

Fluke 1507 Manual

Fluke 1507/1503 Insulation Resistance Testers

Troubleshooting and predictive maintenance tools



These lightweight, affordable insulation testers are perfect for troubleshooting, commissioning and preventive maintenance applications.

Features

- Automatic calculation of polarization index and dielectric absorption ratio (1507 only)
- Multiple test voltages: 50 V, 100 V, 250 V, 500 V, 1000 V (1507 only)
- Remote test probe for rapid testing
- Insulation test range 0.01 MΩ to 10 GΩ (1507), 0.1 MΩ to 2000 MΩ (1503)
- Compare (Pass/Fail) function for repetitive tests (1507 only)
- Live circuit detection prevents insulation test if voltage > 30 V is detected
- Auto-discharge of capacitive voltage
- AC/DC voltage: 0.1 V to 600 V
- Lo ohms/Earth-bond continuity (200 mA) for checking connections and motor windings
- Resistance: 0.01 Ω to 20.00 Ω
- One-year warranty



Selection guide						
Feature	1503	1503C	1507	1507C	1507S	1507T
Dielectric test voltage: 50 V, 100 V, 250 V, 500 V, 1000 V			+		+	
Insulation test voltage range: 0.01 MΩ to 10 GΩ				+		+
Dielectric test voltage at 500 V test: 1000 V		+				
Insulation test voltage at 1000 V test: 1000 V	+					
Dielectric test voltage at 1000 V test: 1000 V						
Dielectric test voltage at 1000 V test: 1000 V						
Auto-discharge of capacitive voltage	+	+	+	+	+	+
Insulation test auto-ranging					+	
Frequency					+	
Capacitance	+	+			+	
Diode test					+	
Resistance test					+	
Low resistance (for wire on VDR)					+	
AC/DC voltage					+	+
DC voltage					+	+
AC/DC resistance					+	+
Resistance			0.1 Ω to 20.00 Ω	0.1 Ω to 20.00 Ω	0.1 Ω to 20.00 Ω	0.1 Ω to 20.00 Ω
Continuity					+	+
Auto power off	+	+	+	+	+	+
Remote probe test leads, rugged clips	+	+	+	+	+	+
Type K thermocouple	+	+	+	+	+	+
Auto power off	+	+	+	+	+	+
Auto power off	+	+	+	+	+	+
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Ordering information	
Insulation Tester	Fluke 1507
Remote probe test leads, rugged clips, auto power off	Fluke 1507C
Auto power off, remote probe test leads, rugged clips, auto power off	Fluke 1507S

Specialty models

Fluke 360 AC Leakage Current Clamp Meter

Calculate insulation resistance while equipment is under load by measuring insulation leakage current. The unique jaw design of the Fluke 360 eliminates the influence of adjacent current conductors and measures leakage current down to 1 µA for monitoring of insulation. The ergonomic design of the Fluke 360 ensures easy measuring. The measuring clamp fits into tight spaces and the wide display angle clearly shows the measurement result. The Data Hold button keeps the measured value on the display after removing the clamp for the measured conductor.



The Fluke 360 offers the widest range of current measurement. Use the rugged Fluke 360 when it's not possible to power down and break the circuit.

Current measurement

- Automatic ranging within the manually selected mA or A range
- Range: 3/30 mA and 30/300 A
- Current resolution: 1 µA/0.01 mA and 0.01 A/0.1 A
- Frequency range 50 and 60 Hz
- Jaw size: 40 mm (1.57 in) maximum conductor diameter
- Auto power off

Recommended accessories



Check price and availability at www.fluke.com/wtb

fluke 1507 manual

fluke 1507 manual is your essential guide to unlocking the full potential of this versatile insulation tester. Whether you're a seasoned electrician, a maintenance professional, or a contractor, understanding the ins and outs of your Fluke 1507 is crucial for accurate measurements, safe operation, and efficient troubleshooting. This comprehensive article will delve deep into the Fluke 1507 manual, covering everything from initial setup and basic functions to advanced testing procedures and maintenance tips. We'll explore key features like insulation resistance testing, continuity testing, and

voltage measurements, all explained with clear, step-by-step instructions derived from the official documentation. Our aim is to provide you with a readily accessible resource that empowers you to utilize your Fluke 1507 to its fullest, ensuring reliable results and adherence to safety standards. Prepare to gain confidence and expertise in operating your Fluke 1507 with this detailed exploration of its manual.

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Understanding the Fluke 1507 Insulation Tester

The Fluke 1507 is a compact, handheld insulation resistance tester designed for a wide range of electrical testing applications. Its robust construction and user-friendly interface make it a popular choice for electricians, technicians, and maintenance personnel. This versatile instrument is capable of performing essential diagnostic tests to ensure the integrity of electrical systems and identify potential faults. Understanding its core capabilities is the first step towards effectively using the accompanying Fluke 1507 manual.

