High Performance Grounding For Power Systems

Innovative Grounding Solutions

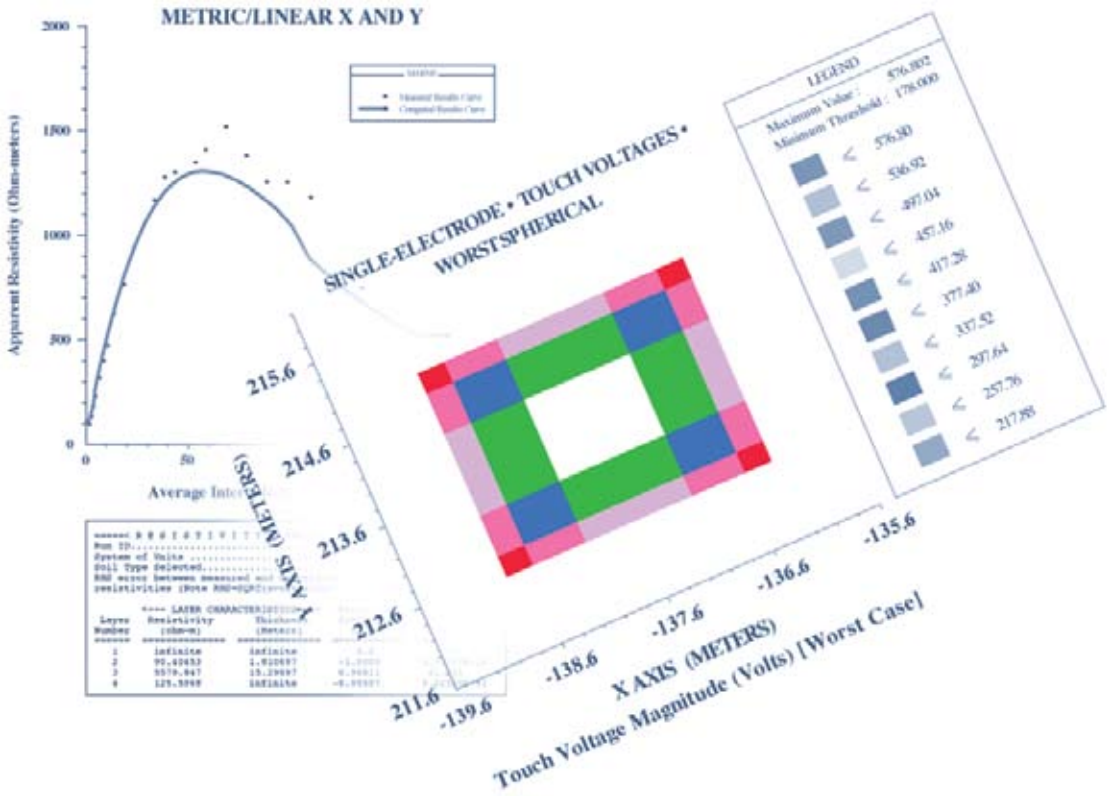
About SAE Grounding Systems

Since 1990, SAE Inc. (SAE) has provided its clients with effective and innovative solutions to grounding challenges. SAE offers our clients full turnkey EFI (Engineer, Furnish and Install) grounding services. SAE provides comprehensive support including custom design and product development, installation and project management services. SAE's innovative grounding solutions are carefully engineered from detailed on-site soil resistivity data, analysis and computer modeling. *SAE has licensed professional engineering staff and holds a Certificate of Authorization from the Professional Engineers of Ontario.*

What is Grounding and Why is it Important?

Grounding is arguably one of the least understood, yet most important elements of modern electrical systems and lightning protection designs. According to IEEE-142, grounded means... *"Connected to earth or to some extended conducting body that serves instead of the earth, whether the connection is intentional or accidental".*

Without proper grounding, personnel and the general public are at higher risk of shock or electrocution and electrical equipment is at risk of malfunction and irreparable damage from voltage and current surges. It is a fact that lightning and power system ground faults *will* find a path to ground. The only question is what path the energy will follow. An SAE custom designed grounding system, based upon the specifics of each client's site, will safely channel and dissipate any errant electrical energy to prevent personnel injury and equipment damage.



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Why Use SAE?

Proven Experience — SAE has a perfect track record of over 20 years of engineering, furnishing and installing grounding systems. 100% of SAE's professionally engineered grounding systems have performed as designed from Day 1 and continue to meet or exceed our client's expectations. SAE utilizes an engineering design process that integrates site geography, soil characteristics and soil resistivity data with advanced computer modeling tools to develop a custom solution for each unique situation. Our clients have avoided costly equipment failures, downtime and losses due to the theft of their grounding system. More importantly, our clients have properly protected their personnel, the general public and pets.

Enhanced Safety and Risk Management — SAE will ensure that your grounding system meets or exceeds all relevant safety standards and all electrical codes. Relevant standards include IEEE 80* Guide for Safety in AC Substation Grounding and IEEE142 - Recommended Practice for Grounding of Industrial and Commercial Power Systems, CEC and OESC/ESA**. If you are subject to an ESA inspection of your transformer, the grounding system must be passed by ESA. **IF YOU DO NOT PASS ESA INSPECTION YOU CANNOT TURN YOUR POWER ON.**

Depending upon a variety of factors, your grounding system may not require ESA approval. However, the need to protect your equipment and personnel as well as the potential legal liability issues exist regardless if an ESA inspection is required. SAE's grounding systems reduce GPR (Ground Potential Rise) and mitigate step and touch voltages. An SAE grounding system will reduce your legal liability associated with personnel and public safety as well as reduce the risk of catastrophic failures and service outages.

**IEEE 80 standard delineates the safe level of step and touch potentials and also the safe limit on grid ground potential rise.*

***The Electrical Safety Authority (ESA) is responsible for enforcing a level of public electrical safety across Ontario. ESA strongly encourages Ontarians to contact licensed electrical contractors when planning electrical work, and ensure that the Electrical Safety Authority has inspected all work.*

Long Life Protection & Theft Deterrent Design — SAE electrodes are designed to last 25 + years, are maintenance free and are inherently resistant to theft primarily due to Conducrete® which is a core component of SAE's grounding systems. Conducrete® is a premium conductive cementitious and carbonaceous material that dramatically enhances the performance, reliability and longevity of grounding systems which results in superior electrical and lightning protection for your assets and serves to guard against theft and vandalism. This means that an SAE designed grounding system can be counted on to provide the desired protection over the long-term.

Improved Financial Results — SAE's grounding systems will improve your financial bottom line as a result of reduced operating costs due to maintenance free, long life technology and theft resistant design. In addition, your business will benefit from better service for your end customers/subscribers due to reductions in unplanned downtime or service outages.

Recent SAE Power System Grounding Projects Include:

- Canadore College
- Assurant Group Kingston
- 3M Brockville
- Kingston Sportsplex
- Lowes
- Parry Sound Hospital
- TransNorthern Pipeline

CALL 1 877.234.2502 FOR A GROUNDING AUDIT **WWW.SAEINC.COM**

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