EESy Solutions

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Welcome

EESy Solutions is a newsletter developed to provide news, tips, and tricks relating to Engineering Equation Solver. **EESy Solutions** is provided at no cost to all registered users of EES. Our intent is to publish the newsletter twice yearly. We encourage user contributions so send us your comments and questions.

Visit our Internet Site

F-Chart Software's website at www.fchart.com provides demonstration copies of EES and FEHT (our finite-element analysis program). In addition to a revised manual in Adobe Acrobat format, the website now provides several external programs that extend the capabilities of EES. For example, BRINEPROP is an external procedure that returns secondary refrigerant properties as a function of temperature and concentration of brine fluid in water. JANAF is an external program which returns the specific heat, specific enthalpy, and specific entropy as a function of temperature for many substances. The R507A.mhe file implements property data for the new azeotropic refrigerant R507A. These and other items are available in our "Goodies" section and you can download them at no cost.

WCB/McGraw-Hill Academic License

New academic versions of EES are now exclusively distributed by WCB/McGraw-Hill. Academic versions of EES are provided at no cost to educational departments that adopt selected WCB/McGraw-Hill textbooks including: *Thermodynamics: An Engineering Approach* 3rd edition by Cengel and Boles; *Heat Transfer: A Practical Approach* by Cengel; *Thermodynamics* 6th edition by Wark and Richards, and *Fluid Mechanics* 4th edition by White. Educational site licenses can also be obtained from WCB/McGraw-Hill independent of any textbook adoption. F-Chart Software distributes the commercial and professional versions of EES and provides technical support for all versions.

What's Coming

EES is continuously being updated to add new features and eliminate bugs. Our next scheduled update will be in Spring of 1999. An update notice will be sent to each registered owner. If your address has changed or wish to check to see if you are registered, send a FAX to f-Chart software with your address, e-mail, and registration number. Here's a summary of some of the features that you can expect to find in the next update.

Improved Plotting Capabilities

The plotting capabilities have been improved in several ways. It is now possible to plot multiple lines at one time. Text items and lines can be aligned with respect to each other as well as copied and pasted to other plots. The splining routines have been improved. However, the biggest change is that EES now provides bar plots and contour plots in addition to the X-Y plots provided in previous versions. The New Plot Window command displays a submenu with the three plot types. The Contour Plot option generates lines or color bands indicating the path of a fixed value of the contour variable (Z) in X-Y space. A contour plot requires three-dimensional data for construction. The data may be provided from the Parametric, Lookup or Arrays table windows.

Professional Version

The new Professional version of EES provides the following capabilities in addition to those provided by the Commercial version:

1. A series of EES instructions (called a macro) can be recorded with the Build Macro command in the File menu. EES can later be started from the Windows Run command or from a different program to replay all of the instructions in the Macro file. Used in this manner, EES can be directed to solve a set of equations in a specified text or EES file and put the solution into another specified text file without ever appearing on the screen. The macro capability can also be controlled by dynamic data exchange (DDE) commands.

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2. The capabilities of the Diagram Window have been expanded. It is now possible to define 'hot areas' in the Diagram Window which, when clicked, bring up a child Diagram window having the same capabilities as the main Diagram Window.

3. The Make Distributable Program command creates a special purpose version of EES which that will run one to five preselected problems. EES, the problems, and all supporting files are placed in a single executable file which can be freely distributed to others. They do not need to own EES to run the calculations or create/change/view the plots and tables.

The license cost of the Professional version is $800 for a single user version and $300/user for site licenses with 10 or more users. If you wish to upgrade to the Professional version, the cost of your current Commercial version will be subtracted from the Professional license cost.

Entering Array Values

Entering the values of array variables used to be painful in EES. For example, if you wanted to define array X with 10 values ranging from 1 to 10, you would have to enter X[1]=1; X[2]=2; etc. The new Insert/Modify Array command in the Edit menu has been implemented to help enter values for one and two-dimensional arrays. With this command, you can enter (or paste) the values directly into a spreadsheet-like table. When you click the OK command, EES will generate the necessary EES equations to define the array in the Equations window.

Enhanced Debug Capabilities

The capabilities of the Debug window have been expanded to help with problems resulting from variable constraints. If a solution is constrained, the DEBUG window will display all variables and equations that are constrained. Clicking on a variable will open the Variable Info dialog where the constraining lower or upper bound on the variable value can be changed.

Mouse Wheel Support

Do you have a new mouse with the center scroll wheel? The new version of EES now supports mouse wheel scrolling.

New Property Data Routines

Thermodynamic and transport property data are now provided for new refrigerants R404A, R407C, R410A, and R507A.

Calculate Button in Diagram Window

A Calculate button can now be placed anywhere on the Diagram window to more conveniently initiate calculations involving input and output variables in the Diagram window.

Store/Retrieve Parametric Table

Store and Retrieve Parametric Table commands have been added to the Tables menu. The Store Parametric Table command will save all information relating to the existing Parametric table in a binary file having a .PAR filename extension. The Retrieve Parametric Table will read a specified .PAR file and restore the Parametric table to the same condition it was in when the Store Parametric Table command was issued. Although EES only allows one Parametric table at a time, the Store and Retrieve Parametric Table commands provide almost the same effect as having multiple Parametric Table windows.

Support for Arrays in Variable Info

The Variable Info dialog now provides a Show Array Elements checkbox control. When this control is selected, all array elements appear in the Variable Info dialog and the guess value, bounds, display format, and units can be set for each individual element as before. However, when the control is not selected, all arrays elements are represented by a single entry. For example, X[ ] represents all array elements with parent name X. If any of the characteristics for the array are changed, that change is applied to all array elements.

AWMix

AWMIX is an external EES routine providing accurate property information for ammonia-water mixtures. AWMix can be ordered from the developer. The cost is 399 DM+10 DM.

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