A	10mA	+/-2% of reading +/- 2D

REPLACEMENT PARTS

ESI-646 - Fuse, .2A / 250V

ESI-648 - Lead set

SPECIFICATIONS CONTINUED

OVERLOAD PROTECTION: 200mA 250V fuse (10A range unfused)

MEASURING VOLTAGE DROP: 200mV

RESISTANCE

RANGE	RESOLUTION	ACCURACY
200 Ω	100m Ω	+/- .08% of reading +/- 2D
2000 Ω	1 Ω	+/- .08% of reading +/- 2D
20k Ω	10 Ω	+/- .08% of reading +/- 2D
200k Ω	100 Ω	+/- .08% of reading +/- 2D
2000k Ω	1k Ω	+/-1.0% of reading +/- 2D
20M Ω	10k Ω	+/-1.5% of reading +/- 2D

MAXIMUM OPEN CIRCUIT VOLTAGE: 2.8V

OVERLOAD PROTECTION: 15 seconds maximum 220V RMS on all ranges.

AUDIBLE CONTINUITY RANGE

•))) Built-in buzzer sounds if resistance is less than 100 Ω

OVERLOAD PROTECTION: 15 seconds maximum 220V RMS sounds alarm.

TEMPERATURE (K TYPE PROBE)

RANGE	RESOLUTION	ACCURACY
-4°F to 2498°F (-20°C to 1370°C)	33.8°F (1°C)	+/-3% +/-2D (up to 302°F or 150°C) +/-3% +/-2D (over 302°F or 150°C)

OVERLOAD PROTECTION: 220V RMS AC.

OPERATING INSTRUCTIONS



WARNING

1. To avoid electrical shock hazard and/or damage of the instrument, do not measure voltages that might exceed 500V greater than earth ground.
2. Before the use of instrument, inspect test leads, connectors and probes for cracks, breaks, or crazes in the insulation.

DC VOLTAGE MEASUREMENT

1. Connect red test lead to "V Ω mA" jack. Black lead to "COM" jack.
2. Rotate RANGE switch to desired DCV position. If the voltage to be measured is not known beforehand, set switch to the highest range and reduce it until a satisfactory reading is obtained.
3. Connect test leads to device or circuit being measured.
4. Turn on power of the device or circuit being measured, voltage value will appear on digital display along with the voltage polarity.

AC VOLTAGE MEASUREMENT

1. Connect red test lead to "V Ω mA" jack. Black lead to "COM" jack.
2. Rotate RANGE switch to desired ACV position.
3. Connect test leads to device or circuit being tested.
4. Read voltage value on digital display.

DC CURRENT MEASUREMENT

1. Connect red test lead to "V Ω mA" jack. Black lead to "COM" jack. (For measurements between 200mA and 10A connect red lead to "10A" jack.)
2. Rotate RANGE switch to desired DCA position.
3. Open the circuit to be measured, and connect test leads in series with the load in which current is to be measured.
4. Read current value on digital display.

OPERATING INSTRUCTIONS CONTINUED

RESISTANCE MEASUREMENT

1. Connect red test lead to "V Ω mA" jack. Black lead to "COM" jack.
2. Rotate RANGE switch to desired Ω position.
3. If the resistance being measured is connected to a circuit, turn off power and discharge all capacitors before measurement.
4. Connect test leads to circuit being measured.
5. Read resistance value on Digital Display.

DIODE MEASUREMENT

1. Connect red test lead to "V Ω mA" jack. Black lead to "COM" jack.
2. Rotate RANGE switch to $\rightarrow|+$ position.
3. Connect the red test lead to the anode of the diode to be measured and black test lead to cathode.
4. The forward voltage drop in mV will be displayed. If the diode is reversed, figure "1" will be shown.

TRANSISTOR hFE MEASUREMENT

1. Rotate RANGE switch to the hFE position.
2. Determine whether the transistor is NPN or PNP type and locate the Emitter, Base and Collector leads, and then insert the leads into the proper holes of the hFE Socket on the front panel.
3. The meter will display the approximate hFE value at the condition of base current 10 μ A and VCE 2.8V.

