SGT-600

safety ground tester

Vanguard Instruments Company, Inc.
www.vanguard-instruments.com
The Vanguard SGT-600 Safety Ground Tester is a 600A DC micro-ohmmeter designed specifically to measure the resistance of protective in-service grounding and jumper cable assemblies. The SGT-600 can measure the resistance of the grounding cables, clamps and ferrules. The measured resistance values can be compared against the calculated values (using the ASTM 2249-03 standard) and a Pass/Fail result can be printed along with the measured resistance values.

**In-Service Cable Testing**

The SGT-600 measures the total resistance value of the cable under test and then compares it to the calculated value to determine the Pass or Fail result. In order to calculate the total resistance value, the user is first prompted for the cable size, cable length, and cable temperature. Total resistance (Rm) is calculated in accordance with the ASTM F2249-03 standard using the formula below:

\[
R_m = 1.05RL + 2Y = 1.05RL + 320 \, \mu\Omega
\]

Where:

- Y = Resistance of clamps, ferrule, and portions of the cable inside the ferrule, in milliohms
- L = Cable length in feet (ferrule to ferrule measurement to the nearest inch)
- R = Cable resistance, in milliohms/foot

*NOTE:* The clamp and ferrule resistance value of 160 µΩ is used per the ASTM-F2249-03 standard.

**Test Cable Sizes and Length**

Typical Safety Ground Cable sizes are #2, 1/0, 2/0, and 4/0. The test cable length, ranging from 1’ to 50’ per table 2 in the F2249-03 standard, is entered by the user.

**Test Record Storage**

The SGT-600 can store 100 test records internally. Each test record contains test header information, test cable size, test cable length, temperature, test current, and cable resistance. Test records can also be stored on a USB flash drive via the unit's USB flash drive interface.
SGT-600 Controls & Indicators

SGT-600 technical specifications

- **Physical Specifications**
  - Dimensions: 16¾" W x 12¾" H x 12" D (42.7 cm x 32 cm x 30.5 cm)
  - Weight: 19.8 lbs. (8.9 Kg)
- **Resistance Reading Range**
  - 1 micro-ohm to 1000 milliohms (max 1.5 milliohms @ 600A, 450 milliohms @ 10A, 1000 milliohms @ 1A)
- **Accuracy**
  - 10A – 49.9A: ±1% ±2 micro-ohms, 50A – 600A: ±1% ±1 micro-ohm
- **Display**
  - back-lit LCD screen (128 x 64 pixels) viewable in bright sunlight and low-light levels
- **Internal Test Record Storage**
  - 100 test records
- **PC Software**
  - Windows®-based analysis software is included with purchase price
- **Safety**
  - designed to meet IEC 61010 (1995), UL 61010-a, and CAS-C22.2 standards
- **Temperature**
  - Operating: -10°C to +50°C (+15°F to +122°F)
  - Storage: -30°C to +70°C (-22°F to +158°F)
- **Cables**
  - sensing leads, power cord, ground cable
- **Options**
  - shipping case

**Input Power**
- 100 – 240 Vac, 50/60 Hz

**Test Current Range**
- 10A – 600A (selectable in 1A steps); thermally protected DC power supply

**Test Voltage**
- 5 Vdc

**Keypad**
- rugged, 44-key “QWERTY” membrane keypad

**External Test Record Storage**
- up to 999 test records on external USB flash drive

**Computer Interfaces**
- one RS-232C PC interface, one USB flash drive interface

**Printer**
- built-in 2½” wide thermal printer

**Humidity**
- 90% RH @ 40°C (104°F) non-condensing

**Altitude**
- 2,000 m (6,562 ft) to full safety specifications

**Warranty**
- one year on parts and labor

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**NOTE:** The above specifications are valid at nominal voltage and ambient temperature of +25°C (+77°F). Specifications are subject to change without notice.
Instruments designed and developed by the hearts and minds of utility electricians around the world.

Vanguard Instruments Company (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, transformer winding-resistance meters, mega-ohm 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.

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