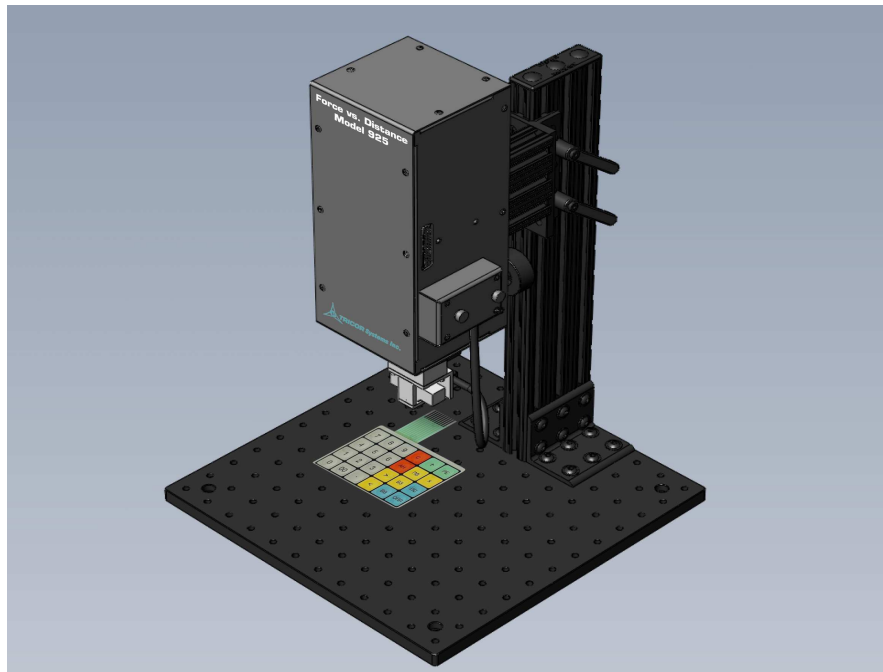


***Model 925  
Force Distance Tester  
with PC Program  
Quick Start Manual***



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The Model 925 Force Distance Tester includes the hardware platform (as shown on the cover page) as well as the software required to setup, control and run the platform. The software is installed on any PC running Windows XP, Vista or 7 operating systems.

The Model 925 PC program allows users to enter configuration parameters, run tests and view test results. Configuration parameters determine the start and return events of tests as well as various other aspects such as speed, displacement, number of log entries, etc.

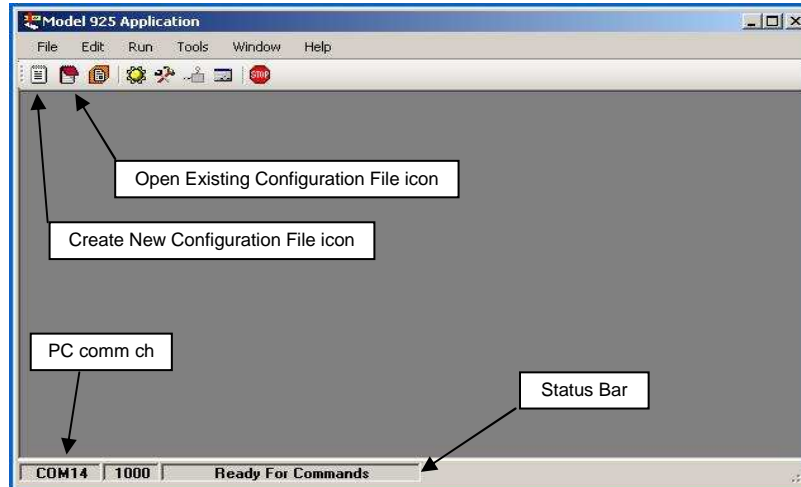
Test results are saved in an "html" formatted file that can be re-opened by the PC program for viewing, analysis and printing. Results can also be stored in a "csv" formatted file for import into other programs such as an Excel spreadsheet.

NOTE: Run the installation program prior to connecting the Platform to the PC.  
Install the Model 925 PC Program by inserting the Install CD into a CD drive on the PC. Follow installation instructions as they appear.

