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TTI BS407

TTI BS407 Precision Milli/Micro Ohmmeter User Manual

Model: BS407

PRODUCT OVERVIEW

The TTI BS407 is a high-precision digital microohmmeter designed for accurate resistance measurements from 1 micro-ohm up to 20 kilo-ohms. It features a 4-wire connection method to eliminate lead resistance errors, ensuring high accuracy for critical applications. This instrument is suitable for a wide range of industrial and scientific testing requirements.



The image displays the front panel of the TTI BS407 Precision Milli/Micro Ohmmeter. Key features visible include the digital display, the 'ZERO ADJUST' knob, buttons for 'Operate', 'Set Zero', '20mV Clamp', and 'Polarity', and the input terminals for 'SENSE' and 'FORCE' connections. Below the display, various resistance ranges ($\mu\Omega$, $m\Omega$, Ω , $k\Omega$) and corresponding force currents (250mA, 50mA, 10mA, 5mA, 500 μ A, 50 μ A, 50 μ A, 10 μ A) are indicated.

SETUP AND CONNECTIONS

Before operating the BS407, ensure it is placed on a stable, level surface and connected to a suitable power source. The instrument uses a 4-wire connection method for precise resistance measurements.

Power Connection:

- Connect the provided power cord to the instrument's power input at the rear.
- Plug the other end into a standard AC power outlet.
- Ensure the power switch on the front panel is in the 'Off' position before connecting.

4-Wire Measurement Connection:

The 4-wire (Kelvin) connection method eliminates the resistance of the test leads from the measurement, providing higher accuracy, especially for low resistance values.

1. Identify the 'SENSE' terminals (red and black) and 'FORCE' terminals (red and black) on the front panel.
2. Connect the 'FORCE' leads to the points on the component or circuit where the test current will be injected. The red 'FORCE' terminal is positive (+), and the black 'FORCE' terminal is negative (-).
3. Connect the 'SENSE' leads as close as possible to the points where the voltage drop across the component is to be measured. The red 'SENSE' terminal corresponds to the positive voltage sense, and the black 'SENSE' terminal to the negative voltage sense.

4. Ensure good contact between the test leads and the component under test to prevent measurement errors.

OPERATING INSTRUCTIONS

This section details the steps for performing resistance measurements using the BS407.

Basic Measurement Procedure:

1. **Power On:** Flip the 'On/Off' switch on the front panel to the 'On' position. The display will illuminate.
2. **Zero Adjustment:** Before connecting the test leads to the component, ensure the leads are open-circuited (not touching anything). Use the 'ZERO ADJUST' knob to fine-tune the display to read zero. For more precise zeroing, press the 'Set Zero' button.
3. **Select Range and Force Current:** The BS407 automatically selects the appropriate range. However, you can observe the selected range ($\mu\Omega$, $m\Omega$, Ω , $k\Omega$) and the corresponding force current (e.g., 250mA, 50mA, 10mA, 5mA, 500 μ A, 50 μ A, 10 μ A) indicated by the LEDs below the display. The instrument will apply the necessary force current for the selected range.
4. **Connect Test Leads:** Connect the 4-wire test leads to the component as described in the "Setup and Connections" section.
5. **Read Measurement:** The resistance value will be displayed on the large digital readout.
6. **Polarity:** If measuring components with inherent polarity or when observing voltage drop, the 'Polarity' button can be used to reverse the current direction if needed, or to observe the polarity of the measured voltage.
7. **20mV Clamp:** The '20mV Clamp' function limits the voltage across the device under test to 20mV, which is useful for testing sensitive components like thermistors or fuses without causing self-heating errors.
8. **Operate Button:** The 'Operate' button initiates or holds a measurement cycle.

Understanding Display Indicators:

- **Digital Display:** Shows the measured resistance value.
- **Range Indicators:** LEDs illuminate next to $\mu\Omega$, $m\Omega$, Ω , or $k\Omega$ to indicate the active measurement range.
- **Force Current Indicators:** LEDs illuminate next to the current values (e.g., 250mA, 50mA) to show the applied test current.
- **Charge Indicator:** Indicates the internal battery charging status (if applicable, or internal capacitor charge for measurement).
- **Force On Indicator:** Confirms that the force current is being applied to the test leads.

