

High Accuracy Micro-ohmmeter and RTD Monitor

- Rugged: MIL PRF2880F Class 3
- Portable: Longest Rechargeable Battery Life (140 Hrs)
- Ranges: 200 mΩ to 2 kΩ (Auto and Manual)
- High Accuracy: 0.05% of reading
- Resolution: 1μΩ
- 2, 3 or 4 wire measurement
- Offset Compensation
- Back Lit Display



The Model R1L-D1 Digital High Resolution Ohmmeter is a portable digital ohmmeter and RTD monitor for measuring low resistance values. It is optimized for measuring 100 and 1000 Ω three and four wire RTDs and utilizes the four-wire technique to eliminate errors caused by the connection resistances. Two leads source and sink a regulated constant current through the resistance under test, and two separate leads measure the voltage drop across this resistance. The R1L-D1 then calculates the value of the resistor under test, and indicates the value on an LCD display. Three and two-wire measurement methods can also be selected.

To maintain accuracy, an automatic zero circuit turns off the test current and resets the zero of the instrument prior to each resistance reading. This also serves to null out any thermally-generated voltages in the test leads or in the resistance being tested.

Physical

The Model R1L-D1 is packaged in a rugged heavy-duty case that doubles as the instrument's transit case. When closed, a gasket seals the lid to protect the instrument against water and dirt. When the lid is open for operation of the instrument, a second front panel gasket provides additional protection against the environment. Panel seal switches are used for the controls. The front panel is aluminum, with durable markings. Connection to the device under test is via four front panel mounted 3-way binding posts.

Controls and Display

Resistance values are displayed on a 5½-digit LCD with decimal points, reading from 1.99999 to 19,9999. Over range and battery status conditions are indicated. Backlighting may be switched on for visibility in low light conditions. Over range and battery condition are indicated. Controls include: POWER ON/OFF, RANGE to select full scale resistance range, MODE to select 2, 3, or 4-wire measurements, and BACKLIGHT ON/OFF.

Power

Power is from internal rechargeable NiCad cells, and/or 110/220VAC 50/60 Hz power line. Power consumption is less than 10 watts. The battery charges any time the line cord is plugged into a power receptacle. Battery charge time, from a discharged condition, is less than 8 hours for a full charge. Battery charge lasts for 140 operating hours maximum, and typically 60 hours.



Shown here Kelvin probes used to measure contact resistance between shunt and circuit board trace

Specifications

Resistance Ranges and Test Currents

Full Scale	Resolution	Accuracy	Test Current
199.999 mΩ	1 μΩ	0.05% of reading ± 1 count	50 mA
1.99999 Ω	10 μΩ	0.05% of reading ± 1 count	50 mA
19.9999 Ω	0.1 mΩ	0.05% of reading ± 1 count	50 mA
199.999 Ω	1 mΩ	0.05% of reading ± 1 count	0.5 mA
1999.99 Ω	10 mΩ	0.05% of reading ± 1 count	0.5 mA

Environment	Operating Temperature: 0 to 50° C Storage Temperature: -40 to +71° C
--------------------	---

Physical	Dimensions: 14" W x 11" D x 6" H Weight: Approximately ten pounds.
-----------------	---

Options	Opt 001 Low Compliance (< 2VDC open terminal voltage) Opt 002 Accessory Pouch Opt 003 KTL-100 Test lead with Kelvin Clips Opt 004 SSP-10 Kelvin Probes with hardened stainless steel pins Opt 005 RS-232 Interface (Streams data to RS-232 port)
----------------	--

Model	Price	Note
R1L-D1		NSN 6625-01-456-9125
R1L-D1-AF		NSN 6625-01-544-0793
HTP-100	\$995.00	Pistol Grip Probes
KTL-100	Included	Kelvin Clip Leads
SSP-10	\$499.00	Kelvin Probe with Stainless Steel Pins