# GROUND RESISTANCE TESTERS MULTIFUNCTION

## GROUNDFLEX® FIELD KIT

IP 53 cover closed | 50 V CAT IV | CE

***Measure ground resistance of transmission towers without disconnecting the overhead ground wire!***



DataView®

## FEATURES

- Field-ready test kit designed for ground resistance and impedance testing of transmission and communication towers with complex grounding systems
- Highly sensitive GroundFlex® Sensors measure test current distribution through individual tower legs or monopole bases, enabling accurate resistance measurements without disconnecting overhead ground wires
- Performs frequency sweep impedance measurements from (41 to 5078) Hz to evaluate grounding performance across a wide frequency range, including lightning-related behavior
- Allows grounding measurements on energized structures, including real-time measurement of leakage current per leg and tower stray voltage
- Includes the Model 6472 Multifunction Ground Tester for soil resistivity testing, point-to-point continuity measurements, Fall-of-Potential testing, and additional grounding test methods
- Stores up to 512 complete test results in internal memory for reporting and documentation
- Rechargeable NiMH batteries provide power for over 1000 tests on a single charge and allow operation while charging
- Automatic power-off function conserves battery life
- CAT IV rated with fuse protection to ensure safe operation in utility and transmission environments

| MODEL | GroundFlex® Field Kit |
|---|---|
| **TEST METHODS** | |
| **Resistance-to-Ground** | |
| 3-Pole Fall-of-Potential | Yes |
| 4-Pole Fall-of-Potential | Yes |
| Selective Fall-of-Potential (1) | Yes |
| Clamp-On (2) | Yes |
| Tower Testing | Yes |
| **Soil Resistivity** | |
| Wenner Method | Yes |
| Schlumberger Method | Yes |
| **Other Measurements** | |
| Step & Touch Potential | Yes |
| 2-Pole Continuity, Point-to-Point | Yes |
| 4-Pole Continuity, Point-to-Point | Yes |
| **ELECTRICAL** | |
| Test Voltage | (10, 16, 32 or 60) V |
| Maximum Test Current | 250 mA |
| Test Frequencies | (41 to 5078) Hz automatic, SWEEP or user defined |
| Tower Testing Measurement Range | 0.067 Ω to 99.99 kΩ |
| Tower Testing Typical Accuracy | ± 5 % |
| **MEASUREMENT VALUES & ALARMS** | |
| Measurements | Ω, V, I, Hz |
| Calculations | Rho - ρ (Ω -m), earth coupling |
| Audible Alarms | Yes |
| **DATA STORAGE & REPORTING** | |
| Communication - USB | Yes |
| DataView® Reporting | Yes |
| Onboard Measurement Storage | 512 Measurements |
| **GENERAL** | |
| Display | Multi-parameter backlit LCD |
| Power Supply | Rechargable NiMH pack |
| Power Source | 18 VDC Power Adapter |
| Battery Life | > 1500 Measurements |
| **SAFETY & ENVIRONMENT** | |
| CAT Rating | CAT IV 50 V |
| IP Rating | IP53 |

Consult factory for NIST Calibration prices.

(1) A resistance-to-ground measurement for electrodes that cannot be isolated, requires one accessory clamp
(2) With optional accessory clamps (SR182 & MN82)

***Includes FREE DataView® software for configuring, data retrieval, real-time display, analysis and report generation***

***See pages 130 to 133 for Accessories/Replacements***


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# GROUND RESISTANCE TESTERS
# MULTIFUNCTION
## GROUNDFLEX® FIELD KIT

