

QuickField

No training required

- FEA software for Electromagnetics, Heat Transfer and Stress Analysis

Choosing the Right Design Tool

In today's highly competitive market, design engineers and analysts are more and more inclined to produce better designs, reduce product costs and cycles. Obviously to achieve these goals, engineers need the right design tools. However, with so many simulations packages available in the market, choosing the right CAE tool has become more complex. Very often you need to spend days or weeks browsing thick manuals, attending long training seminars, going through layers and layers of menu systems, and cumbersome ways to change your model's parameters.

And, after investing a lot of your engineering staff's time and efforts, you may find that either the simulation package is not quite suitable to your needs so you have to look for another package or you stay with it due to lack of better alternatives. Now, here at Tera Analysis we believe all that's about to change, because we can offer you a better choice, it is called QuickField. You should not be an expert in computational mathematics, or experienced in Finite Element applications. You should know your model physics. QuickField will do the rest. This is our approach to a field modeling.

The Ultimate in Ease of Use

QuickField is a PC-oriented interactive tool for engineering analysis and design. It provides you with a very user-friendly object-oriented interface that has a simple intuitive structure and is equipped with powerful pre- and post- processors. In fact, with QuickField, first time users can start modeling and analyzing their problems within only a few hours, and this doesn't require any special training.

QuickField's preprocessor *the model editor* enables you to define your models quickly, easily, and completely. You could exchange geometry data with external CAD program through DXF import/export. Once you built your model, creating the mesh is totally effortless. Mesh generator will automatically produce smooth mesh. To better fit to model geometry you could adjust the mesh settings manually. Any action may be canceled by Undo.

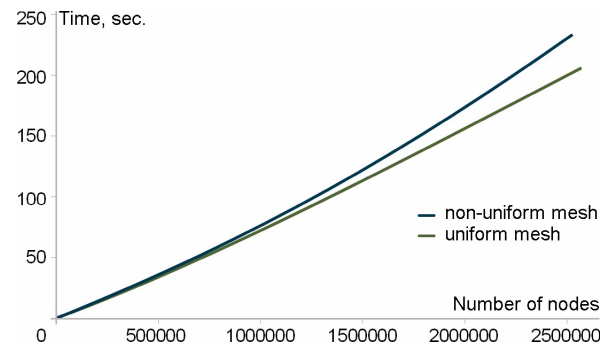
The QuickField interactive *postprocessor* can display the results in many different graphical forms: vector

plots, field lines, color maps, and section plots along arbitrary contours. It is equipped with a powerful calculator, that able to show various design parameters, and calculate different surface and volume integral quantities in arbitrary regions. Postprocessor can produce the tabulated output to a file for subsequent use in your own program. Family of Wizards automates calculation of most common integrals like Capacitances and Inductances.

With QuickField's multi-disciplinary analysis capabilities you can analyze electrical, thermal and mechanical aspects of your design... all within one package. In addition, the results of different analyses can easily be linked together which makes it ideal for simulating multi-field coupling effects.

Unparalleled Efficiency

In addition, QuickField's new proprietary technology **Geometric Decomposition Method**TM overcomes the main drawbacks of conventional finite element analysis and provides you with an extremely efficient simulation tool.



This makes QuickField the ultimate design tool. You can tinker with different design parameters as much as you want and make as many prototype runs as you need, to come up with the best possible design, all within a short time and without an expensive hardware system. And, the good news is that QuickField is more affordable than most other CAE products available today. Which means lower cost and much higher performance! Now that's called real efficiency.

(see on reverse)

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QuickField 7.0 specifications

2D (plane-parallel or axisymmetric, all formulations) and 3D (Electrostatics, DC Conduction, Static Heat Transfer)

DC and Transient Magnetics (2D)

- Linear and non-linear materials.
- Incremental or Apparent magnetic permeability may be imported from DC Magnetic problem
- Concentrated and distributed current sources, voltages and permanent magnets
- Time- and coordinate-dependent sources and boundary conditions
- Superconductors
- External electric circuits with resistors, capacitors, inductors, voltage or current sources
- Eddy-currents and skin effects
- Magnetic potential, current density, voltage, flux density, field intensity, forces, torques, Joule heat, magnetic energy, flux linkages

Time-Harmonic AC Magnetics (2D)

- Linear and non-linear soft magnetic materials
- Incremental or Apparent magnetic permeability may be imported from another DC Magnetic problem
- Materials with orthotropic permeability, conductivity, current or voltage in different phases, coordinate dependent current density, uniform external field
- Coupled simulation with external electric circuits, consisting of arbitrary number of capacitors, resistors, inductances and voltage or current sources.
- Dirichlet, Neumann and periodic boundary conditions
- Magnetic potential, current density, voltage, flux density, field intensity, forces, torques, Joule heat, magnetic energy, impedances, self and mutual inductances

Electrostatics (2D+3D)

- Anisotropic permittivity
- Distributed, concentrated and coordinate dependent charges
- Dirichlet, Neumann and periodic boundary conditions, floating conductors
- Mutual capacitances, electric forces and torques
- Charged particle trajectories

Transient Nonlinear Electric Analysis (2D)

- Plane-Parallel and Axisymmetric problems
- Orthotropic materials with electric field dependent conductivity and permittivity
- Dirichlet and Neumann boundary conditions as functions of time and coordinates, periodic boundary conditions, floating conductors
- Charges, active and reactive currents, capacitances, active and reactive power, time plots

AC (2D) and DC (2D+3D) Conduction

- Anisotropic permittivity and conductivity
- Voltage and current density sources
- Dirichlet or Neumann boundary conditions
- Coupling with thermal and stress problems
- Active and reactive currents, Joule losses, capacitances, forces, torques, energy

Steady-State (2D+3D) and Transient (2D) Heat Transfer

- Nonlinear or anisotropic properties
- Distributed and concentrated heat sources
- Boundary conditions and heat sources defined by formula
- Joule Heat sources imported from EM simulations. Boundary temperature and heat fluxes
- Boundary condition with convective and radiative terms
- Time- and coordinate-dependent sources and boundary conditions

Stress Analysis (2D)

- Plane stress, plane strain, axisymmetric stress problems
- Anisotropic elastic properties, various support conditions
- Distributed and concentrated loadings
- Thermal, magnetic and electric coupling
- Von Mises, Treska, Mohr-Coulomb and Drucker-Prager criteria

ActiveField technology (2D)

- Access from other applications to internal objects and data structures
- Possibility to use QuickField together with other applications (Microsoft Office, MATLAB, AutoCAD) or custom programs (Python, C#....)
- Specific results calculation automation
- Field simulation as a part of more complicated or parametric task
- Add-in technology support

Free Utilities and Add-ins (2D)

- LabelMover for parametric serial analysis, tolerance analysis and optimization
- Capacitance Calculator for multi-electrode system capacitance matrix calculation
- Family of free utilities and add-ins for model preparation and sophisticated types of analysis

Required Hardware Configuration

- Windows 7SP1/8.1/10/11 (x64)
- Videocard driver with OpenGL 3.3 or higher
- USB port for single-user versions.

