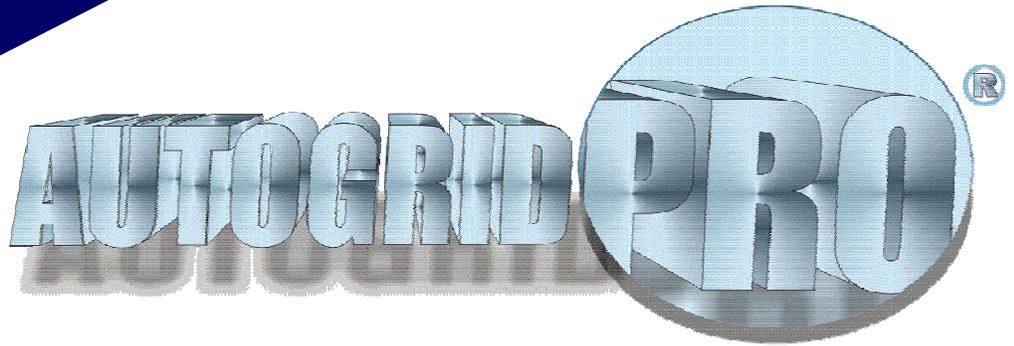


Introducing...



Automated Grounding Analysis Software

1

Automated

The Key to Successfully Achieve Your:

**Safety Requirements
and**

Grounding Installation Reliability

2

Accurate

3

Powerful

AutoGrid Pro provides a simple, integrated and automated environment for carrying out grounding studies. It consists of several integrated modules that are designed to study the effectiveness of grounding installations with respect to electrical safety of both personnel and equipment, allowing you to suggest improvements to existing installations or design new installations



www.sestech.com

World Leader in Grounding & EMI

Powerful, Yet Flexible Enough to Meet Your Needs

You no longer have to settle for substandard grounding packages because of budget constraints. The latest version of AutoGrid Pro enables you to select the required features from a flexible array of options such as soil resistivity interpretation soil models, fault current distribution analysis capabilities, etc. The program computes and reports the earth potentials, touch and step voltages, fault current distribution in the adjoining circuits, etc... Flexible data reporting and graphing utilities allow you to collect and illustrate the computation results.

Light Package (AutoGrid Pro Lite)

- Uniform soil only
- Supports any arbitrarily shaped grounding systems including three-dimensional ones
- Computes the grounding resistance and ground potential rise (GPR)

Uniform Soil Package

- Uniform soil only
- Supports any arbitrarily shaped grounding systems as well as three-dimensional ones
- Computes the grounding resistance and ground potential rise
- Full safety analysis of the touch and step voltages at any location inside or outside the grid

Two-Layer Soil Package

- Includes everything in the Uniform Soil package and adds the ability to model soil structures composed of two horizontal layers
- Adds a resistivity measurement analysis module that converts measured data into a suitable soil model

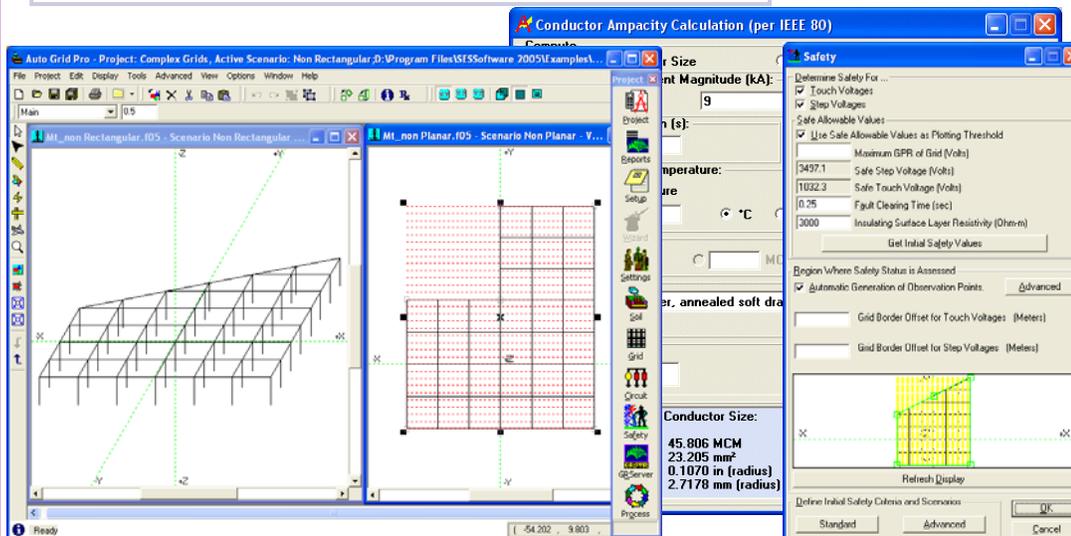
Two-Layer Soil with Fault Current Distribution Package

Includes everything in the Two-Layer Soil package and adds a powerful module which computes the distribution of fault current between the grounding system and other metallic patch such as overhead ground wires, shield wires, neutral conductors, or cable sheaths and armors

