# DSM200 *Digital Micro-Ohmmeter*

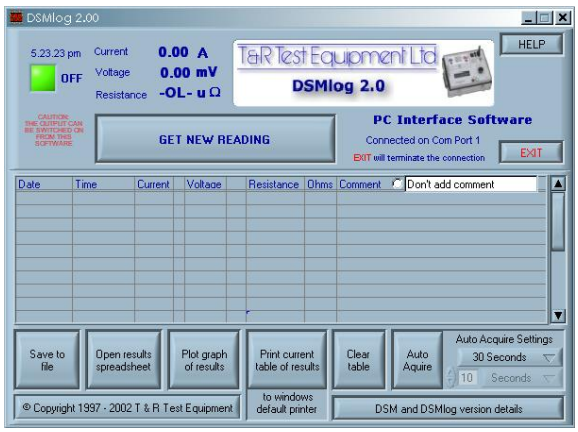

## Features

- 0-10A and 0-200A DC test current
- 0.1μΩ resolution
- mV, A, and μΩ displayed simultaneously
- Direct Ohms reading at any current
- Large back-lit liquid crystal display
- Thermal and over-current protection
- Compact and portable
- Isolated RS232 interface for printer or PC
- Triple supply voltage
- Microprocessor controlled

T&R Test Equipment is a market leader in the field of high current micro-ohmmeters, manufacturing durable, accurate and user friendly units. The DSM200 is a high current micro-ohmmeter suitable for measuring very low resistances in a wide range of applications. The unit is equally suited to commissioning, maintenance, and production line environments. Contact resistances in circuit breakers, switch panels, isolators, and busbar joints are all easily and safely measured.

The DSM200 is simple to operate, only requiring the user to switch the output on and set the test current. Selection of all ranges is fully automatic, and current, voltage and resistance are displayed simultaneously at all times. The resistance is calculated from the test current and sense voltage, and there is no need to set an exact test current to guarantee an accurate test result. To assist the user, all readings are held on the display when the output is switched off.

*The back-lit display on the DSM200 is bright and clear with a wide viewing angle. The results of a test can be seen here as they appear on the display of the unit, showing current, sense voltage and resistance*


Connecting the DSM200 to a PC running the optional DSM*log* software adds data capture and reporting functions to the unit, allowing test results to be exported directly to Excel or saved to a file. All results are time stamped, and a comment may be added to each test. Data capture can be controlled from the PC, and the resistance of a test object can be monitored over a period of time.

Alternatively, connecting a printer allows all of the test parameters to be printed automatically whenever the reading is held.

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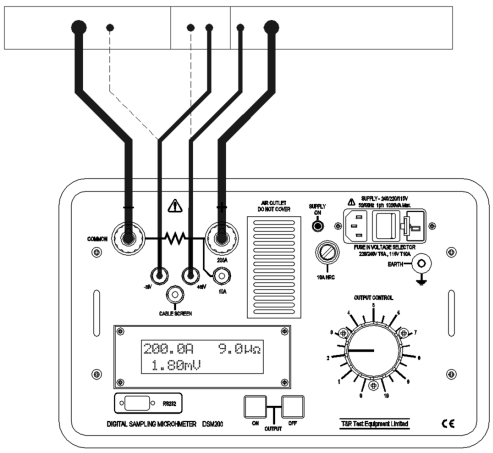
## Example Application: Testing Busbar Joint Resistance

Testing the joint resistances of a busbar using the DSM200 is a simple task. Before undertaking any testing, always ensure that power to the object under test is **OFF** and the object is earthed. The DSM200 should also be earthed.

With the output of the DSM200 off, connect the DSM200 output cables to the busbar, ensuring that all joint resistances to be measured are included in the circuit.

Connect the sense leads to the first joint to be measured, and switch the output of the DSM200 on. Increase the current to the desired level, and switch the output off. The readings will be held on the display.




Move the sense leads to the next joint (shown dotted on the diagram on the left), and switch the output of the set on and off to measure the resistance of the joint.

The process is even simpler if the optional DSM200 printer or a PC and DSMlog software is used. In this case the results are printed out or logged to the PC every time the reading is held.

## DSM200 Specification

### Outputs

The DSM200 has two outputs. The 200A output is variable between zero and 200Adc. The 10A output is filtered and has a ripple of less than 2% at 10A output current.

| Range | Output current | No load voltage | Full load voltage |
|---|---|---|---|
| 200A | 0-200Adc | 0-6.0Vdc | 0-3.4Vdc |
| 10A smoothed | 0-10Adc | 0-6.0Vdc | 0-2.5Vdc |

The DSM200 main output is rated at 200A for 5 minutes, 100A for 15 minutes, and 50A continuously. An off time of 15 minutes must be allowed after any of the above test times. These ratings are based on an ambient temperature of 25°C.

### Protection and Safety

The unit is protected by electronic over current and duty cycle trips on the output, thermal trips on the power components, and fuses on the input and regulator. An earth terminal is provided for connection to a local earth.

The unit is designed to comply with BSEN61010, and is CE marked.

### Supply Requirements

240V±10% 1 phase 50/60Hz. 1000VA Max.
220V±10% 1 phase 50/60Hz. 1000VA Max.
115V -6% to +10% 1 phase 50/60Hz. 1000VA Max.

### Temperature Range

Storage -20°C to 60°C Operating 0°C to 45°C

### Accessories

Spare fuses, supply lead, operating manual

### Dimensions

340 x 230 x 330mm

### Weight

21.4kg
Optional 3m lead set 2.7kg

### Optional Accessories

Output lead set (3m, 5m, 8m, 10m available)
DSM200 printer, DSMlog software, 100μΩ shunt

### Metering

All metering on the unit is fully auto-ranging, selecting from four current ranges and three voltage ranges. The maximum voltages shown are peak values, and the maximum voltage that may be measured will be reduced if the test object is inductive. The resistance range is chosen from the current and voltage ranges as shown in the table below.

### 200A Output

| | **20.00A** | **200.0A** |
|---|---|---|
| **40.00mV** | 2000μΩ | 200.0μΩ |
| **400.0mV** | 20.00mΩ | 2000μΩ |
| **4000mV** | 200.0mΩ | 20.00mΩ |

### 10A Output

| | **1.000A** | **10.00A** |
|---|---|---|
| **40.00mV** | 40.00mΩ | 4000μΩ |
| **400.0mV** | 400.0mΩ | 40.00mΩ |
| **4000mV** | 4.000Ω | 400.0mΩ |

The maximum resistance that can be measured by the DSM200 at 200A is 17mΩ, increasing to 4Ω at a test current of 1A. All readings are held on the display when the output is switched off.

The current and voltage ranges have a metering accuracy of 0.6% of reading +5 digits, and the ohms ranges have an accuracy of 1.2% of reading + 10 digits over the range 1-200A.

### Optional Lead Set Specifications

An optional output lead set is available to complement the DSM200. The standard version is 3 metres long and includes two 25mm$^2$ high current leads terminated in copper battery clips and a sense lead terminated in copper crocodile clips. The lead set is also available in lengths of 5m, 8m, and 10m.

3m lead set shown.

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