

ATO-400

Micro-ohm Meter



Vanguard Instruments Company

www.vanguard-instruments.com

Accurately

FEATURES

- Digital resistance reading from 1 micro-ohm to 300 milli-ohms
- Test current 10–400A
- Stores 4,000 readings
- Lightweight
- Computer interface via RS-232C or USB port



1. RUN TEST 02/14/09
2. SETUP 15:12:46
3. CAL CHECK



ATO-400

Microprocessor-controlled Accuracy and Reliability

The ATO-400 micro-ohmmeter is specifically designed for sub-station applications to measure EHV circuit-breaker contact resistances, bushing contact joints, or any low resistance. This microprocessor-controlled micro-ohmmeter can accurately measure low resistances ranging from 1 micro-ohm to 300 milli-ohms at any test current from 10A to 400A. Resistance readings are displayed directly in micro-ohms or milli-ohms. No calculation is required to compensate for lead resistances. A custom switching power supply helps keep the ATO-400's weight low at 40 lbs (18.1 kg) and makes it an ideal unit for field use.

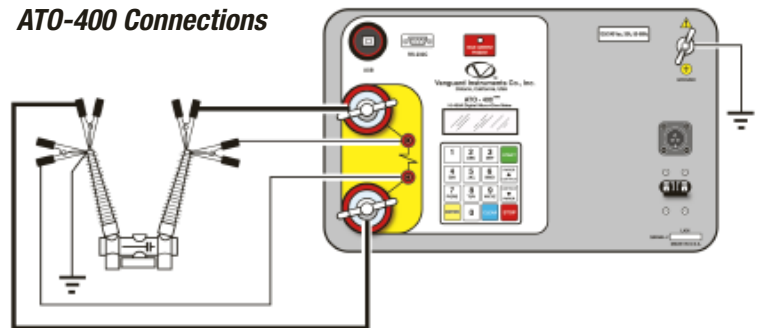
The ATO-400 outputs an un-filtered direct current from 10A to 400A to the resistance load being measured. A rugged, 16-key alpha-numeric keypad is used to control the unit. The burn-in time for a typical resistance test can be selected from 5 seconds to 60 seconds. An Auto Test Mode is also available and can be initiated simply by applying the sensor cables' leads across the two points of interest. This feature is very convenient when measuring a sequence of several resistance values in a breaker contact.

The ATO-400 features a back-lit LCD screen (20 characters by 4 lines) that is viewable in both bright sunlight and low-light levels. The unit can store up to 63 records (each may contain up to 64 readings) in Flash EEPROM. Test reports can be recalled for review, or they can be transferred to a PC via the built-in RS-232C or USB interface ports. A Windows® XP/Vista-based software application is also provided with each unit and can be used to transfer test records to a PC. Test records can also be reviewed, printed or exported in text or Microsoft® Excel format via the software application.

The ATO-400 is furnished with two #1/0 15-foot test cables. Custom test cable lengths are available as an option. Heavy-duty, welding-type, C-clamps are also available as an optional accessory. These can be used to connect the test cable leads to a wide variety of bushing sizes, bus-bars and other conductors requiring low-resistance test contacts.

The ATO-400's power supply is thermally protected and the contact-sensing inputs are protected against static-discharge damage.