**Model 925 Startup instructions:**

- connect the Model 925 platform to the PC via the USB cable supplied with the system.
- apply power to the Model 925 platform via the power supply supplied with the system.
- on the PC, start the Model 925 Program.
- the status bar will indicate various program stages as it is booting up and initializing the platform.
- the Program and Platform are ready to use when the status bar indicates "Ready For Commands" (fig 1).
- a configuration file needs to be created or opened.
  - ... to create a new configuration file click on the "Create New Configuration" icon (Fig 1) or from the menu select "File - New".
  - ... to open an existing configuration file click on the "Open Existing Configuration" icon (Fig 1) or from the menu select "File - Open - Configuration Setup".
- After selecting either "Create New" or "Open Existing" configuration file the Gray Configuration window is displayed (Fig 2). If creating a new file the parameters are filled with default values. The next section describes the Configuration parameters used for testing.
- the configuration data can be edited and saved on the PC.
- the configuration data needs to be uploaded to the platform.
- a calibration cycle needs to be performed to finish setting up the platform.
- the system is now ready to perform tests.

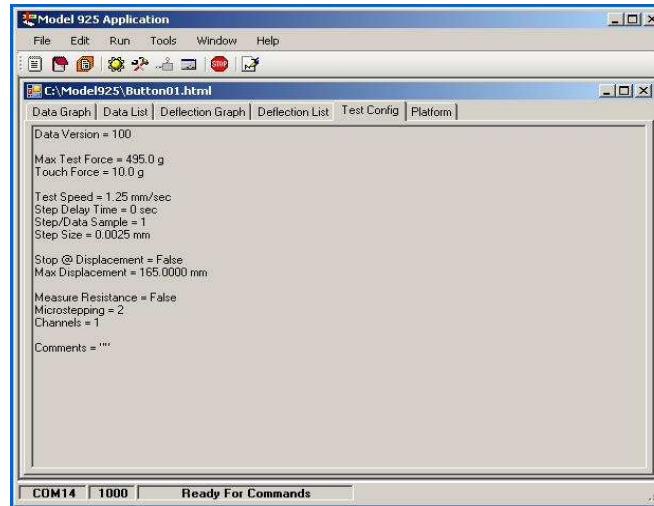
Figure 1. Initial Program Window



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## Configuration Parameters

Figure 2. Gray Configuration window



The Gray Configuration window (Fig 2) displays parameters from a configuration that is NOT currently uploaded to the Platform but has been opened by the PC Program. This window displays parameters that determine test measurement start and return events. This section describes these parameters and how they are used. Reference the "Edit Test Configuration" section for changing these values.

**Data Version** - a system parameter, cannot be defined by the user.

**Max Test Force** - this value determines when the "return" event occurs. The return event terminates the inward direction and reverses the motor to the outward direction. The max limit for this parameter is defined by the transducer that is currently mounted on the Platform.

**Touch Force** - this value determines when the "start" event occurs, which triggers the system to begin logging measurements. The start event is when the system recognizes the UUT has been contacted by the transducer. The min limit for this parameter is defined by the transducer that is currently mounted on the Platform.

**Test Speed** - a calculated parameter, cannot be directly set by the user. Other settings affect this value.

**Step Delay Time** - this value adds additional time to the internal fixed delay time the platform waits between motor steps.

**Step/Data Sample** - this value determines how often the system takes a measurement. The range for this parameter is 1 (default) to 10, signifying the system can take a measurement every motor step up to one measurement every 10 motor steps. This value affects overall system displacement resolution, and may need adjustment based on test requirements. The system can log and store a maximum of 5000 entries. With the standard lead screw and default settings total displacement is 6.35mm (0.250 inch). Changing this value to 10 will increase the total displacement to 63.5mm (2.50 inch).

**Step Size** - a calculated parameter, cannot be directly set by the user. Other settings affect this value.

**Stop @ Displacement** - setting this value to "True" enables the platform to limit displacement at the Max Displacement setting. The default value is "False".

**Max Displacement** - if the Stop @ Displacement value is true this value sets the displacement limit. If the Max Displacement is reached before the Max Test Force then this value becomes the return event trigger.

**Microstepping** - this value affects the displacement distance (**Step Size**) of the lead screw for each motor step. There are 3 values available; 2 (default), 4 and 8. With the standard lead screw and a microstep value of 2 the displacement distance is 0.0025mm (0.0001 inch) for each motor step.

**Measure Resistance** - this option currently is not available for the Model 925, therefore this value is always false and the **Channels** value is always 1.

