

# DLRO600

## Digital Microhmmeter



- **Small and weighs less than 33 lbs (15 kg)**
- **Test currents from 10 A to 600 A dc**
- **0.1  $\mu\Omega$  best resolution**
- **On board memory for up to 300 test results and notes**
- **RS232 port to download stored results or for real time output to a printer**
- **Supplied complete with 16.4 ft (5 m) test leads and download software**

### DESCRIPTION

Megger DLRO600 measures resistances between 0.1  $\mu\Omega$  and 1  $\Omega$  at high currents. This versatile instrument can provide test currents from 10 amps up to 600 amps subject to the load resistance and supply voltage. A large liquid crystal display provides all the information needed to perform a test; all test parameters and measurement results are displayed.

The unique design allows the weight and size of DLRO600 to be kept to a minimum; the instrument weighs less than 33 lbs (15kg). This small size makes DLRO600 equally at home in the workshop, on the production floor or in the field. The high current capability and compact design make DLRO600 suitable for testing circuit breaker contacts, switch contacts, busbar joints or other applications where high current is needed.

300 sets of results may be stored in the on board memory for later download to a PC or may be output directly to a printer via the RS232 port. You may also add notes to any stored result by using the on board alphanumeric keypad, thereby making later identification of results simple.

As well as adding notes to stored results, the alphanumeric keypad allows you to set the test current directly by typing in the value required. DLRO600 will check the continuity of the test circuit, and will quickly ramp the test current up to the desired level. The keyboard is also used to set upper and lower limits for the result and to prevent the use of excessive currents by setting an upper limit to the allowable test current.

DLRO600 uses a four terminal measurement technique to cancel the resistance of the test leads from the measurement.

DLRO600 operates in one of three modes, which are simply selected from the on screen menu.

CONTINUOUS mode is provided for users who wish to monitor a resistance over a period of time. Connect the test leads, select the test current and press the TEST button. DLRO600 will pass a current continuously, and measure the resulting voltage at 2-second intervals, until the test button is pressed to stop the test or the test circuit is interrupted.

In NORMAL mode you connect the leads, select the test current and press the TEST button. The test current will ramp up to the desired level, hold for 2 seconds and then ramp down. The whole process takes approximately 7 seconds.

In AUTO mode select the desired current, and press the TEST button. The TEST lamp will flash to show that the DLRO600 is ready to carry out a test. As soon as the current and potential leads are connected, a test will start. To repeat a test, simply break contact with the voltage probes and remake contact.

Measuring individual joints in a busbar is a good example of the convenience to be gained by using AUTO mode. The two current leads are connected to the ends of the busbar. They will remain connected here until all tests have been completed. When the voltage leads make

contact across a joint, DLRO600 detects that all four leads are connected, carries out a test and stops. When you move to the next joint DLRO detects the new completed circuit automatically and carries out the next test, and so on until all joints have been tested. The results may be stored automatically and may be recalled to the display or downloaded for review.

**APPLICATIONS**

Testing of the contact resistance of high voltage alternating current circuit breakers according to IEC62271-100 calls for a test current with any convenient value between 50A and the rated normal current. The similar American standard ANSI C37.09 specifies that the test current should be a minimum of 100A.

Most electrical utilities will prefer to test at higher currents since they believe this is more representative of working conditions. As an extension to this, the high current resistance measurement has been applied to high voltage cables, cable joints, welds, busbars and switchgear in general.

Maintenance engineers involved in substation maintenance, both within utilities and end users who take their power at higher voltages, and manufacturers of switchgear, bus bars, distribution panels and circuit breakers will find the DLRO600 a powerful tool.

**FEATURES AND BENEFITS**

- DLRO600 weighs less than 33 lbs (15 kg), reducing the risk of strain and sprain while transporting the instrument.
- The unit has continuously variable output current from 10 A to 600 A, eliminating the need for a variety of instruments at 100 A, 200 A, 250 A, 500 A and 600 A.
- The unit features on board memory which reduces the possibility for error in recording results.
- The alphanumeric keyboard is much quicker than using scroll buttons or cell phone type keypads.
- DLRO600 has a resolution of 0.1 microhm, affording confidence and meaning to readings in the tens of microhms.