MAINTENANCE

Proper maintenance ensures the longevity and accuracy of your TTI BS407.

- **Cleaning:** Use a soft, dry cloth to clean the exterior of the instrument. Do not use abrasive cleaners or solvents.
- **Storage:** Store the instrument in a clean, dry environment away from direct sunlight and extreme temperatures.
- **Calibration:** For continued accuracy, periodic calibration by a qualified service center is recommended. Refer to the manufacturer's guidelines for calibration intervals.
- **Lead Inspection:** Regularly inspect test leads for any signs of wear, damage, or corrosion. Replace damaged leads immediately to ensure safe and accurate operation.

TROUBLESHOOTING

This section provides solutions to common issues you might encounter.

Problem	Possible Cause	Solution
Instrument does not power on.	No power supply; faulty power cord; internal fuse blown.	Check power cord connection and wall outlet. Try a different power cord. If issue persists, contact service.
Inaccurate readings or fluctuating display.	Poor lead connection; incorrect zero adjustment; external interference; damaged test leads.	Ensure leads are securely connected. Perform zero adjustment. Move instrument away from strong electromagnetic fields. Inspect and replace damaged leads.
"OVERLOAD" or "OL" displayed.	Resistance value exceeds selected range; open circuit.	Ensure the component is connected. The instrument should auto-range, but if not, check the component's expected resistance.

SPECIFICATIONS

Parameter	Value
Resistance Measurement Range	1μohm to 20kohm
Resolution	1μohm
Accuracy	± 0.1%
Test Current	Up to 250mA (range dependent)
Wire Connection	4-Wire (Kelvin)
External Height	88mm
External Width	220mm
External Depth	230mm
Weight	1.3kg (Instrument only), 6.02 Pounds (Shipping weight)
Power Source	Corded Electric
Model Number	BS407
Manufacturer	AIM-TTI Instruments
RoHS Compliant	Yes


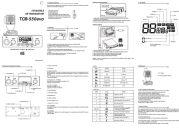



WARRANTY AND SUPPORT

For information regarding product warranty, technical support, or service, please contact AIM-TTI Instruments directly or refer to their official website. Keep your purchase receipt as proof of purchase for warranty claims.

Manufacturer: AIM-TTI Instruments

Website: www.aimtti.com (Note: This is a general manufacturer website, specific support details may vary.)

Related Documents - BS407

	<p>TTI TSC-100RA Multiband Scanning Receiver Instruction Manual</p> <p>This manual provides comprehensive instructions for operating the TTI TSC-100RA Multiband Scanning Receiver, covering setup, controls, general operation, frequency scanning, memory management, and troubleshooting.</p>
	<p>TTi TCB-550evo 4W Mobile CB Transceiver Instruction Manual</p> <p>Comprehensive instruction manual for the TTI TCB-550evo 4W Mobile CB Transceiver, covering installation, operation, specifications, safety, and troubleshooting.</p>
	<p>2021</p> <p>2021</p> <p>MILWAUKEE RYOBI</p>
	<p>Aim-TTi Test Bridge SMU PC Software Instruction Manual</p> <p>This instruction manual provides comprehensive guidance for Aim-TTi's Test Bridge SMU PC software. Learn to set up, configure, and operate the software for SMU4000 Series instruments (SMU4001, SMU4201), including instrument control, sequence building, data analysis, and graphing. Access support resources at www.aimtti.co.uk/support.</p>
	<p>Manuel d'utilisation de l'ATG1005 5MHz DDS Function Generator</p> <p>Manuel d'utilisation détaillé pour le générateur de fonctions ATG1005 5MHz DDS d'Aim-TTi, couvrant la description du produit, la sécurité, l'installation, le fonctionnement, la modulation, les utilitaires et l'entretien.</p>



[Aim-TTi PSA Series 3 RF Spectrum Analyzers: Features, Specifications, and Options](#)

Comprehensive overview of the Aim-TTi PSA Series 3 RF Spectrum Analyzers (PSA1303, PSA2703), detailing key features, technical specifications, optional upgrades like U01, accessories, and product applications. Learn about their performance, portability, and ease of use.