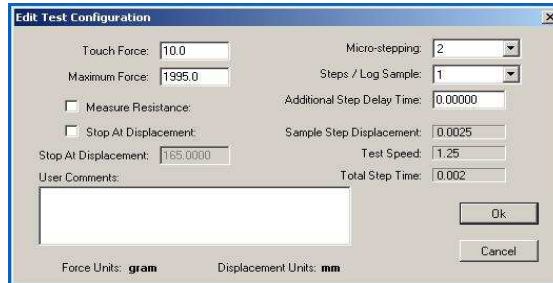
**Comments** - a user text field. Text entered here will be attached to the measurement data.

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### Edit Test Configuration Data

Figure 3. Edit Test Configuration Window



When creating a new configuration file, or if modifying an existing file, the user must enter the "Edit Test Configuration" window. Click on the "Edit Configuration Data" icon (Fig 4) or from the menu select "Edit - Edit Configuration", the "Edit Test Configuration" window (Fig 3) will be displayed.

Modify the parameters per the test requirements then click on the "Ok" button.

Click on the "Cancel" button to exit the window without accepting any changes.

After modifying parameters the user must save the changes. From the menu click on "File - Save" to save the data to the existing filename. Click on "File - Save As" to be able to save the data to a new filename.

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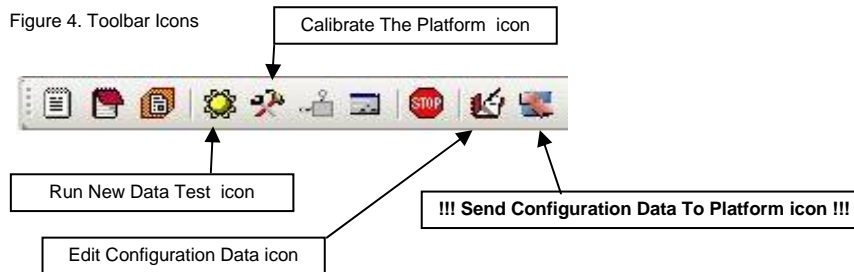
### Send Configuration Data

After saving the configuration data the user **must send** the data to the Platform. Click on the "Send Configuration Data To Platform" icon (Fig 4) or from the menu click on "Run - Send Configuration". The Configuration window changes to a pink background (Fig 6) signifying the data was successfully transferred to the Platform.

The system is now ready for the calibration cycle.

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Figure 4. Toolbar Icons



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Figure 5. File Save Format Selection

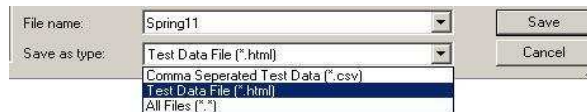
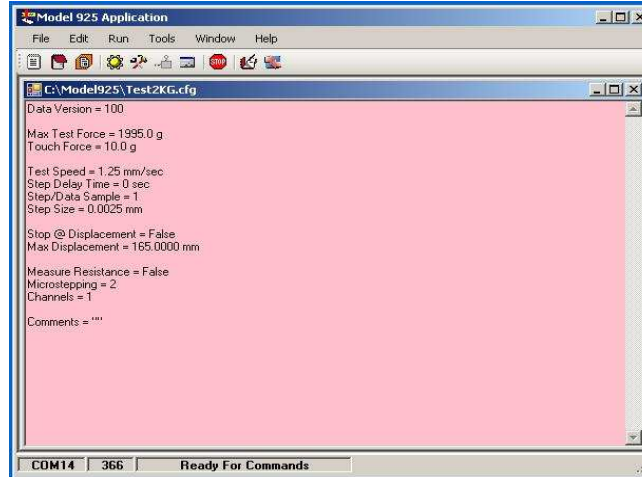


Figure 6. Pink Configuration Window



### Calibration Cycle

Once the desired configuration data has been uploaded to the platform, a calibration cycle must be performed.

The calibration removes the deflection and compression effects of the platform so only the device to be tested is unknown. The calibration cycle is automatically performed over the range of forces for the installed transducer. Position the transducer approximately 1/2 inch above a flat ridged surface.

Click on the "Calibrate The Platform" icon (Fig 4) or from the menu select "Run - Calibrate". The program commands the platform to run the calibration cycle.

Whenever a new configuration file is uploaded, the system may prompt the user to run a calibration cycle.

The calibration cycle may be run whenever desired. This is useful if the user suspects the original calibration has changed. For example, if the transducer has been moved more than 1 inch the original calibration will be invalid and a new cycle must be performed to re-establish proper calibration.

### Performing Test Runs

After the calibration cycle has been completed the system is ready to test UUT's. Position the UUT approximately 1/2 inch directly under the transducer.