TEMPERATURE MEASUREMENT

1. Connect a "K type" thermoelectric couple (not included) to "V Ω Ma" AND "COM" jacks.
2. Rotate RANGE switch to the TEMP position.
3. The display will read the Temperature value $^{\circ}$ C.

AUDIBLE CONTINUITY TEST

1. Connect red test lead to "V Ω mA" jack. Black lead to "COM" jack.
2. Rotate RANGE switch to the $\rightarrow))$ position.
3. Connect test leads to two points of circuit to be tested. If the resistance is lower then 100 ohm, buzzer will sound.

TEST SIGNAL USE

1. Rotate RANGE switch to the $\rightarrow\text{L}$ position.
2. A test signal (50Hz for 832, 837 and 1000Hz for 838) appears between "V Ω mA" and "COM" jacks. The output voltage is approx 5V p-p with 50k ohm impedance.

BATTERY AND FUSE REPLACEMENT

Fuse rarely needs replacement unless as a result of operator error.

If "BAT" appears on display, it indicates that the battery should be replaced.

To replace battery or fuse (200mA/250V) remove the 2 screws in the bottom of the case. Simply remove the old, and replace with a new one. Be careful to observe polarity.



CAUTION

Before attempting to open the case of the instrument, be sure to disconnect test leads from any energized circuits to avoid shock hazard.



WARRANTY

1 YEAR LIMITED WARRANTY

THIS WARRANTY AND CONFIRMED RECEIPT(S) SHOULD BE RETAINED BY THE CUSTOMER AT ALL TIMES

PURCHASED FROM: _____

DATE PURCHASED: _____

INVOICE/RECEIPT NUMBER: _____

Your ATD-5536 is warranted for a period of 12 months from the original purchase date.

For a period of one (1) year from your purchase date, ATD Tools Inc. will repair or replace (at its option) without charge, your ATD product if it was purchased new and the product has failed due to a defect in material or workmanship which you experienced during normal use of the product. This limited warranty is your exclusive remedy.

To access the benefits of this warranty, contact your supplier, or point of sale directly. You may be advised to return the product under warranty, freight prepaid, to your supplier for warranty determination.

If this ATD product is altered, abused, misused, modified, or undergoes service by an unauthorized technician, your warranty will be void. We are not responsible for damage to ornamental designs you place on this ATD product and such ornamentation should not cover any warnings or instructions or they may void the warranty. This warranty does not cover scratches, superficial dents, and other abrasions to the paint finish that occur under normal use. It also does not cover normal wear items such as but not limited to brushes, batteries, drill bits, drill chucks, pads or blades.

Subject to the law in your state:

- (1) Your sole and exclusive remedy is repair or replacement of the defective product as described above.
- (2) ATD is not liable for any incidental damages, including but not limited to, lost profits and unforeseeable consequences.
- (3) The repair and replacement of this product under the express limited warranty described above is your exclusive remedy and is provided in lieu of all other warranties, express or implied. All other warranties, including implied warranties and warranties of merchantability or fitness for a particular purpose are disclaimed and, if disclaimer is prohibited, these warranties are limited to one year from your date of purchase of this product.

Some states' laws do not allow limited durations on certain implied warranties and some states' laws do not allow limitations on incidental or consequential damages. You should consult the law in your state to determine how your rights may vary.

NOTE: This one year warranty does not cover dead batteries and blown fuses.

For warranty and service coverage, please return this product to your dealer for processing and evaluation as described above OR, return it directly to:

Electronic Specialties, Inc.
139 Elizabeth Ln.
Genoa City, WI 53128
262-279-1400
WWW.ESITEST.COM

Defective units being returned to your dealer or to the factory should include proof of purchase date.
Any testers that do not function due to misuse or abuse will be subject to out of warranty service charges.