## *Revolutionize Tower Grounding Measurements*

**GROUND TESTER 6472 KIT-500 FT**

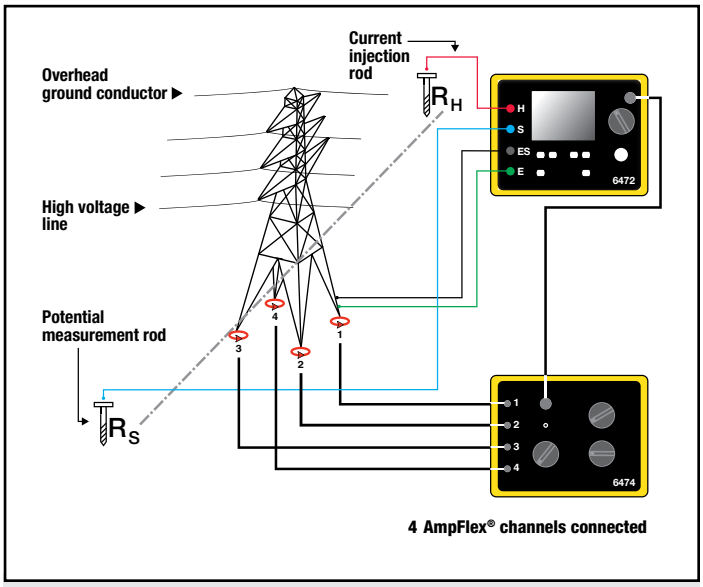
Includes Model 6472, (1) carrying bag, (2) 500 ft color-coded leads on spools *(red/blue)*, (2) 100 ft color-coded leads *(hand tied, green/black)*, (1) 30 ft lead *(green)*, (2) 5 ft color-coded leads *(red/blue)*, power adapter with power cord, optical USB cable, (4) T-shaped auxiliary ground electrodes, set of (5) spaded lugs, (1) 100 ft tape measure, rechargeable NiMH battery pack, USB stick with DataView® software, ground tester workbook and user manual.

**GROUNDFLEX® FIELD KIT 6474**
**CAT. #2136.03 *(Includes Ground Tester 6472 KIT-500 FT)***

Includes GroundFlex® Adapter Model 6474, (4) GroundFlex® sensors (16 ft (5 m) w/ 52 ft (16 m) BNC cable), (12) color-coded rings, connection lead, (2) extension leads on H reel *(black/green)* with color-coded alligator clips, (1) extra green and black alligator clips, (2) BNC extension leads, calibration loop, (3) C-clamps, set of (2) reel caddy, (1) inverter 12 VDC to 120 VAC 400 Watts *(vehicle use)*, carrying case with wheels and handle, carrying bag for ground kit, and user manual.





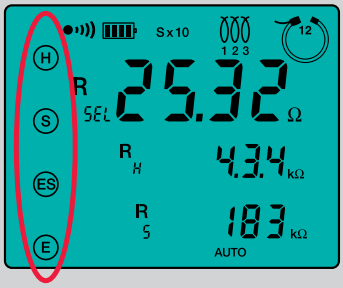



### GROUND MEASUREMENT ON TOWERS WITH GROUND WIRE

High-voltage lines are usually equipped with a an overhead ground wire (OHGW) to allow lightning to discharge to ground via the tower grounding network. As all the towers are connected to OHGW, all the tower's resistances are in parallel. This means it is inaccurate to measure tower resistance using traditional Fall-of-Potential methods unless the OHGW is disconnected, which is a dangerous and time-consuming operation. The GroundFlex® Field Kit enables operators to bypass isolating the tower from the grounding network by utilizing highly sensitive GroundFlex® coils to differentiate and measure test current distribution through each tower leg, enabling an accurate resistance value to be calculated. Additionally, GroundFlex® utilizes a SWEEP mode set of increasing test frequencies to analyze the ground system performance when subjected to a spectrum of frequencies from lighting strikes.

### AUTOMATIC RECOGNITION AND DISPLAY OF INPUT CONNECTIONS TO MATCH TEST

The connections are displayed and flash if incorrect or absent for the test selected.




| CAT. # | DESCRIPTION |
|---|---|
| 2136.03 | GroundFlex® Field Kit Model 6474 (Tower Tester) |


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# GROUNDFLEX® FIELD KIT

## GROUNDFLEX® MEASURED PARAMETERS

The AEMC® GroundFlex® Field Kit provides a comprehensive suite of measurements designed to evaluate both the electrical performance and integrity of transmission tower grounding systems, whether the structure is isolated or networked through an overhead ground wire (OHGW). The GroundFlex system measures parameters that define how effectively a tower dissipates electrical energy into the earth and interacts with its surrounding network.

## INDUCED AND STRAY VOLTAGE (U-ACT)

The real-time voltage naturally present on the tower and test leads before an active test is initiated. This identifies stray or induced voltages from energized circuits and can be used for step and touch potential assessments.