Click on the "Run New Data Test" icon (Fig 4) or from the menu select "Run - Run". The system performs the UUT testing, according to the uploaded configuration data. After the test cycle is completed, the test results are automatically downloaded from the platform to the PC program. The test results should now be saved.

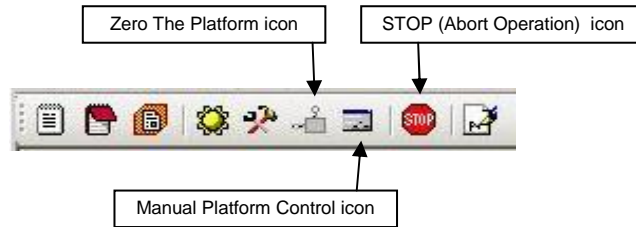
From the menu select "File - Save As".

In the file save window, select "Test Data File (\*.html)" as the file type (Fig 5). This is the file format used by the PC program. The result file must be saved in this format to be able to view the file in the future with the PC program.

Browse to the desired folder (if necessary) and enter the desired "File name".  
Click on the "Save" button.

Test results may also be saved to a "csv" formatted file that can be imported to other programs such as Excel. Repeat the above step, except select "csv" as the file type.

Figure 7. More Toolbar Icons



### Motion Abort Action

If an emergency situation arises, platform motion can be immediately stopped by clicking on the "STOP" icon (Fig 7) or from the menu selecting "Run - Abort Operation". This sends a command to the platform to immediately stop all motion.

If the "STOP" icon is activated, or power was lost during motion, the platform will need to be re-zeroed. Click on the "Zero The Platform" icon (Fig 7) or from the menu select "Run - Zero Platform".

### Manual Control

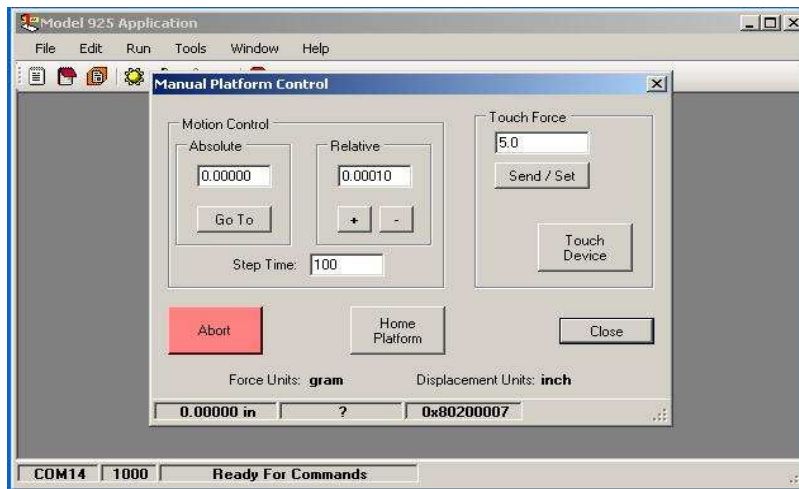
The Platform can be manually controlled to aid in setting up test fixtures, etc.

Click on the "Manual Platform Control" icon (Fig 7) or from the menu select "Run - Move Platform". The Manual Platform Control window (Fig 8) is displayed.

Use the various controls to manipulate the platform for the desired effects.

Note: Speed of movement is determined by the currently uploaded configuration. It may be necessary to modify and upload the configuration to achieve desired results.

Figure 8. Manual Platform Control Window



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## Viewing Test Results

After a test run has been downloaded from the platform the test result window is displayed (Fig 9).

Test results from previously saved files in the ".html" format can also be opened by the PC program. From the menu select "File - Open - Test Data", browse to the desired folder and select the desired file.

The "Data Graph" tab (Fig 9) is the default view, with Force results as the Y axis and Displacement results as the X axis. Both inward and outward directions are initially displayed and can be turned on or off by clicking the desired option in the lower right hand corner of the window.

Calibration data can be viewed in the "Deflection Graph" tab which shows Displacement as the Y axis and Force as the X axis.

Results can be viewed in tabular form by clicking on the "Data List" or "Deflection List" tab.

The "Test Config" tab shows the values of the configuration parameters at the time of the test.

The "Platform" tab shows various Platform settings at the time of the test.

Any of the views can be printed by selecting from the menu "File - Print". Graph views can be previewed before printing.

Figure 9. Test Result - Data Graph

