

# CHEMINSTRUMENTS

## DYNAMIC SHEAR TESTER

### MODEL DS-1000

## OPERATING INSTRUCTIONS

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# EZ-LAB SYSTEM 3.0

## OVERVIEW

EZ Lab System software Version 3.0 is designed to enhance your model 1000 or 1100 ChemInstruments test platforms. The following procedure describes how to use the EZ-Lab System. Should you have any problems or questions after following this procedure, please call ChemInstruments at 513-860-1598, or contact us by e-mail at, [ci@fuse.net](mailto:ci@fuse.net).



## INSTALLATION

Insert the EZ Lab disk into the computer. EZ-Lab will self install.

1. If EZ-Lab does not self install, select **RUN, (Drive):\Setup.exe**
2. Follow the on screen instructions to complete the software installation.
3. Connect the test platform's RS232 connection to the appropriate port on your computer with the provided RS232 serial cable.
4. On the computer, open the EZ-Lab program. This file will be located in a folder titled "EZ-Lab" on the C drive.
5. Double click on the file "EZLabv3.0". This will open the EZ-Lab System program and display the Main Screen.
6. Select the appropriate test platform button to activate the program. The operating screen will appear on your display.

## OPERATION

This operating system is designed to provide all the necessary instructions on your computer screen. However, the following information will provide additional insight.

The Main Operating Screen is divided into 3 sections. The left and right sections are titled "**Setup**". Calibration of the load cell, choosing the units of measure, and changing the speed are controlled in the left and right "**Setup**" section. The right section, titled "**Setup**", is for



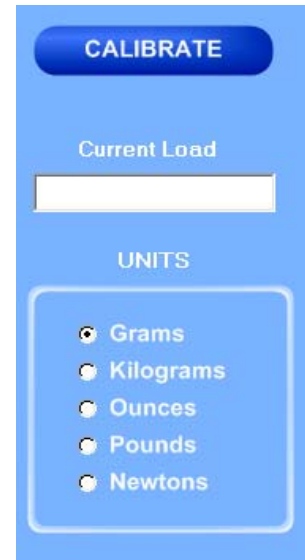
the functions "Tension Relief", "Auto Return" and "Break Percent".

The center section, titled "**Run Test**", is for setting the length of the test.

## CALIBRATION

In order for the load cell to measure forces correctly it is necessary to calibrate the system. The following procedure describes the calibration process. The test platform uses **Grams** for calibration.

1. Select the “**Calibrate**” button in the Setup section of the Main Screen.
2. Follow the on screen instructions exactly, and make sure to hang the appropriate weight on the load cell Grip when entering the high calibration value.
3. Verify the calibration by hanging some other known weight on the load cell Grip and checking the display in the Current Load field.

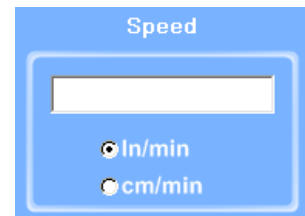


## UNITS

Click the bullet next to the unit of measure to select the desired unit for data collection and data analysis. All data will be displayed in the unit selected.

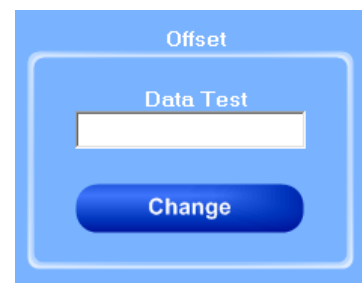
## SPEED

“**Speed**” displays the speed the machine is programmed to travel at. The speed is displayed as either inches per minute (**In/min**) or centimeters per minute (**cm/min**). Click the bullet next to the unit to select **In/min** or **cm/min**.



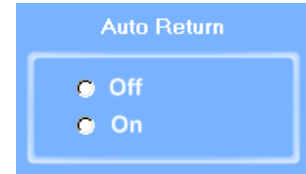
## OFFSET

“**Offset**” controls the length of the test. Click the “Change” button and enter the desired test length.



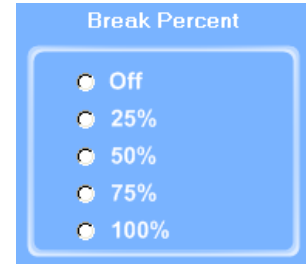
## AUTO RETURN

“**Auto Return**” automatically returns the cart to the start position of the previous test. Click the bullet next to “**On**” or “**Off**” to access this feature.