## INDUCED AND LEAKAGE CURRENT (ISEL)

The total current flowing through the tower's grounding system under normal operating conditions, measured via the Rogowski (GroundFlex®) sensors. This verifies bonding integrity and identifies unbalanced current flow between legs.

## PASSIVE RESISTANCE (RPASS)

A calculated value based on the relationship between stray voltage and leakage current. **RPASS** represents the system's apparent resistance under actual network operating conditions and is used to verify setup validity before active testing.

## ACTIVE RESISTANCE (RSEL)

An analysis of the resistance of the grounding system lower frequencies, measured when Model 6472 injects a controlled test current. **RSEL** reflects the effective resistance of the tower to ground and is comparable to traditional F-o-P tests on unbonded towers. This measurement allows for a final verification of the kits setup.

## SWEEP MODE IMPEDANCE (RSEL)

A frequency-dependent measurement performed automatically across 14 user-selectable test frequencies (40 Hz to 5 kHz). The resulting impedance curve characterizes both the resistive and inductive behavior of the grounding network — helpful for assessing lightning protection and transient response.





## OVERHEAD GROUND WIRE (OHGW) BONDING CHECK

A verification test that verifies the continuity of the static or shield wire bonded to the tower. Variations across towers indicate potential corrosion, open connections, or bonding failures that could compromise system protection.

## LADDER IMPEDANCE CHECK

The Ladder Impedance Check is a comparative test used to verify the continuity and effectiveness of the grounding network across multiple structures — typically several adjacent towers connected by the overhead ground wire (OHGW). Results from the Ladder Impedance Check should be equivalent to or slightly lower than measurements from an individual towers GroundFlex® **SWEEP** Test, since the interconnected network provides multiple parallel current paths that reduce overall impedance. Significant deviations or abrupt increases in impedance between towers may indicate a bonding fault, corrosion issue, or open static wire connection that warrants further investigation. *Ladder impedance checks require proper test probe spacing and may not be possible, or will yield inaccurate results in some instances.*


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# GROUND RESISTANCE TESTERS

## ACCESSORIES / REPLACEMENTS

| | CAT. # | DESCRIPTION | 6422 | 6424 | 4620 | 4630 | 6416 | 6417 | 6418 | 6471 | 6472 | 6474 | CA 6011 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | **2117.76** | Bag – Small Flat Black Canvas Bag for Ground/Accessories Dimensions: (17 × 6.5 × 2.75) in | • | • | • | • | • | • | • | • | • | • | |
|  | **2118.09** | Case – General Carrying Case Dimensions: (13 × 9.5 × 3) in | | | | | • | • | • | | | | |
|  | **2119.48** | Multi-purpose Canvas Pouch Dimensions: (11 × 5 × 2.25) in | | | | | • | • | | | | | |
|  | **2119.82** | Multi-purpose Large Canvas Bag Dimensions: (22 × 10.5 × 12) in | • | • | • | • | • | • | • | • | • | • | |
|  | **2126.45** | Adapter, Bluetooth® USB | | | | | | • | | | | | |
|  | **2126.71** | Case – Replacement Carrying Case Dimensions: (10.5 × 6.5 × 6) in | • | • | | | | | | | | | |
|  | **2130.59** | 25 Ω Calibration Checker | | | • | • | | | | | | | |
|  | **2130.60** | 100 ft Tape Measure for use with Ground Resistance Tester Kits | • | • | • | • | • | • | • | • | • | • | |
|  | **2133.72** | Small Classic Tool Bag for field use Dimensions: (13.0 × 9.8 × 9.5) in | | | | | | | | | | | • |
|  | **2135.39** | Set of (2) 14.5 in T-shaped Ground Rods for use with all Ground Testers *(except clamp-ons)* | • | • | • | • | | | | • | • | • | |
|  | **2135.40** | Bag – Replacement Carrying Bag | | | | | | | | • | • | • | |
|  | **2135.41** | Optical USB Cable | | | | | | | | • | • | • | |
|  | **2135.43** | Inverter – 12 VDC to 120 VAC 200 Watt for Vehicle Use | | • | | • | | | | • | • | • | |
|  | **2135.44** | Ground Rods – Set of (2) 17 in Stainless Steel Threaded T-shaped Auxiliary Ground Electrodes | • | • | • | • | | | | • | • | • | |
|  | **2135.47** | Replacement wrist strap for Ground Tester | | | | | • | • | • | | | | |



