Fluke 1507

Fluke 1507 Digital Megohmmeter Insulation Resistance Tester User Manual

Model: 1507

1. Introduction

The Fluke 1507 Digital Megohmmeter Insulation Resistance Tester is a robust and reliable instrument designed for comprehensive insulation testing in industrial and electrical environments. This manual provides essential information for the safe and effective operation, maintenance, and troubleshooting of your Fluke 1507 tester.
Key features include multiple insulation test voltages, automatic calculation of Polarization Index (PI) and Dielectric Absorption Ratio (DAR), a Compare (Pass/Fail) function for repetitive testing, and live circuit detection for enhanced safety.

2. Safety Information

WARNING: Always read and understand all safety information before operating the Fluke 1507 tester. Failure to do so may result in serious injury or death.

- **Live Circuit Detection:** The tester is equipped with live circuit detection, which prevents insulation tests if a voltage greater than 30 Volts is detected. This feature is crucial for user protection.
- **Auto-Discharge:** The 1507 provides auto-discharge of capacitive voltage for added user protection after testing.
- **Measurement Category:** This instrument complies with ANSI/ISA 82.02.01 (61010-1) 2004, CAN/CSA-C22.2 No. 61010-1-04, and IEC/EN 61010-1 2nd edition for Measurement Category IV 600 V (CAT IV). Always use the tester within its specified measurement category.
- **Proper Use:** Use only the test leads and accessories supplied or approved by Fluke. Inspect test leads for damage before each use.
- **Environmental Conditions:** Do not use the tester in wet or explosive environments. Ensure the operating area is dry and well-ventilated.

3. Components and Included Accessories

The Fluke 1507 Insulation Resistance Tester package typically includes the following items:

- Fluke 1507 Insulation Resistance Tester Unit
- TL224 Test Leads
- TP74 Test Probes
- Alligator Clips
- Holster
- Remote Probe
- Four AA Batteries (pre-installed or included separately)

Figure 3.1: The Fluke 1507 Insulation Tester shown with its standard included accessories, including test leads, probes, alligator clips, and the remote probe.

4. Setup

4.1. Battery Installation

The Fluke 1507 requires four AA alkaline batteries for operation. These are typically included with the unit. To install or replace batteries:

1. Ensure the tester is turned OFF.
2. Locate the battery compartment on the rear of the unit.

3. Use a screwdriver to open the battery compartment cover.
4. Insert the four AA batteries, observing the correct polarity as indicated inside the compartment.
5. Replace the battery compartment cover and secure it with the screw.

4.2. Connecting Test Leads

Connect the test leads to the appropriate input jacks on the tester. For insulation resistance measurements, use the 'V Ω' and 'COM' jacks. Ensure connections are secure before proceeding with any tests.

5. Operating Instructions

5.1. Powering On/Off

To power on the Fluke 1507, rotate the rotary switch from the 'OFF' position to any desired measurement function. The large, backlit display will illuminate. To power off, rotate the switch back to 'OFF'. The unit also features an auto-power off function to conserve battery life.

Figure 5.1: The front panel of the Fluke 1507, showing the display, rotary switch, and function buttons.

5.2. Selecting Test Voltages

The Fluke 1507 offers multiple insulation test voltages. Rotate the main rotary switch to the 'INSULATION' section. Then, use the dedicated voltage selection buttons (50 V, 100 V, 250 V, 500 V, 1000 V) to choose the appropriate test voltage for your application.

5.3. Performing Insulation Tests

Once the desired test voltage is selected and test leads are connected to the circuit under test:

1. Press and hold the **TEST** button to initiate the insulation test. The display will show the measured insulation resistance.
2. For hands-free operation during repetitive tests, utilize the remote test probe.
3. The live circuit detection feature will prevent a test if voltage exceeds 30V, indicated by a warning on the display.

Figure 5.2: The Fluke 1507 being held by a technician, demonstrating its compact and ergonomic design for field use.

Figure 5.3: A technician performing an insulation test on an industrial motor using the Fluke 1507, highlighting its application in preventative maintenance.

5.4. Compare (Pass/Fail) Function

The Compare (Pass/Fail) function simplifies repetitive testing by allowing you to set a pass/fail threshold. Refer to the on-screen prompts and the user interface for setting this function. The tester will then indicate whether the measured resistance meets the predefined criteria.

5.5. Polarization Index (PI) and Dielectric Absorption Ratio (DAR)

The Fluke 1507 automatically calculates Polarization Index (PI) and Dielectric Absorption Ratio (DAR), saving time and ensuring accurate assessment of insulation condition. These functions are typically accessed via dedicated buttons on the front panel.

