Irfora T58A

Irfora T58A Digital Multimeter User Manual

Model: T58A

1. Introduction

This manual provides detailed instructions for the safe and effective operation of the Irfora T58A Digital Multimeter. The T58A is a handheld, true RMS digital multimeter designed for accurate measurement of AC/DC voltage, AC/DC current, frequency, resistance, capacitance, and diodes. It is suitable for various electrical tasks in industrial and household settings.
Please read this manual thoroughly before using the device to ensure proper usage and to prevent potential hazards.

2. Safety Information

Always adhere to basic safety precautions when using electrical testing equipment to reduce the risk of fire, electric shock, or personal injury.

- Do not exceed the maximum voltage ratings specified for the multimeter.
- Ensure the test leads are in good condition and properly connected before each use.
- Do not use the multimeter if it appears damaged or if the casing is open.
- Exercise extreme caution when working with voltages above 30V AC RMS, 42V peak, or 60V DC. These voltages pose a shock hazard.
- Replace batteries promptly when the low battery indicator appears to ensure accurate readings.
- Always disconnect power to the circuit under test and discharge all high-voltage capacitors before measuring resistance, continuity, diodes, or capacitance.

3. Product Overview

The Irfora T58A Digital Multimeter features a large LCD display, a rotary switch for function selection, and various input jacks.

Figure 3.1: Front Panel Components. This image displays the front panel of the Irfora T58A Digital Multimeter with key components labeled, including the LED Display, NCV Sensing Area, Illumination, NCV and Buzzer Indicator Light, Infrared Remote Control Detection, Maximum and Minimum Switching, Data Hold/Relative Value Measurement, Transistor Jack, Functions Switch Button, Lighting/Backlight, Gear Rotary Switch, mA Input Socket, 10A Input Socket, VΩHz°C Input Socket, and COM Input Socket.

Figure 3.2: Rear View with Support Stand. This image shows the back of the Irfora T58A Digital Multimeter, highlighting the integrated support stand and storage slots for test leads. The stand allows for hands-free operation.

4. Setup

4.1 Battery Installation

The Irfora T58A Digital Multimeter requires 3 x 1.5V AAA batteries (not included).

1. Ensure the multimeter is turned off.
2. Locate the battery compartment cover on the back of the device.
3. Unscrew the retaining screw(s) and remove the cover.
4. Insert three AAA batteries, observing the correct polarity (+ and -).
5. Replace the battery compartment cover and secure it with the screw(s).

4.2 Connecting Test Leads

Always connect the black test lead to the **COM** (common) input jack. Connect the red test lead to the appropriate input jack based on the measurement function:

- For voltage, resistance, capacitance, frequency, diode, and temperature measurements, connect the red lead to the **VΩHz°C** input jack.
- For current measurements up to 600mA, connect the red lead to the **mA** input jack.
- For current measurements up to 10A, connect the red lead to the **10A** input jack.

Caution: Incorrect connection of test leads can damage the multimeter or the circuit under test.

5. Operating Instructions

The T58A multimeter features a rotary switch to select measurement functions and buttons for additional features.

5.1 Power On/Off and Automatic Shutdown

- To power on, rotate the gear rotary switch from the "OFF" position to any desired measurement function.
- The multimeter will automatically shut down after approximately 15 minutes of inactivity to conserve battery life. An audible prompt will sound before shutdown. Press any button or rotate the switch to restart.
- To manually power off, rotate the gear rotary switch to the "OFF" position.

Figure 5.1: Automatic Shutdown. This image illustrates the automatic shutdown feature of the multimeter, which activates after 15 minutes of no operation to save power.

5.2 Backlight and Flashlight

The multimeter is equipped with a backlight for the LCD display and a flashlight for illuminating the work area.

- Press the **Lighting/Backlight** button (often marked with a light bulb icon) to toggle the backlight on/off.
- Press and hold the **Lighting/Backlight** button to activate the flashlight. Release to turn off.

Figure 5.2: Backlit Screen and Flashlight. This image demonstrates the multimeter's backlit screen for clear visibility in low-light conditions and the integrated flashlight for illuminating the measurement area.

5.3 NCV (Non-Contact Voltage) Test

The NCV function allows for non-contact detection of AC voltage, useful for identifying live wires without direct contact.

1. Rotate the gear rotary switch to the**NCV** position.
2. Place the top of the multimeter (NCV sensing area) close to the conductor you wish to test.
3. If AC voltage is detected, the corresponding signal strength indicator will light up (low-yellow, high-red), and the buzzer will emit an alarm with varying frequency.

Figure 5.3: NCV Voltage Measurement. This image shows the multimeter in NCV mode, detecting AC voltage near an electrical outlet, indicated by the illuminated signal strength indicator and audible alarm.

5.4 Measuring Voltage (AC/DC)

1. Connect the black test lead to the**COM** jack and the red test lead to the**VΩHz°C** jack.
2. Rotate the gear rotary switch to the desired AC Voltage (V~) or DC Voltage (V=) range. The T58A often features an "AUTO" range for voltage.
3. Connect the test probes in parallel to the circuit or component you wish to measure.
4. Read the voltage value on the LCD display.

5.5 Measuring Current (AC/DC)

Caution: Always connect the multimeter in series with the circuit when measuring current. Never connect it in parallel to a voltage source, as this can blow the fuse or damage the meter.

1. Disconnect power to the circuit.
2. Connect the black test lead to the**COM** jack.

3. For current up to 600mA, connect the red test lead to the **mA** jack. For current up to 10A, connect the red test lead to the **10A** jack.
4. Rotate the gear rotary switch to the desired AC Current (A~) or DC Current (A=) range.
5. Break the circuit and connect the test probes in series with the load.
6. Apply power to the circuit and read the current value on the LCD display.