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AEMC® INSTRUMENTS

# GROUND RESISTANCE TESTERS

## ACCESSORIES / REPLACEMENTS

| | CAT. # | DESCRIPTION | 6422 | 6424 | 4620 | 4630 | 6416 | 6417 | 6418 | 6471 | 6472 | 6474 | CA 6011 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | 2135.71 | AC Current Probe Model MN82 | | | | | | | | • | • | | |
|  | 2135.72 | AC Current Probe Model SR182 | | | | | | | | • | • | | |
|  | 2135.75 | Replacement – Connection Lead | | | | | | | | | • | | |
|  | 2135.76 | BNC 50 ft (15 m) M/F Extension Lead – for use with any instrument that requires BNC connection | | | | | | | | | | • | |
|  | 2135.77 | Replacement – Set of (12) Groundflex® Rings for Model 6472/6474 Kit | | | | | | | | | | • | |
|  | 2135.78 | Green Extension Lead (5 m) on H Reel – for use with General Test Equipment accepting a 4 mm Safety Banana Plug | | | | | | | | | | • | |
|  | 2135.79 | Black Extension Lead (5 m) on H Reel – for use with general test equipment accepting a 4 mm Safety Banana Plug | | | | | | | | | | • | |
|  | 2135.80 | Replacement – Set of (3) C-Clamps | | | | | | | | | | • | |
|  | 2135.81 | Fuse – Set of (5) 0.63 A, 250 V (5 × 10) mm | | | | | | | | • | • | | |
|  | 2135.82 | Replacement – Calibration Loop | | | | | | | | | | • | |
|  | 2135.83 | Replacement – Carrying Case for Model 6474 *(tray not included)* | | | | | | | | | | • | |
|  | 2135.85 | Set of (2) Reel Caddies for use w/ Ground Kit Spools | • | • | • | • | | | | • | • | • | |
|  | 2135.86 | BNC 150 ft (45 m) M/F Extension Lead | | | | | | | | | | • | |
|  | 2135.87 | Groundflex® (10m) Sensor for use only with Model 6474 | | | | | | | | | | • | |
|  | 2135.92 | Replacement – (1) Groundflex® Sensor (5 m w/ 16 m black cable) for use with Model 6474 | | | | | | | | | | • | |


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# GROUND RESISTANCE TESTERS

## ACCESSORIES / REPLACEMENTS

| | CAT. # | DESCRIPTION | 6422 | 6424 | 4620 | 4630 | 6416 | 6417 | 6418 | 6471 | 6472 | 6474 | CA 6011 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | 2135.93 | Cable – Replacement USB charger cable w/ wall plug | • | | | | | | | | | | |
|  | 2138.54 | Continuity Probe | | | | | | | | | | | • |
|  | 2141.50 | Case – Replacement, ABS w/ slot | | | | | • | • | | | | | |
|  | 2141.51 | Calibration Loop - 5 Ohm Field Test Loop | | | | | • | • | • | | | | |
|  | 2141.52 | Case – Replacement, ABS w/ slot for Models 6418 | | | | | | | • | | | | |
|  | 2153.06 | AC Current Probe Model MN72 | | | | | | | | | | • | |
|  | 2960.21 | Replacement 9.6 V Rechargeable Battery Pack | | | | | | | | • | • | | |
|  | 5000.01 | Green replacement wire (30 ft hand-tied) for ground resistance tester kits | | | • | • | | | | • | • | • | |
|  | 5000.02 | Red replacement wire (500 ft) on reel for ground resistance tester kits | | | • | • | | | | • | • | • | |
|  | 5000.03 | Red replacement wire (300 ft) on reel for ground resistance tester kits | | | • | • | | | | • | • | • | |
|  | 5000.04 | Red replacement wire (150 ft) on reel for ground resistance tester kits | • | • | • | • | | | | • | • | | • |
|  | 5000.05 | Blue replacement wire (500 ft) on reel for ground resistance tester kits | | | • | • | | | | • | • | • | |
|  | 5000.06 | Blue replacement wire (300 ft) on reel for ground resistance tester kits | | | • | • | | | | • | • | • | |
|  | 5000.07 | Blue replacement wire (150 ft) on reel for ground resistance tester kits | • | • | • | • | | | | • | • | | |
|  | 5000.08 | Green replacement wire (100 ft hand-tied) for ground resistance tester kits | • | • | • | • | | | | • | • | • | |
|  | 5000.09 | Black replacement wire (100 ft hand-tied) for ground resistance tester kits | • | • | • | • | | | | • | • | • | |





