

Lightweight Winding Resistance Meter

QRM-10P

HIGHEST ACCURACY & LOWEST COST



QRM-10P

Auto discharge circuit for operator safety.

Auto current ranging from 10 mA to 10 A.

Digital resistance reading from 1 microhm to 2,000 ohms.

Stores 63 records (of 48 readings each).

Built-in 2.5-inch wide thermal printer.

amperis

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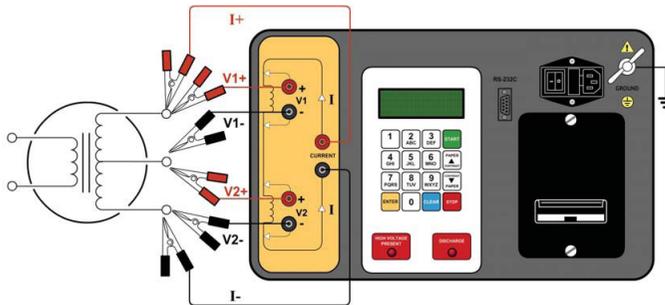
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The QRM-10P is designed to accurately measure the winding resistance of highly inductive power transformers. The unit's dual resistance-reading input channels can measure two winding resistances simultaneously, and four-wire (Kelvin) connections provide high accuracy and require no lead compensation. The QRM-10P provides stable resistance readings of very large transformers by utilizing a 36Vdc power supply capable of outputting up to 10 Amperes. The resistance reading of a 100MVA transformer can be achieved in 5 minutes or less. The unit's power supply is cooled by heavy-duty fans designed for continuous operation. For greater flexibility in the field, the QRM-10P comes with a built-in 2.5-inch wide thermal printer used for printing test reports.

Since the QRM-10P can accurately measure resistances ranging from 1 micro-ohm to 2,000 ohms, it can also be used to measure EHV circuit breaker contact resistance, motor winding resistance, or any low resistance. If the transformer winding temperature is entered, the QRM-10P can calculate the equivalent resistance value of the winding material (aluminum or copper) at any standard reference temperature. Also, a special test mode can run a test for up to 45 minutes while saving resistance readings at one-minute intervals. In addition to measuring the resistance value, the QRM-10P also checks the "make-before-break" tap-switching sequences of voltage regulators and load tap changers. The QRM-10P can store test results in Flash EEPROM. Test results can be printed on the built-in 2.5-inch wide thermal printer or can be transferred to a PC via the RS-232C interface port. The QRM-10P is furnished with three 50-foot test cables. Each test cable lead is terminated with a quick-disconnect test clip.

QRM-10P Connections



Built-in Safety Features

At the end of each test, the QRM-10P automatically dissipates the stored energy in the transformer. This discharge circuit will continue to work even if the supply voltage is lost. For added safety, the unit's power supply is thermally protected from over-load damage.

Internal Test Record Storage

The QRM-10P can store 63 test records (up to 48 readings per test record) in Flash EEPROM. Test records can be retrieved and printed on the built-in thermal printer or can be transferred to a PC via the RS-232C interface port. Windows® -based software is provided with each QRM-10P that can be used to retrieve test records from the QRM-10P and can also be used to export records in Microsoft® Excel format.

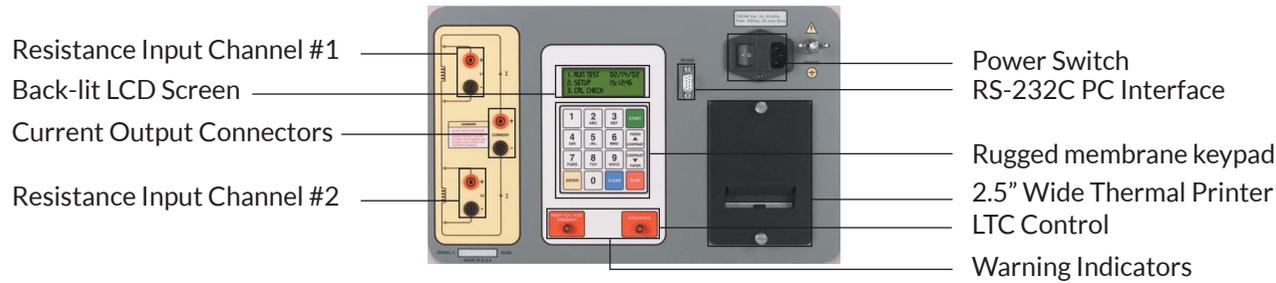
User Interface

The QRM-10P features a back-lit LCD screen (20 characters by 4 lines) that is viewable in both bright sunlight and low-light levels. A rugged, alpha-numeric, membrane keypad is used to control the unit.

Built-in Thermal Printer

The QRM-10P features a built-in 2.5" wide thermal printer that can be used to print test reports in the field.

QRM-10P Controls



QRM-10P Specifications

Type	Portable transformer winding resistance meter
Physical specifications	17"W x 12K"H x 10K"D, (42.6 cm x 32.0 cm x 27.0 cm); Weight: 27 lbs (12.2 kg)
Operating voltage	100 - 120 Vac or 200 - 240 Vac (factory pre-set), 50/60 Hz
Resistance reading range	1 micro-ohm- 2,000 ohms
Accuracy	1 - 19,999 micro-ohms: ±0.5% reading, ±1 count; 20 - 999 milli-ohms: ±1% reading, ±1 count; 1- 2,000 ohms: ±1.5% reading, ±1 count
Test current	Auto range, 10 Amperes max
Test voltage	36 Vdc max
Resistance channels	Two static resistance reading channels
Display	Back-lit LCD Screen (20 characters by 4 lines); viewable in bright sunlight and low-light levels
Printer	Built-in 2.5-inch wide thermal printer
Internal test record storage	Stores 63 test records of 48 readings each
Computer interface	RS-232C
Pc software	Windows®-based software is included with purchase price
Safety	Designed to meet IEC61010 (1995), UL61010A-1, CSA-C22.2 standards
Environment	Operating: -10°C to +50°C (+15°F to +122°F); Storage: -30°C to +70°C (-22°F to +158°F)
Humidity	90% RH @ 40°C (104°F) non-condensing
Altitude	2,000 m (6,562 ft) to full safety specifications
Cables	Three 50-foot test cables, ground cable, power cord and cable bag
Optional accessories	Transportation case
Warranty	1 year on parts and labor

QRM-10P Thermal Printer Report

TEST RESULTS	
DATE: 01/19/12	TIME: 12:19:38
COMPANY:	
STATION:	
CIRCUIT:	
MFR:	
MODEL:	
S/N:	
KVA RATING:	
OPERATOR:	
EQUIVALENT RESISTANCE DATA	
MEAS TEMP	T _m = 25.0C 77.0F
REF TEMP	T _s = 85.0C 185.0F
COPPER WINDINGS, T _k = 234.5C	
R _s = R _{meas} × [(T _s +T _k)/(T _m +T _k)]	
All temps for eqn are in deg C	
V1 & V2 TEST	
R1	= 60.499 MILLI-OHMS
R1s	= 74.49 MILLI-OHMS
R2	= 60.570 MILLI-OHMS
R2s	= 74.57 MILLI-OHMS
TAP/WINDING: _____	
DATE: 01/19/12	TIME: 12:19:38

NOTE: the above specifications are valid at nominal voltage and ambient temperature of +25°C (+77°F). Specifications are subject to change without notice