**SPECIFICATIONS**

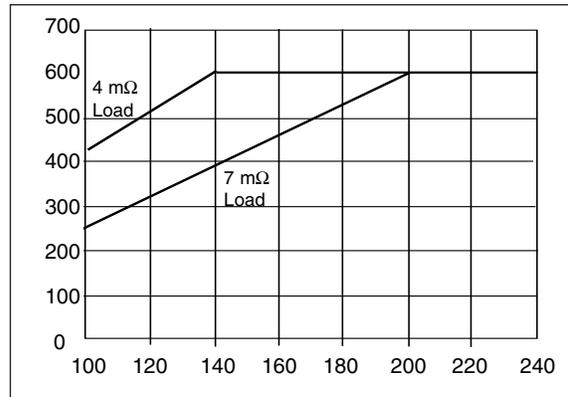
**Measurement**

**Range:** 0.1  $\mu\Omega$  to 999.9 m $\Omega$   
(Subject to supply voltage and leads used)

**Accuracy**

**Voltage:**  $\pm 0.5\% \pm 0.1$  mV  
**Current:**  $\pm 0.5\% \pm 0.1$  A  
**Resistance:** Better than 1% from 100  $\mu\Omega$  to 100 m $\Omega$

**Output Current**



The chart above shows the maximum output current available at different supply voltages with a 4 m $\Omega$  load (i.e. standard 16.4 ft [5 m] current leads only) and with a 7 m $\Omega$  load

**Current Lead Resistance**

**(Megger supplied leads)**

- 2 x 16.4 ft. (5 m) current leads: 4 m $\Omega$
- 2 x 32.8 ft (10 m) current leads: 5.4 m $\Omega$
- 2 x 49.2 ft. (15 m) current leads: 6 m $\Omega$

**Maximum Continuous Test Time**

More than 60 seconds at 600 A @ 20° C ambient.

**Power Supply for: (See chart)**

**Full output**

207 to 265 V 50/60 Hz with a load less than 7 m $\Omega$  including current leads.

**Reduced output**

Down to 100 V 50/60 Hz.

**Test Modes**

Manual, Auto, Continuous.

**Test Time**

7 seconds NORMAL/AUTO mode.  
Refreshed every 2 seconds in CONTINUOUS mode.

**Display**

Large, high resolution backlit LCD.

**Warnings**

Current flowing: LED. Other warnings are shown on the liquid crystal display.

**Data Transfer**

Real time or batch download via RS232 using AVO Download Manager.

**Storage Capacity**

300 result sets and memo, battery backed for 10 years.

**Memo Field**

200 characters max.

**Test Current**

**Range**

10 A to 600 A unsmoothed dc in 1 A steps

**Accuracy**

±2% ±2 A

**Voltmeter Input Impedance**

>200 kΩ

**Hum Rejection**

5 V rms 50 Hz/60 Hz

**Temperature**

**Operation**

14 to 122° F (-10 to +50° C)

**Storage**

-13 to 149° F (-25 to +65° C)

**Calibration**

68° F (20° C)

**Co-efficient**

<0.05% per degree C

**Max. Humidity**

95% RH non-condensing

**Max. Altitude**

1.243 miles (2000 m)

**Safety**

IEC61010 – (1995) Category II, 300 V phase to earth.

**EMC**

EN61326 annex A (heavy industrial)

**Dimensions**

16.14 L x 9.45 D X 10.53 H in.  
(410 L x 240 D x 270 H mm)

**Weight**

31.97 lbs (14.5 kg), excluding test leads



The DLRO600 shown measuring the contact resistance on a GE 15kV air breaker.

**ORDERING INFORMATION**

Item (Qty)	Cat. No.
MEGGER DLRO600 High Current Digital Low Resistance Ohmmeter (English QWERTY keyboard)	DLRO600
<b>Included Accessories</b>	
Lead set, 16.4 ft (5 m), in a bag comprising of 2 current leads with clamps and 2 potential leads with clips	6220-755
AVO Download Manager	6111-442
User Guide on CD-ROM	6172-763
RS232 download cable	25955-025
Quick Start Guide	6172-782
Warranty card	6170-618
<b>Optional Accessories</b>	
Lead set, 49.2 ft (15 m), comprising of 2 current leads with clamps and 2 potential leads with clips	6220-757
Lead set, 32.8 ft (10 m), comprising of 2 current leads with clamps and 2 potential leads with clips	6220-756
Transport case	MC996

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