Multi-Layer Soil with Fault Current Distribution Package

Supports multilayer soil models, as well as hemispherical and cylindrical soil models. It also includes an all-purpose soil model consisting of several arbitrarily finite-volume shaped regions with different electrical properties than the native soil

Automated Grounding Analysis



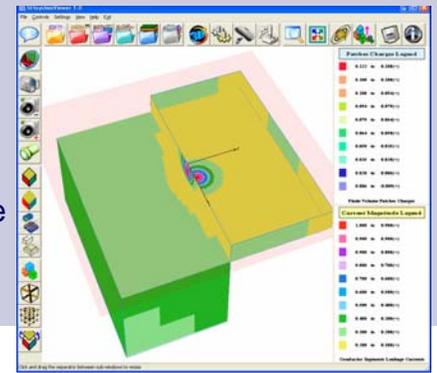
All packages also include a conductor ampacity computation program and other useful tools. The component-based nature of the software package allows you to focus on your immediate needs, from the computation of the resistance of a simple grid to a complete safety analysis of the complex grounding system of a substation. Simply add more components as your needs evolve!

The only package that certifies the accuracy of the multiLayer soil computations. Specify, 0.1%, 1% or x% accuracy to get what you asked for or better. Can you trust your existing software to deliver that promise?



Key Features

- ◆ Supports a variety of soil structures including arbitrary ones (i.e., finite soil volumes) and can determine the soil structure from field measurements
- ◆ Models grounding systems of any 3D shape and any size as well as metallic plates
- ◆ IEEE, IEC or customizable safety standards

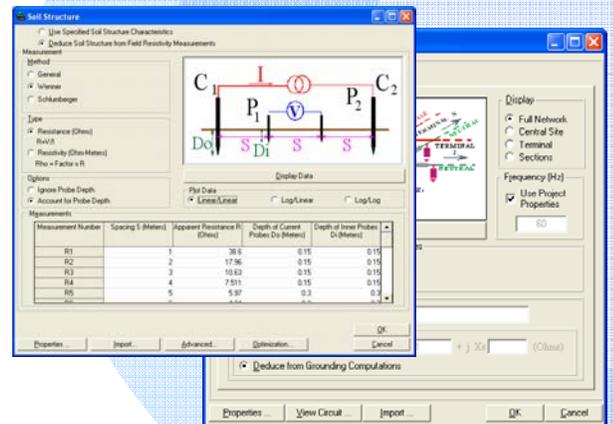


Capabilities

- ◆ CAD-based ground grid design
- ◆ Accounts for the presence of nearby passive or energized buried structures
- ◆ Models a wide variety of soil types
- ◆ Accepts soil resistivity measurements made using the Schlumberger, Wenner or generalized method
- ◆ Computes and reports earth potentials, ground resistance, touch and step voltages
- ◆ Computes the distribution of fault current along the circuits connected to the main grid, thereby reducing the net amount of fault current injected in the main grid
- ◆ Computes the ampacity of conductors, the minimum size of conductors capable of carrying a certain current, or the expected temperature rise of conductors
- ◆ Extensive selection of conductors from databases, allow users to add their own products to the database
- ◆ Spreadsheet functions ease and speed up data entry
- ◆ Context sensitive on line help and a detailed, step-by-step engineering "How To ..." manual explain the software session and technical concepts based on a realistic grounding installation

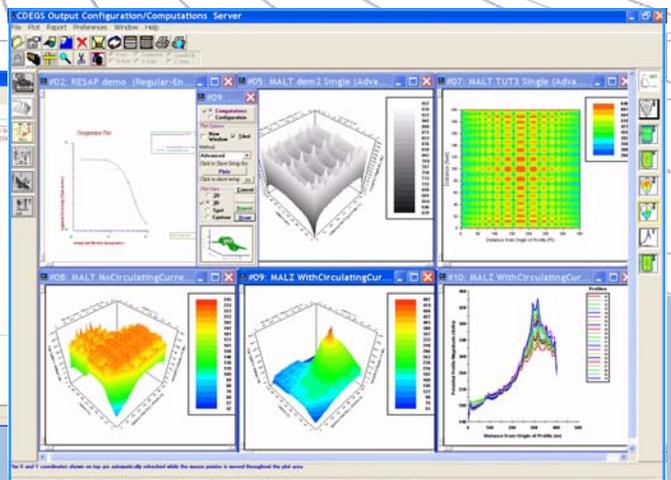
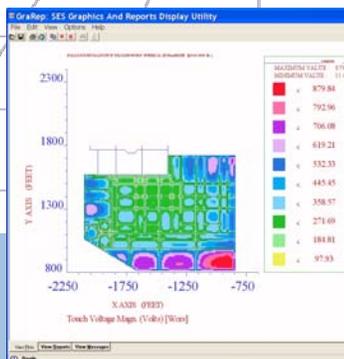
Plotting and Reporting

