

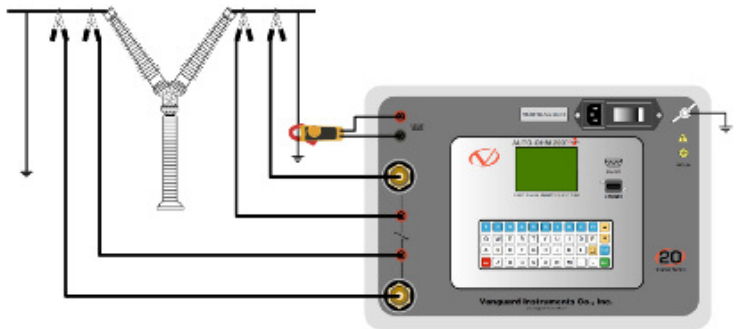
Auto-Ohm 200 S3™

True DC Micro-Ohmmeter



Vanguard Instruments Company

Accurately



records on an external USB Flash drive. Test header information (Company, Substation, circuit breaker ID's) can also be entered using the 44-key keypad and is stored with each test record.

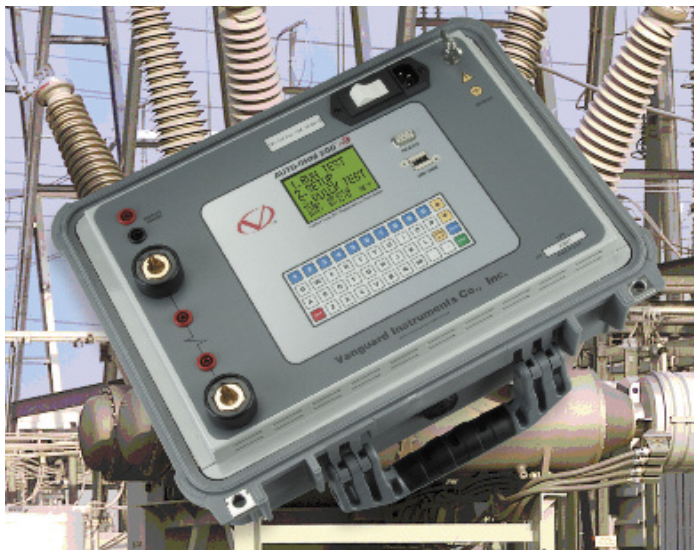
Windows® based (XP/Vista/7) analysis software is provided with each unit and can be used to remotely control the Auto-Ohm 200 S3 via the RS-232C port. Using this software, the user can retrieve test records (from the unit's memory or a USB Flash drive), analyze test results, and print test results on a desktop printer. Test records can also be exported to PDF, Excel, and XML formats.

The Auto-Ohm-200 S3 is furnished with a 30-ft test cable set. A 15-ft test cable set is also available as an option. Test cables are terminated with heavy duty welding type clamps. The test current and voltage sense cables are isolated and fastened to the clamp jaws. This feature allows for a simple connection to the circuit breaker bushing. An optional voltage sense cable and probe can be used to measure resistance in small access locations. Optional heavy-duty, welding type C-clamps are also available allowing the user to connect the test leads to a wide variety of bushing sizes, bus-bars, or large conductors.

Ordering Information • Auto-Ohm 200 S-3 True DC Micro-ohmmeter

AUTO-OHM 200 S3 w/ 30-ft Test Cable	Part No: AUTO-OHM 200 S3
Dual Ground Option	Part No: DGO
AUTO-OHM 200 S3 Shipping Case	Part No: AUTO-OHM 200 S3 Case
AUTO-OHM 200 S3 15-ft Cable Set	Part No: AUTO-OHM S3 15ft Cable
AUTO-OHM 200 S3 30-ft Cable Set	Part No: AUTO-OHM S3 30ft Cable
C-Clamp Set (2 clamps)	Part No: AUTO-OHM C-Clamp Set
Handspike Probe (15 ft)	Part No: AUTO-OHM Hand Spike

Actual
Size



Auto-Ohm 200/S3

True DC Micro-Ohmmeter

The Auto-Ohm-200 S3 is Vanguard's fourth generation, microprocessor-based, true DC micro-ohmmeter. It is designed for testing EHV circuit-breaker contact resistances, bushing contact joints, welding joints, or for any low-resistance measuring application. This high current and very lightweight (16.8 lbs/ 7.6 Kg) micro-ohmmeter is designed to meet the IEEE C57.09-1999 (5.15) requirement for testing circuit breaker contact resistance.

