

Time Distance – Multiple Surfaces

Overview: Computes the intermediate and final speed, distance and time data over multiple surfaces in an acceleration, deceleration or at constant velocity.

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 **Time - Distance** block and click on **Multiple Surfaces (1 – 10 Surfaces)** 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 **.TDS** 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:

Entries can consist of **Acceleration**, **Deceleration** or **Constant Speed** and will contain two or more of the following data entry blocks within the leftmost frame:

- **Mu (Acceleration/Deceleration) - required**
- **Grade (Test) – Deceleration (default is zero)**
- **Grade (Scene) – Deceleration (default is zero)**
- **Braking (%) – required for Deceleration**
- **Distance**
- **Time**
- **Speed (Initial)**
- **Speed (Final) - Acceleration/Deceleration)**

Output information appears in the **Output** frame. As the input data is changed, the output data is automatically updated without the need to tell the program to update the output. The user is instructed to increase or decrease the inputs as required.

Output – Surface (N of N):

The output from this module consists of the repeated input variables plus all of the unknowns that were not entered into the left **Input** frame expressed in the primary and secondary configurations. If the deceleration (acceleration) either as entered, or as

computed, was not to (or from) a final (initial) speed of zero, the times and distances are shown for both the event as defined with the input variables and to (or from) zero.

Output – Totals for Surfaces (1 to Last)

- **Distance (T)** – Total Distance
- **Time (T)** – Total Time
- **Speed (A)** – Average Speed in Primary and Secondary configurations

Average

- **g(A/D)** – Average Acceleration/Deceleration
- **Rate:** – Average Acceleration/Deceleration rate

Surface Control:

- **Re DO from Surface** with Input Box – Correction of an entry requires the user to re-do all of the entries following the correction
- **Surface (Max: 10)** with entry box and up/down arrows – controls the display of information in the **Output – Surface** frame

Table Legend

- 1 **Mu/f(a)** – Mu (Surface friction)/Acceleration factor
- 2 **Grd(T)** – Grade (Test)
- 3 **F(Level)** – Mu (Surface friction)/Acceleration factor adjusted to Level
- 4 **Grd(S)** – Grade (Scene)
- 5 **Brake** – % Braking
- 6 **f(d/a)** – Drag or Acceleration Factor
- 7 **Rate** – Acceleration /Deceleration rate
- 8 **Dist(S)** – Distance (Total for Surface)
- 9 **Time(S)** – Time (Total for Surface)
- 10 **Speed(1)** – Speed (Initial for Surface)
- 11 **Speed(2)** – Speed (Final for Surface)
- 12 **Dist(I)** – Distance (Instantaneous Elapsed)
- 13 **Time(I)** – Time (Instantaneous Elapsed)
- 14 **Speed(A)** – Instantaneous Average

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 .CSV File** – Calls up a **Dialog box**, which can **Open** a pre-existing

CadZone (.CSV) file and then displays the output results.

- **Open .TDS File** – Calls up a **Dialog box**, which **Opens** any pre-existing **.TDS** file and displays the output results.
- **Save .TDS 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.TDS**” of the data at the close of this module or the close of the program.
- **Time** – Displays a data table by input interval of Time.
- **Distance** – Displays a data table by input interval of Distance.
- **Add Surface** – Configures module for addition of additional Surface
- **Surfaces 1 – Last Surface** – Displays a table of all surfaces.
- **Graphics** – Displays the graphics curves for Time (with scales) on the upper half and Distance (with scales) on the lower half of the screen. The right and left scales show the Speed. **[Esc]** to Exit.
- **TDMS Output File** – Calls up the **TDMS Animation** output (Time or Distance) space delimited text file in word processor.
- **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.