INTEGRATED ENGINEERING SOFTWARE

www.integratedsoft.com

KELVIN / CELSIUS

2D/RS & 3D Thermal Design Analysis Software

Explore the full possibilities of time-saving, cost-effective product design optimization with **INTEGRATED** Engineering Software's thermal analysis tools. **KELVIN** (2D/RS) and **CELSIUS** (3D) are the thermal solution tools in our combined physics set. Get the complete electromagnetic-thermal solution of your device by combining electromagnetic power loss input and thermal analysis.

Our proprietary Boundary Element Method (BEM) solver technology provides extremely accurate numerical field solutions and it's the method of choice for problems involving the modeling of space around the device. The Finite Element Method (FEM) solver is incorporated in the program as well to provide users with the choice of both methods.

Engineers and scientists depend on **KELVIN** and **CELSIUS** for coupled thermal/electromagnetic applications including:

- electronic packaging
- appliances
- automotive components
- aerospace components
- electric power components
- busbars
- cooling fins
- heat sinks

WE GO BEYOND TRADITIONAL MULTIPHYSICS:

- Search-based **2D/RS &3D transient and static thermal field solvers** for a diverse range of applications. NEW
- **Metaheuristic** approach for optimizing simulation based electromagnetic designs. NEW
- Precise analysis of open region problems using our proprietary **Boundary Element Method (BEM) solvers.**
- **Finite Element Method (FEM) in addition to BEM**. This hybrid approach uses the strength of each method while designing an electromagnetic system.
- Bult-in API, Parametric and/or Scripting capabilities

The **INTEGRATED API** enables the direct control of program functions by utility scripts or macros created in tools such as EXCEL or Visual Studio. Scripting can control the entire process of model creation and testing.

- **Transparent multiphysics coupling**
- Direct import of models from CAD partners including: Autodesk, PTC, Solid Edge and SolidWorks.

MORE BENEFITS:

- Easy-to-use and intuitive interface.
- High resolution 3D graphic representations that can show enhanced tracing of points on model.
- World class support team ready to unlock your ideas.

Hybrid Simulation Tools for Electromagnetic and Particle Trajectory Design Analysis

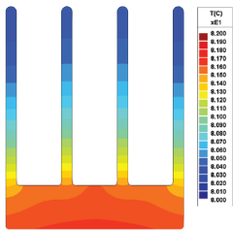
SOFTWARE THAT LIVES UP TO THE POWER OF YOUR IDEAS

MATLAB Enabled
MathWorks Partner

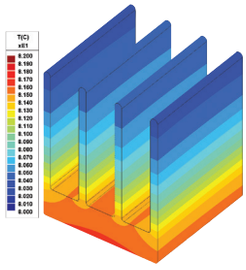
For many systems, it is important for multiple solvers to be combined. INTEGRATED develops comprehensive solutions for scientists modeling prototypes that require multiphysics analysis.

"**KELVIN** has became an important tool in the education of our students: **INTEGRATED's** programs are easy to learn and easy to use. The parametric calculations are a key feature in the software."

— Dr. Josef Hodapp
FACHHOCHSCHULE AACHEN



KELVIN: Heat sink temperature contour plot



CELSIUS: Heat sink 3D temperature contour plot

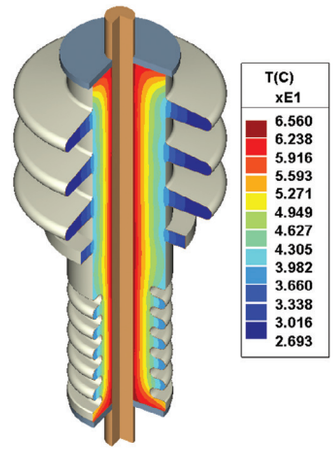
PUT OUR SOFTWARE TO THE TEST

Don't take our word for it.

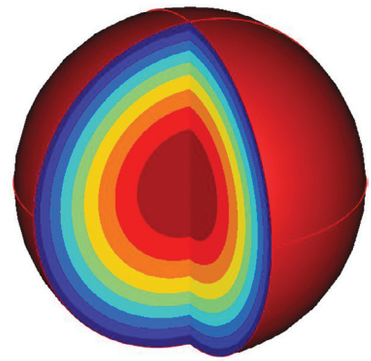
Contact us for a 30 day free evaluation and start improving productivity today. Ask for a live demo.

Visualize, Analyze, Optimize

Both **KELVIN** and **CELSIUS** provide outstanding visualization features for detailed analysis of thermal systems. Automated model creation using built-in **API** and **Parametric Utilities** combined with **Self-Adaptive** solvers enable rapid optimization of designs.



3D model of high voltage bushing showing temperature contours



Temperature contours inside a copper sphere with uniform volume heat

KELVIN and **CELSIUS** come complete and ready to use. Purchase of additional modules or options is not needed; **KELVIN** and **CELSIUS** are fully functional CAE tools. A partial list of standard features includes:

- Display of temperature, temperature gradient and heat flux using contour plots, surface representations and graphs
- Easy assignment of boundary conditions in terms of temperature, heat flux, temperature gradient, convection and radiation
- Assignment of heat sources in form of volume heat and surface heat.
- Large materials library. Materials with thermal conductivity, specific heat and mass density values can be easily added in materials table
- Batch processing that allows for unattended solution of multiple files
- Powerful parametric feature which allows definition of variable parameters to be stepped through, allowing the analysis of multiple "what-if" scenarios and facilitating design optimization
- A wide array of post processing options for design evaluation and optimization
- Self adaptative meshing or optional user refinement
- CAD healing utilities for automatic correction of drafting errors
- Periodic and symmetry features to minimize modeling and solutions time

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