5.6 Measuring Resistance

1. Disconnect power to the circuit and discharge any capacitors.
2. Connect the black test lead to the **COM** jack and the red test lead to the **VΩHz°C** jack.
3. Rotate the gear rotary switch to the **Ω** (Resistance) position.
4. Connect the test probes across the component to measure its resistance.
5. Read the resistance value on the LCD display.

5.7 Measuring Capacitance

1. Disconnect power to the circuit and ensure the capacitor is fully discharged before testing.
2. Connect the black test lead to the **COM** jack and the red test lead to the **VΩHz°C** jack.
3. Rotate the gear rotary switch to the **F** (Capacitance) position.
4. Connect the test probes across the capacitor.
5. Read the capacitance value on the LCD display.

5.8 Diode Test

1. Disconnect power to the circuit and remove the diode from the circuit if possible.
2. Connect the black test lead to the **COM** jack and the red test lead to the **VΩHz°C** jack.
3. Rotate the gear rotary switch to the **Diode** symbol.
4. Connect the red probe to the anode and the black probe to the cathode of the diode. The display will show the forward voltage drop.
5. Reverse the probes. The display should show "OL" (Open Loop) for a good diode.

5.9 Continuity Test

1. Disconnect power to the circuit.
2. Connect the black test lead to the **COM** jack and the red test lead to the **VΩHz°C** jack.
3. Rotate the gear rotary switch to the **Buzzer** symbol (often shared with resistance or diode).
4. Touch the test probes to the two points you want to check for continuity.
5. If there is continuity (low resistance), the buzzer will sound.

5.10 Transistor hFE Test (T58A only)

The T58A model includes a transistor hFE test function.

1. Rotate the gear rotary switch to the **hFE** position.
2. Identify the Emitter (E), Base (B), and Collector (C) leads of the transistor.
3. Insert the transistor leads into the corresponding holes in the Transistor Jack (E, B, C) on the multimeter. Ensure correct NPN or PNP type selection if applicable.
4. Read the hFE value (DC current gain) on the LCD display.

6. Maintenance

6.1 Cleaning

Wipe the case with a damp cloth and mild detergent. Do not use abrasives or solvents.

6.2 Battery Replacement

When the low battery indicator appears on the display, replace the batteries as described in Section 4.1. Remove batteries if the meter is not used for extended periods.

6.3 Fuse Replacement

If the current measurement function fails, the fuse may need replacement.

- Ensure the multimeter is turned off and test leads are disconnected.
- Open the battery compartment cover. The fuses are typically located near the battery compartment.
- Replace the blown fuse with a fuse of the same type and rating:
  - mA fuse: F 600mA/250V
  - A fuse: F 10A/250V
- Securely close the battery compartment cover.

7. Troubleshooting

- **No display or faint display:**
  - Check battery installation and polarity.
  - Replace batteries if low battery indicator is present or if display is faint.
- **"OL" (Overload) displayed:**
  - The measured value exceeds the selected range. Select a higher range or ensure the circuit is within the meter's capabilities.
  - For resistance/continuity, ensure the circuit is de-energized.
- **Incorrect current measurement:**
  - Check if the fuse for the current input is blown (refer to Section 6.3).
  - Ensure test leads are connected to the correct current input jack (mA or 10A).
  - Verify the multimeter is connected in series with the load.
- **Inaccurate readings:**
  - Ensure test leads are fully inserted and making good contact.
  - Check battery level.
  - Verify the correct function and range are selected.

8. Specifications

The following table outlines the key specifications for the Irfora T58A Digital Multimeter.

Figure 8.1: Product Dimensions. This image shows the physical dimensions of the Irfora T58A Digital Multimeter: 187mm (7.36in) length, 95mm (3.74in) width, and 55mm (2.16in) thickness.

Table 8.1: Irfora T58A Specifications

Parameter	Specification (T58A)
DC Voltage	1V, 10V, 100V, 1000V
AC Voltage	1V, 10V, 100V, 750V
DC Current	1mA, 100mA, 1A, 10A
AC Current	1mA, 100mA, 1A, 10A

Parameter	Specification (T58A)
LoZ	750(ACV), 1000(DCV)
Frequency	10Hz, 100Hz, 1KHz, 10KHz, 100KHz, 1MHz, 10MHz
Resistance	1kΩ, 10kΩ, 100kΩ, 1MΩ, 10MΩ, 100MΩ
Capacitance	1nF, 10nF, 100nF, 1μF, 10μF, 100μF
Inductance L	Not applicable for T58A
Temperature	-55℃~1000℃ / -67℉~1832℉
Diode Test	Yes
Buzzer (Continuity)	Yes
Transistor hFE	Yes (T58A only)
Display	9999 Counts LCD
Power Supply	3 * 1.5V AAA batteries (Not included)
Safety Rating	600V CAT III and 1000V CAT.II
Pollution Grade	2
Working Temperature	0-40℃ (<80%RH)
Storage Temperature	-10~60℃ (<80%RH, remove battery)
Conversion Rate	About 3 readings/second
Overload Display	'OL'
Item Size	187 * 95 * 55mm / 7.36 * 3.74 * 2.16in
Item Weight	331g / 11.67oz

Note on Specifications: The provided product description contains multiple sets of specifications. For the T58A model, a combination of the most relevant and detailed specifications has been used, prioritizing information specific to T58A/B/C models where available.

9. Warranty and Support

For warranty information or technical support, please refer to the contact details provided with your purchase or visit the official Irfora website. Keep your purchase receipt as proof of purchase.