

Energy - Kinetic

Overview: Computes the unknowns in the basic Kinetic Energy formulae for complex events and displays both the energy and momentum of the object.

Entry into Module:

This module of the program is normally entered by clicking on the **REC-TEC** block in the upper left of the **REC-TEC Window** causing the drop-down menu to appear. Place the cursor on the **Energy** block and click on **Kinetic** on the sub-menu to initiate this module.

Under certain circumstances, the user may choose to use the **Files** block instead of the drop-down menu approach. Selecting any file with a **.KER** extension in the **Dialog box** accessed from either the **Open Single File** or **Open Multiple Files** block opens this module.

Selecting **AutoLoad [ON]** from either the **Setup Menu** or the **AutoLoad Icon** on the upper right side (third line) of the **REC-TEC Window** automatically loads the scenario that was on the screen when the module was closed, either individually, or when the program was closed. With **AutoLoad [OFF]** on the main **REC-TEC Window**, modules will start without loading a file.

Data Entry:

This module contains the following data entry blocks within the leftmost frame:

- **Energy** – Energy value for Phase (computed independently)

(Single Entry) - - OR

- **Weight** – Weight of Vehicle

Plus

- **Drag Factor (f)** – Restitution value for the Collision
- **Distance** – Weight of Vehicle 1

Or

- **Speed** – Change of Velocity for **Vehicle 1**

Re-Compute (Command Button) – Allows Computation of New Data Only – Required for Further Computations.

- **Input Phase (15)** – Shows Phase as Current (Before Compute). Arrows or direct entry permits looking at earlier Phases

Critical Vehicle: – Critical Vehicle or Object

- **Weight** – Weight of Critical Vehicle

Compute (Critical) – Computes data for Speed based on Critical Vehicle Weight

Clear and Reset – Clears and Resets all input entry blocks

Output – Phase/Total

The output from this module consists of Energy, Momentum and Speed expressed in both the primary and secondary output configurations as selected in the **Setup > REC-TEC** menu. Items listed will appear in output as applicable for specific Phase.

Phase (N)

- **Energy** – Phase only
- **Momentum** – Phase only
- **Weight** – Phase only
- **F (Drag)** – Phase only
- **Distance** – Phase only
- **Speed** – Phase only

Total – Total through Phase shown

- **Energy** – Total through Phase shown
- **Momentum** – Total through Phase shown
- **Speed** – Speed of Critical Vehicle through Phase shown (Primary)
- **Speed** – Speed of Critical Vehicle through Phase shown (Secondary)

Options:

Several **Command Buttons** appear in a frame located at the lower right corner of the module Window. The **Command Buttons** allow the user to engage options including the option to **Open** and **Save** the data required to generate the scenario shown on the screen at the time the file was saved.

- **Open .KER File** – Calls up a **Dialog box**, which **Opens** any pre-existing **.KER** file and displays the output results.
- **Save .KER File** – Calls up a **Dialog box**, which **Saves** data on the screen to files with any user-selectable filenames. This is independent of the automatic saving as “**LastFile.KER**” of the data at the close of this module or the close of the program.
- **Formulae** – Opens a word processor (set by the user in **Setup**) with a file showing the basic formulae used in this module of the program. While the user may add to or modify the information in this file, it does not change the formulae imbedded into the program.
- **Formulae*** - Toggles a frame displaying the formulae for computing the unknowns in this module. In addition to the basic formulae, the frame shows intermediate steps with the actual input data shown in the computation.
- **Data** – Displays a table showing the data in each phase and the resultant information including the total energy and resultant speeds.
- **N** – This button toggles a graphical number pad on the screen that can be used to enter data into the input boxes without using your keyboard number pad. This may be useful for presentations as data entry can be accomplished using a wired/wireless mouse.