ATO-400 Connections



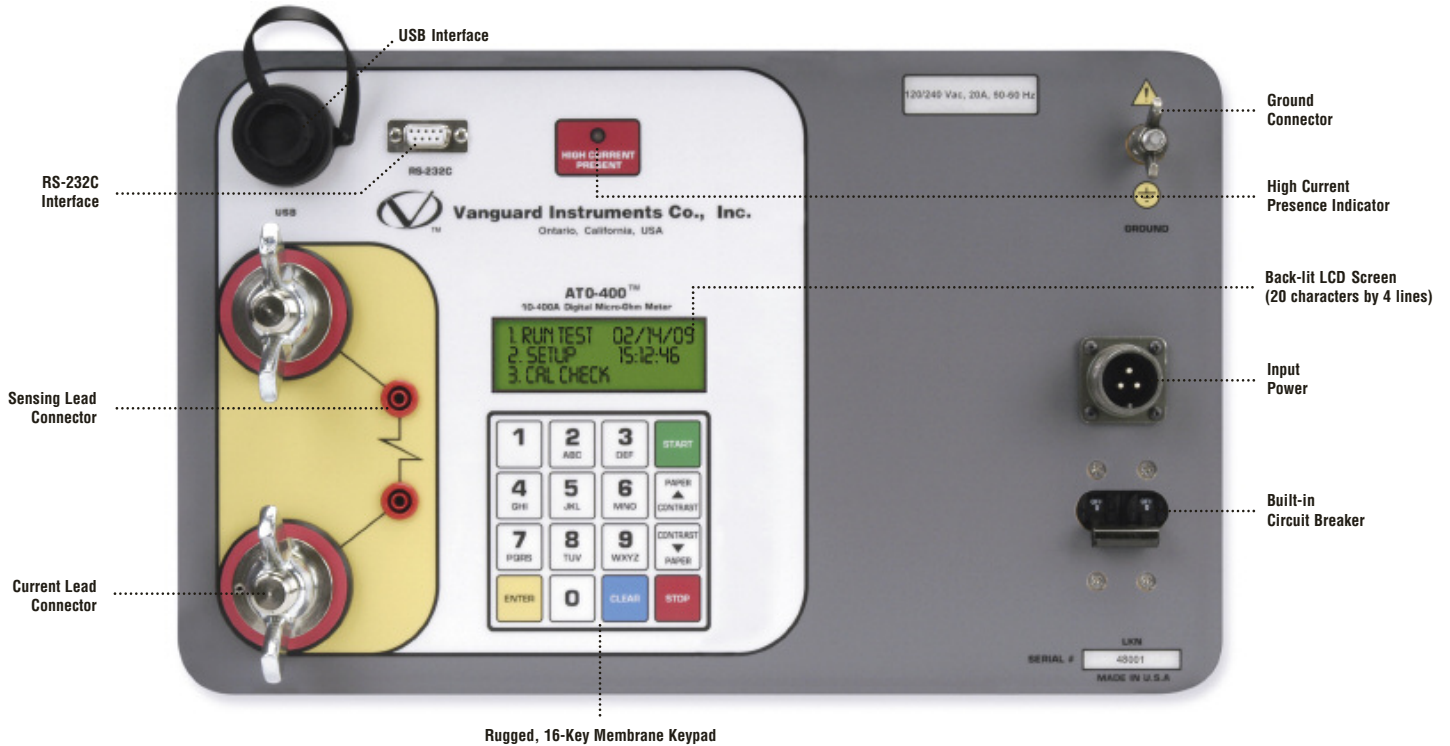
Ordering Information ATO-400

ATO-400 with 15-ft Test Cables
ATO-400 Shipping Case
15-foot Test Cable
30-foot Test Cable
C-Clamp Set (2 clamps)
Alligator Clamp Set (2 clamps)

Part No: ATO-400
Part No: ATO-400 Case
Part No: ATO-400 Cable-15ft
Part No: ATO-400 Cable-30ft
Part No: C-Clamps
Part No: Alligator-Clamps

Special-Purpose Micro-ohmmeter

Measure *Resistance from 1 micro-ohm to 300 milli-ohms*



SPECIFICATIONS

TYPE	Portable micro-ohmmeter
PHYSICAL SPECIFICATIONS	16.8"W x 12.6"H x 10.6"D (42.6 cm x 32.0 cm x 27 cm); Weight: less than 40 lbs (18.1 kg)
INPUT POWER	100 – 240 Vac 50/60 Hz
RESISTANCE READING RANGE	1 micro-ohm – 300 milli-ohms (1 micro-ohm resolution); Accuracy: $\pm 1\%$ reading, ± 1 count
TEST CURRENT RANGE	Thermally-protected DC power supply, 10 Amperes – 400 Amperes, selectable in 1A steps
TEST DURATION	5 seconds – 60 seconds, selectable
DISPLAY	Back-lit LCD Screen (20 characters by 4 lines); viewable in bright sunlight and low-light levels
KEYBOARD	Rugged membrane keypad (10 alpha-numeric keys, 6 function keys)
INTERNAL TEST RECORD STORAGE	Stores 63 records of up to 64 readings
COMPUTER INTERFACES	One RS-232C port, One USB port
PC SOFTWARE	Windows® XP/Vista-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	2,000m (6,562 ft) to full safety specifications
CABLES	15-foot (#1/0 AWG) test cables, ground cable, power cord
OPTIONS	Transportation case, custom test cable lengths, C-clamps
WARRANTY	One year on parts and labor

Note: The above specifications are valid at nominal voltage and ambient temperature of $+25^{\circ}\text{C}$ ($+77^{\circ}\text{F}$). Specifications are subject to change without notice.

Vanguard Instruments Company
Reliability Through Instrumentation

RVFeb10

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.

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