- ◆ Customizable plots and reports
- ◆ 2D Spot plots, curve and contours plots
- ◆ 3D-perspective plots, color intensity plots and contour plots
- ◆ Conductor configuration plots
- ◆ Bill of materials include grounding system data/interconnection/bonding nodes
- ◆ Electric safety and conductor ampacity assessments



The computational engine of AutoGrid Pro is based on the MALT, RESAP and FCDIST modules which have been used in grounding studies for over thirty years. The user interface consists of a CAD drawing module for the design of the grounding grid, along with several integrated modules such as:

- ◆ The Soil module determines the characteristics of the soil from field resistivity measurements.
- ◆ The Circuit module computes the geometrical and electrical properties of adjacent transmission or distribution lines or cables and determines the fault current distribution.
- ◆ The Safety module establishes the criteria used when evaluating safety issues around the installation.
- ◆ The Report module manages the results that should be reported or plotted.
- ◆ Other utility modules and tools, such as a circuit viewer and a conductor ampacity assessment tool



Documentation

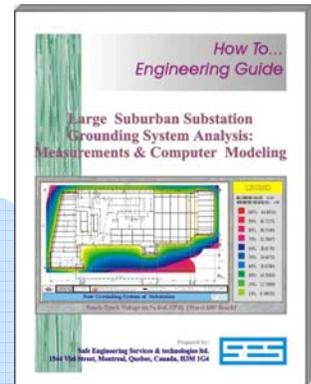
Documentation is a critical item when dealing with engineering software. Potential users should examine thoroughly the documentation in order to properly evaluate a software package.

SES regularly publishes technical papers in Transactions journals and presents papers at various international conferences on engineering topics related to power system grounding (including analysis of transients and lightning), EMF studies and AC interference. SES also undertakes landmark applied R&D studies in these areas. These studies have not ever been undertaken before with the accuracy and detail of which our modern computer-based technology is capable

today. This R&D is now being distilled into "How To..." engineering manuals at a level of detail designed for both novices and advanced users who encounter similar problems and wish to model them with the SES software. These unique, detailed, step-by-step "How To..." engineering manuals guide you through the most complex analysis and design projects (both the engineering concepts, and the use of the software are described).

SES distributes a complete documentation set with its software in electronic form (on CD-ROM) and provides hard copy as well. Furthermore, significant information on new or updated software is made available on the SES web site. The main documentation set supplied

with the software package consists of Quick Installation and System Requirements sheets and booklets, a Getting Started manual, more than ten "How to..." engineering manuals, on-line context sensitive help, Annual Users' Group Meeting Proceedings, Users' Group Newsletters, and an extensive Technical Reference document containing a detailed description of the analytical methods used by the various SES engineering modules.



**Step-by-step
Engineering
How-to ...**

Accuracy and Validation

If there is an item which is of primary importance when dealing with engineering software, it is definitely validation & accuracy. Extensive scientific validation of the software by means of field tests and comparisons with analytical and published research results is documented in hundreds of technical papers published by the most reputed international journals.

Each module has been tested to insure that it produces the correct results for a large number of cases documented at SES, which include several fundamental cases available to users on CD-ROM. The evolving software is continuously validated over the years using the following three well documented mechanisms (visit our Web site for more detailed information).

- ◆ *Field Tests and Experimental Scale Models*
- ◆ *Comparisons with Scientific Published Results*
- ◆ *Comparisons with Similar Programs Using Completely Different Techniques*

Technical Support & Software Updates

As part of its ongoing commitment to provide state-of-the-art analysis and design tools, help to use the software as effectively as possible and information on recent R&D advances, SES invests considerable resources in its software development and analytical R&D programs. SES disseminates new technological developments in two ways: by means of engineering applications support and by means of software updates, enhancements and additions.

SES' legendary international toll-free hotlines connect you instantly to SES' software and engineering support team via telephone, fax, and Internet, no matter where you are on this planet. The support covers a wide range of engineering and software topics and is not restricted by

time limits. Telephone access is toll-free for all international users. It's like having the world's foremost experts at your side any time you are ready to tackle your most challenging study or design. SES provides all licensees with support covering installation, updates, and technical support, as well as extended engineering support. SES realizes that veteran software users are becoming overloaded or transferred to other positions as a result of the present economic turmoil and therefore is diligent in providing extensive assistance to new users who must be introduced to the software to share some of the load. Extended technical support is not only on the use of the software but includes also assistance on engineering topics related to the fields encompassed

by the software whether or not SES software is being used.

The SES software maintenance and update service provides subscribers with new technology in the form of new software (at least two major software releases per year, with instantaneous access to updates and enhancements through FTP downloads or by visiting SES Internet Web Site), along with comprehensive telephone /fax/ Internet support to users requesting assistance in installing or running the software. Extended engineering support is "topics-oriented" and covers help in solving challenging problems that users encounter in their daily work, whether it involves use of the software or not. In addition, SES personnel provide engineering seminars held at various locations, including workshops at customers' sites.



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