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# GROUND RESISTANCE TESTERS

## ACCESSORIES / REPLACEMENTS

| | CAT. # | DESCRIPTION | 6422 | 6424 | 4620 | 4630 | 6416 | 6417 | 6418 | 6471 | 6472 | 6474 | CA 6011 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | **5000.10** | Set of (5) replacement screw-on spaded lugs for ground resistance tester kits | | | • | • | | | | • | • | • | |
|  | **5000.13** | Power adapter 110/240 V and power cord 120 V US | | | | | | | | • | • | | |
|  | **5000.14** | Power cord 120 V | • | • | • | • | | | | • | • | • | |
|  | **5000.18** | Empty replacement reel for ground kits *(holds up to 500 ft of wire)* | • | • | • | • | | | | • | • | • | |
|  | **5000.32** | Power cord 220 V | • | • | • | • | | | | • | • | • | |
|  | **5000.34** | Lead - Set of (2), 5 ft Color-coded *(red/blue)* leads for use with AEMC® Ground Tester Reels incorporating banana jack input | • | • | • | • | | | | • | • | • | |
|  | **5000.57** | Power adapter, 24 $V_{DC}$ charger *(vehicle use)* | | | | | | | | • | • | • | |
|  | **5000.64** | Spindle – replacement for the 150 ft ground kit reels | | | • | • | | | | • | • | • | • |
|  | **5000.65** | Spindle – replacement for 300 & 500 ft ground kit reels | | | • | • | | | | • | • | | |
|  | **5000.74** | Ground resistance calibration checker - 5/25 Ω | | | | | | | | • | • | | |
|  | **5000.92** | Calibration Checker | • | • | | | | | | | | | |
|  | **5000.97** | Probe – black test probe (Rated 1000 V CAT IV, 15 A, UL V2) | | | | | | | | | | | • |
|  | **5100.19** | Reel – Empty Wire Reel *(Holds up to 150 ft of wire)* | • | • | • | • | | | | • | • | • | • |


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# DataView®

## DATA ANALYSIS AND REPORTING SOFTWARE

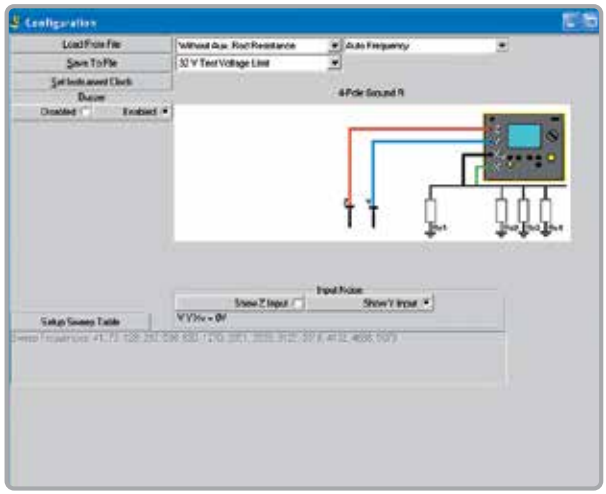
AUTOMATIC REPORT GENERATION

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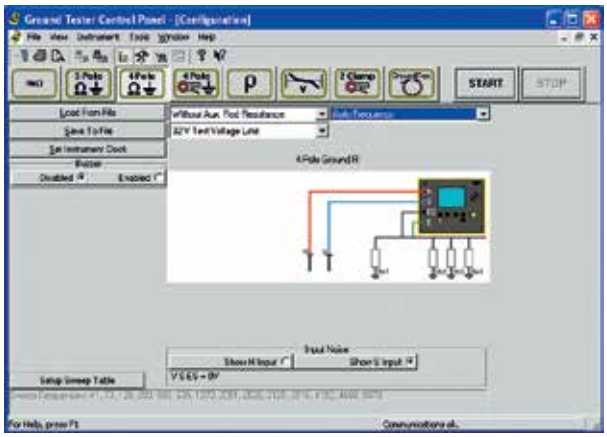
***DataView® software, user manual and quick start guide are included in the USB Drive***