Key applications for the Fluke 1507 include insulation resistance testing of motors, cables, switchgear, and other electrical equipment. It also offers functions for continuity testing to verify low-resistance connections and AC/DC voltage measurements for system diagnostics. The device is engineered to meet stringent safety standards, making it a reliable tool in hazardous environments.

Navigating the Fluke 1507 Manual

The Fluke 1507 manual is the definitive resource for operating and maintaining your insulation tester. Its structure is typically organized logically, guiding users from basic operation to more advanced features and troubleshooting. Familiarizing yourself with the manual's layout will significantly enhance your ability to find specific information quickly.

Common sections within the fluke 1507 manual include an introduction to the instrument, detailed descriptions of each function, safety precautions, operating instructions, maintenance procedures, and troubleshooting guides. Pay close attention to the safety warnings; they are paramount for safe and effective use of the Fluke 1507.

Key Sections to Focus On in the Fluke 1507 Manual

- **Introduction and Specifications:** Understand the capabilities and limitations of your device.
- **Operating Instructions:** Step-by-step guides for each testing mode.
- **Safety Precautions:** Critical information to prevent injury and damage.
- **Maintenance and Care:** How to keep your Fluke 1507 in optimal condition.
- **Troubleshooting:** Solutions to common operational problems.
- **Appendices:** Often contain detailed specifications, accessory information, and warranty details.

Getting Started: Setup and Initial Checks

Before embarking on any electrical testing, proper setup and initial checks are vital. The Fluke 1507 manual provides clear instructions for this initial phase. This includes ensuring the instrument is correctly powered, that the test leads are properly connected, and that you have selected the appropriate test range for your intended measurement.

Upon receiving your Fluke 1507, it's recommended to perform a visual inspection to ensure there's no visible damage to the unit or its accessories. The manual will typically detail how to insert or check the battery, often a 9V battery, and how to connect the test leads securely to the input terminals.

Connecting the Test Leads

Correctly connecting the test leads is fundamental for accurate readings. The Fluke 1507 manual will illustrate which lead connects to which terminal, usually the COM (common) terminal and the V/ Ω /Continuity terminal for voltage and continuity tests, and specific insulation test terminals for insulation resistance measurements. Ensure a firm connection to avoid intermittent readings.

Battery Check and Replacement

A low battery can significantly affect the accuracy of your Fluke 1507. The manual will explain how to check the battery level and the procedure for

replacing the battery. Typically, this involves accessing a battery compartment on the back of the unit, often secured by a screw.

Core Functions: Insulation Resistance Testing

The primary function of the Fluke 1507 is insulation resistance testing. This test is crucial for determining the quality of electrical insulation and identifying potential leakage paths that could lead to equipment failure or safety hazards. The Fluke 1507 manual offers detailed explanations of how to perform these tests accurately.

Understanding Insulation Resistance

Insulation resistance is a measure of how well an electrical insulator prevents current from flowing. High insulation resistance indicates good insulation, while low resistance suggests a potential problem. The Fluke 1507 allows you to test at various standard voltages, such as 250V, 500V, and 1000V, depending on the application and the voltage rating of the equipment being tested.

Performing Insulation Resistance Tests

The Fluke 1507 manual will guide you through selecting the appropriate test voltage and then initiating the test. Typically, you will connect the test leads to the device under test, press the "TEST" button, and the instrument will apply the selected voltage for a specified duration. It's critical to ensure the circuit is de-energized and isolated before performing these tests.

Interpreting Insulation Resistance Readings

Interpreting the readings obtained from the Fluke 1507 is as important as performing the test itself. The manual will provide guidelines or refer to industry standards for acceptable insulation resistance values. Factors such as temperature and humidity can influence readings, so it's important to consider these environmental conditions.

- **Acceptable Readings:** Generally, higher values indicate better insulation.
- **Low Readings:** May indicate damaged insulation, moisture, or contamination.

- **Degrading Readings:** A trend of decreasing resistance over time can signal an impending failure.

Essential Features: Continuity and Voltage Testing

Beyond insulation resistance, the Fluke 1507 excels in performing essential continuity and voltage measurements, making it a truly versatile tool for any electrical professional. The fluke 1507 manual thoroughly explains these capabilities.

Continuity Testing with the Fluke 1507

Continuity testing verifies the presence of a low-resistance electrical path. This is typically used to check fuses, circuit breakers, wiring, and grounding connections. The Fluke 1507 features a continuity mode, often indicated by a buzzer sound, which activates when a continuous path is detected.

To perform a continuity test, ensure the circuit is de-energized. Connect the test leads across the component or circuit you wish to test. A low resistance reading, often accompanied by an audible tone, indicates continuity. The manual will specify the resistance threshold for the continuity buzzer.

