



ndb Technologies inc.
 111-1405, St-Jean-Baptiste
 Québec (Qc)
 Canada G2E 5K2
 Tél : (418) 877-7701
 Fax : (418) 877-7787
 E-mail : mkt@ndb.qc.ca
 Web : www.ndbtech.com



LRM-10 Contact Resistance Measurement Kit

10 Amp Low Resistance Meter for electrical interconnections integrity testing

The LRM-10's very low resistances measurements from 0,01 $\mu\Omega$ to 200 Ω are targeted toward verifying the quality contact interfaces.

Low Resistance Measurements

Electrical interconnections, such as sockets, switches, circuit breaker contacts, cable joints, battery intercell connections and other connection devices, are affected by factors like residual contact force, vibrations, and corrosion. These factors generally succeed in compromising the integrity of contact interfaces, and eventually lead to degradation and failure of all electrical connections. The time-to-failure varies widely depending on the connection types and environment. Failure is always preceded by a significant increase in contact resistance at the electrical interfaces.

Applications

- **Circuit Breaker** Contact Resistance
- **Battery** strap connection resistance
- **Switches** contact resistance.
- **Tap Changer** contacts resistance
- **Cable/Bus Bar connections** Inspection
- **Power fuses** inspection
- **Ground bonding** inspection
- **Electrical Sockets** resistance
- **Lightning rod** integrity
- **Railway bond** resistance



LRM-4015HD Dual Hand Probe

Advantages of the LRM-10

- Very compact hand held design
- Light weight only 1.9 lbs (0.86 kg)
- Very small and compact desing.
- Rugged & Shock resistant (1 meter / 3 feet, drop proof).
- Convenient standard carrying case, allowing the operator to manipulate both test probes while the instruments remains strapped to user neck. The instrument's measurements are easily viewable through the transparent front cover of the case.
- Auto contact sensing mode: the instrument automatically launches the test when good contact is sensed with the dual hand test probe.
- Dual Hand testing probes conveniently designed for circuit breaker contact resistance measurements. 5/8 inches in diameter and 6 inches long, they are rugged and equipped with replaceable test pins.

Operation

The LRM-10 uses a four cable measurement method which consists of a Current injecting channels (+I, -I) and a Voltage sensing channel (+V, -V). The instrument accurately measures the current injection while simultaneously senses the voltage drop across the DUT, the resistance is then calculated. The current injection measurement along with high impedance voltage sensing input channel, eliminates the error induced by test lead resistances. The instrument's microprocessor eliminates gaps, noises & parasite voltages influence on the resistance measurements. Thanks to its unique filtering system, the LRM-10 can be used in spite of the presence of intense magnetic fields.

Technical Specifications

- Four cable measuring method.
- Auto ranging current 5mA to 10A.
- Auto power off after the instrument is in idle mode for 2 minutes.
- 30 Second back light.
- Large easy to read characters are displayed on the LCD screen.
- Standard connecting cables with "alligator" clips & Dual-hand probes are supplied with the instrument.
- PC communication port
- High frequency rejection filter

Technical Specifications

Measurement Range	0,01μΩ to 200Ω
8 measurement Scales	20μΩ to 200Ω
Resolution	0.01μΩ
Operating Temperatures	-20°C to +50°C (-4° F to 122° F)
Storage Temperatures	-40°C to +50°C (-40° F to 122° F)
Humidity	0 to 95% non condensed Submersible, rain/dust proof, Ingress protection IP67
Autonomy	> 12 000 measurements, at 10A (for a cable loop resistivity < 50mΩ) > 10 000 measurements, for the other currents
Battery	Six (6) 1.2V, 2.1Ah rechargeable "A" NiMh batteries
Charger	12V 1A adapter with sealed connector, available for 110V or 220V
Display	Liquid crystal 128 X 64 dots, wide ranging temperatures 2.36 X 1.62 in. (60 X 41 mm) 2 back-lighting intensities (100%, 50%)
Size & Dimension	8 X 4.5 X 2 in. (203.3 X 114.3 X 50.8 mm)
Weight	1.9 lbs (0.86 kg)
Accessories	Batteries, AC adapter/Charger, LRM-4015HD & DRM-403 test probes, Nylon mesh carrying case, instruction manual, Calibration certificate & ndb-USBCOMM kit
Warranty	2 Years Parts & Labor



LRM-10 with Optional DRM-4018 Case



LRM-10 with Optional GET (temporary ground cable test system)

Accuracy Table

Scales	Measure error	Scale Error		Common mode reject error (cable's impedance)	
		± 2 counts	0.02 Ω	-	-
200 Ω	0.1%	± 2 counts	0.02 Ω	-	-
20 Ω	0.1%	± 2 counts	0.002 Ω	-	-
2 Ω	0.1%	± 2 counts	0.0002 Ω	-	-
200 mΩ	0.1%	± 2 counts	0.02 mΩ	-	-
20 mΩ	0.1%	± 2 counts	0.002 mΩ	-	-
2 mΩ	0.1%	± 2 counts	0.0002 mΩ	-	-
200 μΩ	0.1%	± 2 counts	0.02 μΩ	± 2 counts ²	0.02 μΩ
20 μΩ	0.1%	± 2 counts	0.02 μΩ	± 2 counts ²	0.02 μΩ

Optional Equipment

DRM-4012 Cadweld Test probe

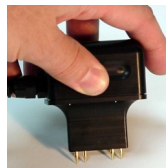
DRM-4013 Reference Resistance 9.5μΩ

DRM-4017-19 Kelvin Clip test leads (19mm / 0.74")

DRM-4017-35 Kelvin Clip test leads (35mm / 1.38")

DRM-4018 Hard shell transportation case
GET (temporary ground cables test system)

* Specific custom-made probes on demand



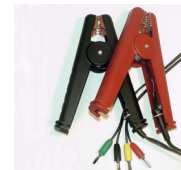
DRM-4012 Cadweld test probe



DRM-4013 Reference resistance 9.5 μΩ



DRM-4017-19 Kelvin Clip test leads



DRM-4017-35 Kelvin Clip test leads