Wide range precision micro-ohmmeter

- High basic accuracy of 0.1%
- Wide measurement range of 1µΩ to 20kΩ
- Current reversal switch for detecting thermal emf effects
- Current diversion switch for easy zero setting
- Four terminal measurement using Kelvin clip leads
- Battery operation with built-in charger
- Switchable 20mV clamp for ‘dry circuit’ testing
A dedicated but versatile instrument
The BS407 is an instrument which is fully optimised for the task of accurate measurement of low resistances with a best resolution of 1μΩ.
It has applications beyond the testing of components such as measuring the resistance of motor or transformer windings, the properties of materials, the thickness of plates, the security of pipework joints or wiring installations and many others.
It uses a Direct Current technique to measure true resistance, rather than the resistive component of impedance which is shown by AC excited RLC bridges. The test current for each range has been carefully chosen to minimise heating of the sample under test while being sufficient to minimise the effects of thermal emf and noise.
This gives much greater accuracy at low resistances than can be obtained from the very low test currents used by general purpose high resolution multimeters. The low-noise low-drift bipolar amplifiers employed need much less noise filtering than alternative chopping stabilised technologies resulting in faster settling to the correct reading.

Battery operation with built-in charger
The BS407 is a fully portable instrument which operates from NiMh rechargeable batteries. The battery charger is built into the instrument and can be operated continuously during bench use.

RANGES AND ACCURACY
Accuracies apply for a one year period over a temperature range of 18°C to 26°C after a warm-up period of 5 minutes with the instrument and test connections in thermal equilibrium. Tempo outside this range <±450ppm/°C

<table>
<thead>
<tr>
<th>Range</th>
<th>Resolution</th>
<th>Test Current</th>
<th>F.S. Voltage</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999 µΩ</td>
<td>1 µΩ</td>
<td>250 mA</td>
<td>500 µV</td>
<td>± 0.1% reading ± 0.4% scale</td>
</tr>
<tr>
<td>19.99 mΩ</td>
<td>10 µΩ</td>
<td>50 mA</td>
<td>1 mV</td>
<td>± 0.1% reading ± 0.2% scale</td>
</tr>
<tr>
<td>199.9 mΩ</td>
<td>100 µΩ</td>
<td>10 mA</td>
<td>2 mV</td>
<td>± 0.1% reading ± 0.1% scale</td>
</tr>
<tr>
<td>1999 mΩ</td>
<td>1 mΩ</td>
<td>5 mA</td>
<td>10 mV</td>
<td>± 0.1% reading ± 0.1% scale</td>
</tr>
<tr>
<td>199.9 Ω</td>
<td>10 mΩ</td>
<td>500 µA</td>
<td>10 mV</td>
<td>± 0.1% reading ± 0.1% scale</td>
</tr>
<tr>
<td>1999 Ω</td>
<td>100 mΩ</td>
<td>50 µA</td>
<td>1 mV</td>
<td>± 0.1% reading ± 0.1% scale</td>
</tr>
<tr>
<td>1999 kΩ</td>
<td>10 Ω</td>
<td>50 µA</td>
<td>100 mV</td>
<td>± 0.1% reading ± 0.1% scale</td>
</tr>
<tr>
<td>19.99 kΩ</td>
<td>10 Ω</td>
<td>10 µA</td>
<td>200 mV</td>
<td>± 0.1% reading ± 0.2% scale</td>
</tr>
</tbody>
</table>

PROTECTION
The instrument is protected against the back-emf of its own test current from any inductance and against external short-term connection to voltage sources up to 50V.
Protection against greater abuse is provided by non-flammable fusible resistors.

AC Line
Built-in battery charger allows instrument operation while re-charging. Nominal re-charge time 12 hours.

GENERAL
Display: 3.5 digit LCD with 12.5mm characters.
Casing: ABS casing with metal tilt stand giving approx. 15° angle.
Power: 220 - 240V, 110 - 120V or 100V ±10%, 50/60Hz, adjustable internally: 20VA max. Installation Category II.
Operating Range: +5°C to +40°C, 20% to 80% RH.
Storage Range: -10°C to +50°C
Environmental: Indoor use at altitudes to 2000m, Pollution Degree 2.
Electrical Safety: Complies with EN61010-1.
EMC: Complies with EN61326.
Size: 220(W) x 88(H) x 230(D) mm, (10.3 x 3.4 x 9.2”) excluding feet and tilt stand.
Weight: 1.3 kg (3lb).

ACCESSORIES
Supplied with Kelvin Test Clip Leads, Operating Manual, IEC Mains Lead

Optional
Carrying Case

Thurlby Thandar Instruments Ltd. operates a policy of continuous development and reserves the right to alter specifications without prior notice.
Product Summary

Laboratory Power Supplies
Bench and system power supplies from 30 watts up to 1200 watts using linear, mixed-mode and PowerFlex regulation technologies.

Waveform Generators
Analog and digital (DDS) function generators, true arbitrary generators, arbitrary/function generators and pulse generators.

Precision Measurement Instruments
Benchtop DMMs, frequency counters, component measurement instruments (LCR), electronic dc loads, current probes.

RF and EMC Test Equipment
Spectrum analyzers, signal generators, frequency counters, power meters, emc measurement instruments.

Company name and product brands
Thurlby Thandar Instruments Ltd. (TTi) is one of Europe’s leading manufacturers of test and measurement instruments.

Products have been sold under two brand names: TTi and Aim.

In the future, however, the full product range will be branded Aim-TTi.

This changeover will be gradual and many products will continue to carry the TTi or Aim brands for some time to come.

Web Addresses (URLs)
The preferred URL for obtaining information concerning Aim-TTi products is:

www.aimtti.com (international customers)

Customers in the UK should use the URL:
www.aimtti.co.uk

Customers in the USA should use the URL:
www.aimtti.us

Note that previous URLs such as www.tti-test.com will continue to operate for the time being.