Measuring AC/DC Voltage

The Fluke 1507 also functions as a basic voltmeter, allowing you to measure AC and DC voltages. This is a critical safety feature, enabling you to confirm that a circuit is de-energized before performing insulation testing or other work. The manual details how to select the appropriate voltage measurement mode and connect the leads.

Always connect the Fluke 1507 in parallel with the circuit you are measuring. The manual will provide guidance on the maximum voltage that can be safely measured and the correct polarity for DC voltage measurements.

Advanced Features and Functions

The Fluke 1507 goes beyond basic testing with several advanced features designed to enhance usability, safety, and data management. The fluke 1507

manual serves as your guide to leveraging these powerful capabilities.

The Fluke 1507 Live Circuit Detection

A significant safety feature of the Fluke 1507 is its live circuit detection. Before attempting an insulation resistance test, the instrument will typically alert the user if a voltage is present in the circuit. This helps prevent accidental testing on live circuits, which can be dangerous and damage the instrument.

Auto Discharge Functionality

When performing insulation resistance tests on capacitive circuits (like cables or motors), a charge can remain on the circuit even after the test is complete. The Fluke 1507 features an auto-discharge function that safely dissipates this stored charge, protecting the user and the equipment. The manual will explain how this feature operates automatically.

Memory and Logging Capabilities

Some versions or applications of the Fluke 1507 may include memory or data logging capabilities. This allows users to store test results for later review or reporting. The Fluke 1507 manual will detail how to access, save, and retrieve stored measurements, which is invaluable for tracking insulation performance over time.

Safety First: Essential Precautions

Safety is paramount when working with any electrical testing equipment, and the Fluke 1507 is no exception. The Fluke 1507 manual places a strong emphasis on safety, outlining critical procedures to prevent electrical shock and equipment damage. Adhering to these guidelines is non-negotiable.

General Safety Guidelines

Always wear appropriate personal protective equipment (PPE), including safety glasses and, when necessary, insulated gloves. Ensure your work area is well-lit and free from hazards. Never use the Fluke 1507 in wet or damp conditions unless it is specifically rated for such environments.

Specific Safety Warnings for Insulation Testing

- Always ensure the circuit under test is de-energized and isolated before connecting the Fluke 1507 for insulation testing.
- Verify the absence of voltage using a separate, reliable voltage tester before proceeding with insulation tests.
- Never connect the Fluke 1507 to any voltage source exceeding its rated maximum input.
- Be aware that insulation testers apply high voltages. Maintain a safe distance from the test leads and the equipment being tested.
- Ensure test leads and probes are in good condition, free from damage, and properly insulated.
- Understand the auto-discharge function and wait for it to complete before disconnecting the leads after an insulation test.

Maintenance and Care of Your Fluke 1507

Proper maintenance ensures the longevity and reliable performance of your Fluke 1507. The Fluke 1507 manual provides essential guidance on how to care for your instrument.

Battery Replacement

As mentioned earlier, a fresh battery is crucial. The manual will detail the specific battery type required and the step-by-step process for replacement, typically involving a battery compartment cover secured by screws. Always use the recommended battery type for optimal performance.

Cleaning and Storage

Keep your Fluke 1507 clean and protected. The manual will advise on appropriate cleaning methods, generally recommending a soft, damp cloth for the exterior. Avoid using solvents or abrasive cleaners. When not in use, store the instrument in its protective case in a dry, temperature-controlled environment.

Troubleshooting Common Issues with the Fluke 1507

Even with proper care, you may encounter minor issues. The Fluke 1507 manual typically includes a troubleshooting section to help you diagnose and resolve common problems.

Common issues might include no power, erratic readings, or the continuity buzzer not sounding. The troubleshooting guide in the manual will often provide a flowchart or a list of potential causes and solutions. For instance, if you're getting no readings, the first steps would be to check the battery and ensure the test leads are securely connected and functioning correctly.

- **No Power:** Check battery installation and voltage.
- **Erratic Readings:** Inspect test leads for damage, ensure proper connection, and check for external interference.
- **Continuity Buzzer Not Active:** Verify you are in continuity mode and the resistance is below the threshold.

Resources for Further Assistance

While the Fluke 1507 manual is comprehensive, there may be instances where you require additional support. The manual will usually point you towards further resources.

These resources can include Fluke's official website, which often hosts updated manuals, FAQs, and support forums. You may also find application notes or technical articles that provide further insight into using your Fluke 1507 for specific tasks. For more complex issues, contacting Fluke's customer support or a certified service center might be necessary.

Frequently Asked Questions

Where can I find the official Fluke 1507 Insulation Tester manual?

The official Fluke 1507 Insulation Tester manual is typically available for

download directly from the Fluke Corporation's official website. Navigate to the support or documentation section and search for 'Fluke 1507'.