The Auto-Ohm-200 S3 can accurately measure resistance values from 1 micro-ohm to 5 ohms. A 0.1 micro-ohm resolution is possible with current greater than 5A. The Auto-Ohm-200 S3 applies a selectable true DC test current from 1A to 200A to the resistance load to be tested. The Auto-Ohm-200 S3 controls the test current's rise and fall rates. The test current rise and fall rate can be selected from 5 seconds to 10 seconds. An "Auto Test" mode is also available and can be initiated simply by applying the sense cables' leads across the two points of interest in the current path. This feature is very convenient when measuring a sequence of several resistance values in a circuit breaker contact. The Auto-Ohm 200 S3 can also compare test results against preset limits and determine if a test passed or failed, and a "Pass" or "Fail" flag is displayed accordingly.

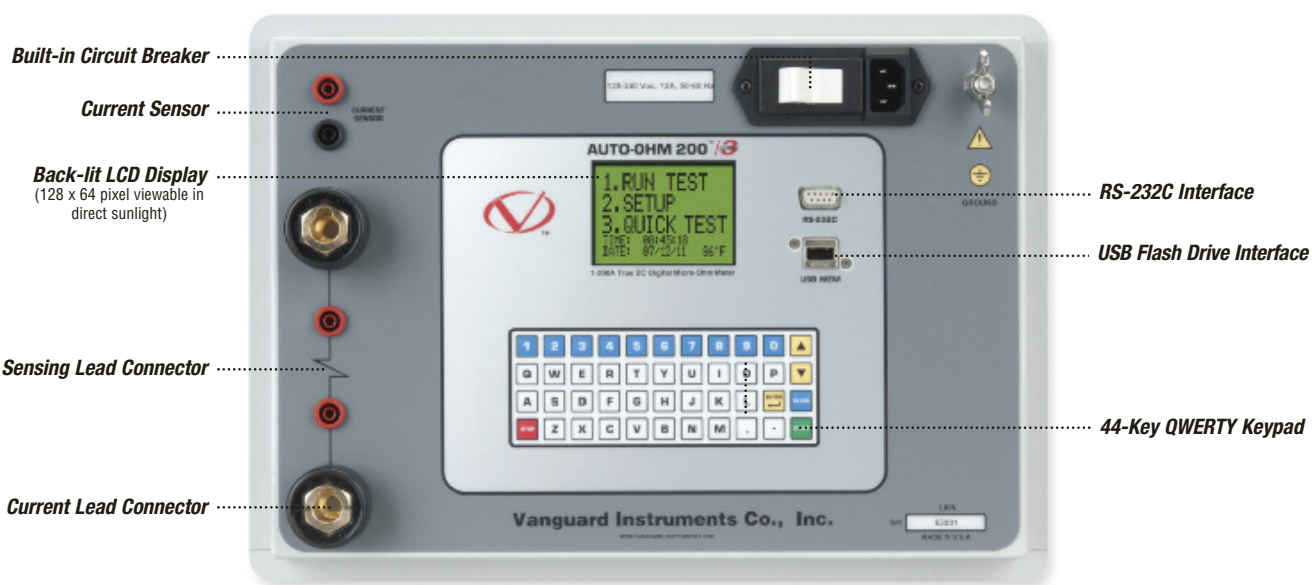
Since a true DC current (with controlled rise/fall time) is passed through the circuit breaker contact, no magnetic transient is induced into the breaker's current transformers. This feature greatly reduces the risk of inductively tripping a breaker control (bus differential relay).

With the Dual Ground option, the Auto-Ohm-200 S3 can also measure the circuit breaker contact resistance with both sides of the breaker bushing being grounded. When a test current is applied to a circuit breaker with both sides grounded, some of the test current flows through the safety ground cables. Using an external current sensor, the Auto-Ohm-200 S3 measures and eliminates this current from the total test current. The Auto-Ohm then calculates the actual resistance value of the circuit breaker.