Figure 5.4: A technician utilizing the optional magnetic hanging system with the Fluke 1507, allowing for hands-free operation during overhead electrical work.

6. Maintenance

6.1. Cleaning

To clean the exterior of the tester, use a damp cloth and a mild detergent. Do not use abrasive cleaners or solvents. Ensure the unit is completely dry before storage or next use.

6.2. Battery Replacement

Replace batteries when the low battery indicator appears on the display. Refer to Section 4.1 for detailed battery installation instructions. Always use fresh alkaline batteries.

6.3. Calibration

For optimal performance and accuracy, periodic calibration by an authorized service center is recommended. Refer to your warranty information or contact Fluke support for calibration schedules and services.

7. Troubleshooting

This section provides solutions to common issues you might encounter with your Fluke 1507 tester.

Problem	Possible Cause	Solution
Tester does not power on.	Dead or incorrectly installed batteries.	Check battery polarity and replace with fresh AA batteries.
Insulation test does not start.	Live voltage detected on the circuit.	Ensure the circuit is de-energized or voltage is below 30V. The tester will not perform an insulation test if live voltage is present for safety.
Inaccurate readings.	Damaged test leads or improper connection.	Inspect test leads for damage. Ensure leads are securely connected to the tester and the circuit.
Display is dim or flickering.	Low battery.	Replace batteries.

8. Specifications

Specification	Value
Brand	Fluke
Model Number	1507
Power Source	Battery Powered (4 AA batteries)
Insulation Test Voltages	50 V, 100 V, 250 V, 500 V, 1000 V

Specification	Value
Min. Operating Voltage	50 Volts (DC)
Voltage Rating	600 Volts
Measurement Accuracy	+/-0.5%
Item Weight	2.2 pounds (1 Kilogram)
Product Dimensions (L x W x H)	11.77 x 15.2 x 3.07 inches
Material	Plastic
Color	Yellow
Compliance	EN 61010-1, CAT IV 600 V
Included Components	Remote probe, test leads, test probes, alligator clips

9. Warranty and Support

9.1. Warranty Information

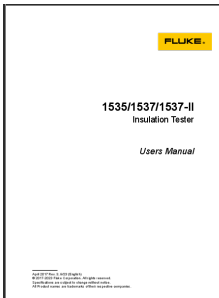
The Fluke 1507 Digital Megohmmeter Insulation Resistance Tester comes with a 1-Year warranty. Please retain your proof of purchase for warranty claims. The warranty covers defects in materials and workmanship under normal use.

9.2. Customer Support

For technical assistance, service, or to inquire about calibration services, please visit the official Fluke website or contact their customer support. You can also refer to the comprehensive User Manual (PDF) available online for more detailed information:

Download User Manual (PDF)

Related Documents - 1507

	Fluke 1535/1537/1537-II Insulation Tester User Manual Comprehensive user manual for Fluke 1535, 1537, and 1537-II Insulation Testers, covering features, operation, testing procedures, maintenance, and specifications.
	Fluke 1550C/1555 Insulation Tester Users Manual User manual for the Fluke 1550C and 1555 Insulation Testers, detailing features, operation, measurements, maintenance, and specifications.
	Fluke SMFT-1000: Voc and Operational Current Testing Guide for PV Systems This application note from Fluke Corporation details how to perform Voc (Open Circuit Voltage) and Ioperational (Operational Current) tests on photovoltaic (PV) modules and strings using the Fluke SMFT-1000 tester, adhering to IEC 62446-1 standards. It provides step-by-step instructions and explains the interpretation of test results for ensuring PV system performance and identifying wiring faults.
	Fluke 1507/1503 Insulation Testers User Manual Comprehensive user manual for Fluke 1507 and 1503 Insulation Testers, detailing operation, safety precautions, measurement procedures, technical specifications, and maintenance.
	Fluke SMFT-1000 Multifunction PV Analyzer Quick Reference Guide A quick reference guide for the Fluke SMFT-1000 Multifunction PV Analyzer, providing step-by-step instructions for essential solar photovoltaic system tests including loop resistance, polarity, Voc/Isc, insulation resistance, and I-V curve tracing.
	Fluke T5-1000 / PRV240 Proving Unit Kit: Technical Data and Ordering Information Comprehensive technical data and ordering information for the Fluke T5-1000 Electrical Tester and PRV240 Proving Unit Kit, detailing product specifications, components, and Fluke Corporation contact details.