What are the key safety precautions mentioned in the Fluke 1507 manual?

The Fluke 1507 manual emphasizes crucial safety precautions such as ensuring the tester is properly insulated, avoiding contact with live circuits, using appropriate PPE, and understanding the test voltages before applying them to prevent electric shock.

How do I perform a basic insulation resistance test using the Fluke 1507 according to the manual?

According to the manual, to perform a basic insulation resistance test, you should select the desired test voltage, connect the test leads to the circuit under test, press the test button, and observe the resistance reading on the display. Ensure the circuit is de-energized before testing.

What does the 'MAINS' indicator on the Fluke 1507 mean, as explained in the manual?

The 'MAINS' indicator on the Fluke 1507, as detailed in the manual, signifies that a hazardous voltage (typically above 30V AC or DC) is detected at the input terminals. The manual strongly advises against performing insulation tests when this indicator is active.

Does the Fluke 1507 manual cover troubleshooting common error messages?

Yes, the Fluke 1507 manual typically includes a troubleshooting section that addresses common error messages or indicator lights, providing guidance on how to diagnose and resolve issues such as open test leads or low battery.

What types of batteries does the Fluke 1507 use, and how is the battery replacement procedure described in the manual?

The Fluke 1507 manual states that it uses four AA alkaline or NiMH rechargeable batteries. The manual provides a step-by-step procedure for safely opening the battery compartment, replacing the batteries, and closing the compartment.

Can I find information on interpreting the

capacitance measurement feature in the Fluke 1507 manual?

Yes, the Fluke 1507 manual includes a section that explains the capacitance measurement function, detailing how to use it to measure capacitance values and offering guidance on interpreting the results, often in the context of motor winding or cable capacitance.

Additional Resources

Here are 9 book titles related to the Fluke 1507 manual, along with short descriptions:

1. *Introduction to Electrical Measurement and Troubleshooting*

This book provides a foundational understanding of common electrical measurements, including voltage, current, and resistance, which are essential for operating the Fluke 1507. It delves into the principles behind these measurements and offers practical guidance on how to interpret readings. Readers will learn about basic circuit analysis and common troubleshooting techniques that can be applied with the aid of a multimeter like the Fluke 1507.

2. *Essential Electrical Safety Practices*

Safety is paramount when working with electrical equipment, and this book covers the critical safety protocols necessary for anyone using tools like the Fluke 1507. It discusses personal protective equipment, lockout/tagout procedures, and hazard identification. Understanding these guidelines ensures safe operation of the multimeter and prevents potential accidents.

3. *Mastering Your Digital Multimeter: Fluke 1507 Edition*

This comprehensive guide is specifically tailored to users of the Fluke 1507, going beyond the basic manual to offer in-depth explanations and practical applications. It covers advanced features, common test scenarios, and tips for maximizing the meter's capabilities. The book aims to transform users into proficient digital multimeter operators.

4. *DC and AC Circuit Analysis for Technicians*

This text focuses on the theoretical underpinnings of direct current (DC) and alternating current (AC) circuits, providing the context for the measurements taken by the Fluke 1507. It explores Ohm's Law, Kirchhoff's laws, and series/parallel circuits. Understanding these concepts allows for more effective use of the multimeter in diagnosing circuit behavior.

5. *Troubleshooting Industrial Control Systems*

For those applying the Fluke 1507 in industrial settings, this book offers a structured approach to diagnosing faults in control systems. It covers common control components, signal pathways, and systematic troubleshooting methodologies. Readers will learn how to use their multimeter to identify issues within complex automation and control environments.

6. Understanding Automotive Electrical Systems

This book is geared towards automotive technicians and enthusiasts looking to diagnose and repair vehicle electrical systems. It explains the function of various automotive circuits, sensors, and actuators. The Fluke 1507 is an ideal tool for these tasks, and this book provides the necessary knowledge for its effective application in this domain.

7. Residential Electrical Wiring and Code Compliance

This guide focuses on the electrical systems found in homes, covering wiring practices, safety codes, and common electrical components. It explains how to test and verify the integrity of residential wiring using a multimeter like the Fluke 1507. The book emphasizes understanding building codes and performing safe, compliant electrical work.

8. Interpreting Measurement Data for Electronics Projects

This book bridges the gap between taking measurements with a device like the Fluke 1507 and understanding what those measurements mean in the context of electronics projects. It discusses data analysis, common electrical parameters, and how to use test results to build or repair electronic circuits. Readers will gain insights into making informed decisions based on their multimeter readings.

9. Advanced Metering Techniques for Field Service

This resource delves into specialized applications of multimeters in various field service scenarios, including telecommunications, HVAC, and energy management. It highlights efficient testing strategies and best practices for using advanced features of meters like the Fluke 1507. The book aims to equip field technicians with the skills to perform thorough and accurate diagnostics on the go.

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