The Auto-Ohm-200 S3 features a back-lit 128 x 64 pixel LCD screen that is viewable in both direct sunlight and low-light levels. The resistance readings are displayed on the LCD screen in micro-ohms or milliohms. The unit is operated via a convenient 44-key "QWERTY" keypad on the front panel. The Auto-Ohm 200 S3 can store 128 records of 64 readings internally, and up to 999 test

True DC Micro-ohmmeter

Measure *Resistance from 1 micro-ohm to 5 ohms*



Built-in Circuit Breaker

Current Sensor

Back-lit LCD Display
(128 x 64 pixel viewable in direct sunlight)

Sensing Lead Connector

Current Lead Connector

RS-232C Interface

USB Flash Drive Interface

44-Key QWERTY Keypad

FEATURES

- Very lightweight: 16.8 lbs. (7.6 Kg)
- Measures circuit breaker contact resistance with safety ground on (optional)
- Stores test records on-board or on external USB Flash drive
- 1 to 200A programmable test current



Accessory Clamps and Handspike

SPECIFICATIONS

Type	Portable Micro-Ohmmeter
Physical Specifications	17" W x 7" H x 13" D (43.2cm x 17.8cm x 33cm); Weight: 16.8 lbs (7.6 Kg)
Input Power	100-240 Vac, 50/60Hz
Resistance Reading Range	10 milliohms at 200A to 5 ohms at 1A
Accuracy	1A to 4.99A: 1% ±10 micro-ohms 5A to 9.99A: 1% ±2 micro-ohms 10A to 200A: 1% ±1 micro-ohm
Test Current Range	1 Ampere to 200 Amperes (selectable in 1A steps); Thermally protected DC power supply
Display	Back-lit LCD (128 x 64 pixels), viewable in direct sunlight and low light levels
Keypad	Rugged, 44-key "QWERTY" membrane keypad
Internal Test Record Storage	128 test records. Each record can contain up to 64 readings
External Test Record Storage	Up to 999 test records on external USB Flash drive.
Computer Interface	RS-232C
PC Software	Windows XP/Vista/7 Analysis Software (included with purchase)
Safety	Designed to meet IEC 61010 (1995), UL 61010-a, and CAS-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 (Max)	90% RH @ 40° C (104° F) non-condensing
Altitude (Max)	2000m (6562 ft) to full safety specifications
Cables	30 ft (9.1 m), #1 AWG test cables, power cord, ground cable
Options	Shipping case, 15 ft test cables, C-Clamp set, Hand Spike Set, Dual Ground option
Warranty	One year on parts and labor

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

Vanguard Instruments Company, Inc.

Vanguard Instruments Co., (VIC), was founded in 1991. Currently, our 28,000 square-foot facility houses Administration, Design & Engineering, and Manufacturing operations. From its inception, VIC's vision was, and is to develop and manufacture innovative test equipment for use in testing substation EHV circuit breakers and other electrical apparatus.

The first VIC product was a computerized circuit-breaker analyzer, which was a resounding success. It became the forerunner of an entire series of circuit-breaker test equipment. Since its beginning, VIC's product line has expanded to include microcomputer-based, precision micro-ohmmeters, single and three-phase transformer winding turns-ratio testers, winding-resistance meters, transformer tap-changing controllers, megaohm resistance meters, and a variety of other electrical utility maintenance support products.

VIC's performance-oriented products are well suited for the utility industry. They are rugged, reliable, accurate, user friendly, and most are computer controlled. Computer control, with innovative programming, provides many automated testing functions. VIC's instruments eliminate tedious and time-consuming operations, while providing fast, complex, test-result calculations. Errors are reduced and the need to memorize long sequences of procedural steps is eliminated. Every VIC instrument is competitively priced and is covered by a liberal warranty.

Vanguard products are available from:



Vanguard Instruments Company, Inc.

1520 S. Hellman Ave. • Ontario, California 91761 USA • P 909-923-9390 • F 909-923-9391
www.vanguard-instruments.com