## Configure all functions:

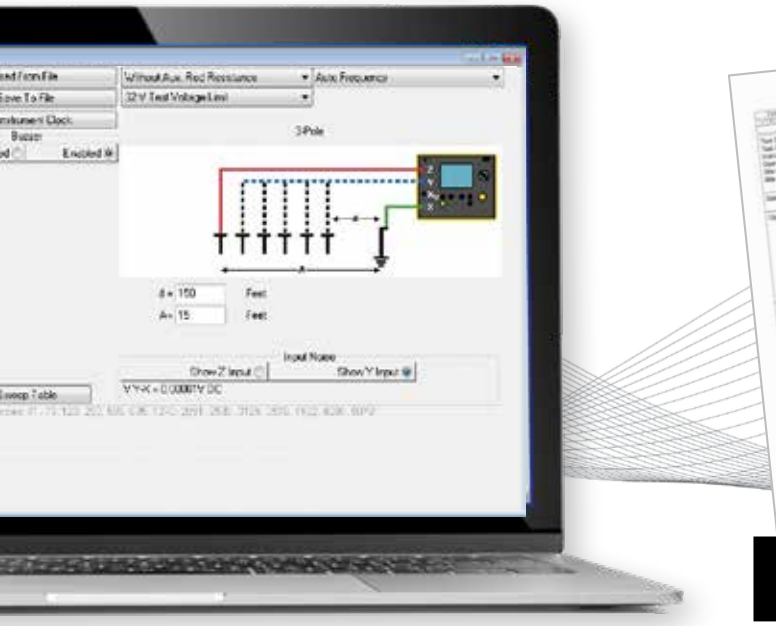
- Capture, download, display and analyze real-time data on your PC
- Upload stored test results to your PC
- Easily configure all functions and parameters specific to each instrument from your PC
- Create and store a complete library of configurations that can be uploaded to a device as needed
- Create custom views, templates, and reports to your exact needs
- Zoom in and out and pan through sections of graphs to analyze the data
- Perform measurements in real-time *(model dependent)*, download, display and analyze recorded and stored data
- Display Fall-of-Potential plots, tabular listings of test results, resistance vs. frequency plots, soil resistivity and point-to-point tests *(Models 6417, 6471, 6472, and 6474)*
- Print all test result reports using our standard report templates or create custom templates for branded reporting
- Free updates available on our website: ***www.aemc.com***

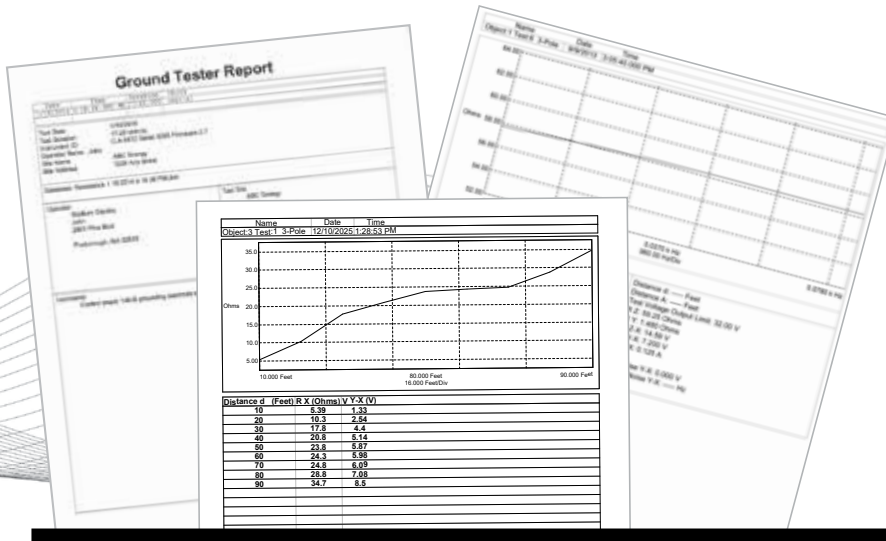


*Configure and control ground resistance tests from your computer through the use of clear and easy-to-use tabbed dialog boxes.*



*All Ground Tester functions can be configured and tests can be initiated with graphical illustration of proper connections*






**Typical reports showing test measurement data**



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