## BREAK PERCENT

The “Break Percent” feature is used to stop a test when a break in the test substrate has been detected. When turned on, the machine will detect a percent difference in forces when a break has occurred. You can set the machine to automatically stop the test when it has detected a break percentage of 25, 50, 75, or 100%. Click the bullet next to the desired percent to turn on this feature.

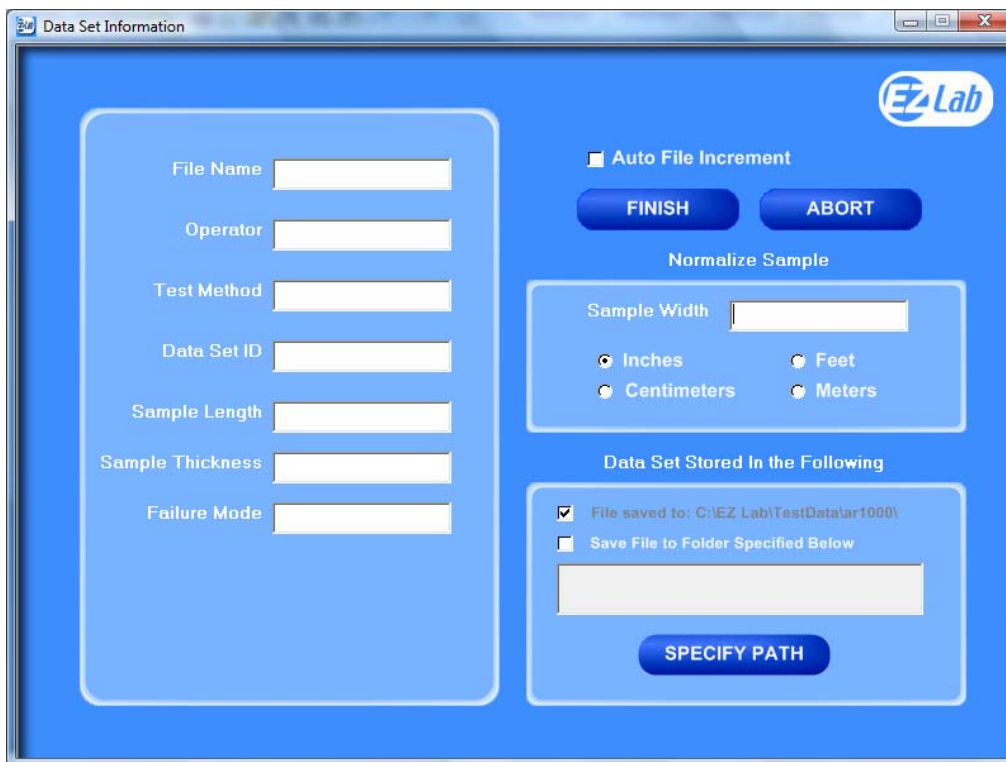


## HELP



The help button will open a “pdf” file of the machine manual. This manual contains operation instructions for both the test platform and the EZ Lab software. You must have Adobe Acrobat Reader on your computer to open “pdf” manual file. If the Adobe program is not already installed on your computer, a copy of it is included on the EZ Lab disk.

## DATA SET INFORMATION



Upon completion of every test, the “**Data Set Information**” will automatically appear. This allows the operator to record information about the test performed. It will also allow you select where test data is stored. All fields on the “**Data Set Information**” page are optional. The only required field is “**File Name**”.

**File Name** – the only required field on the Data Set Information page. You must enter a file name to save the test data.

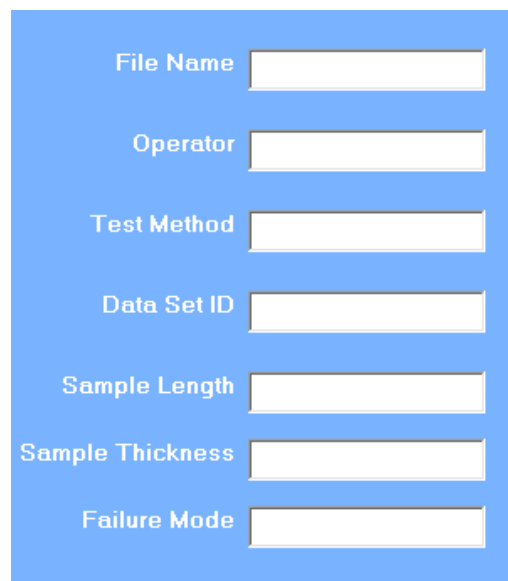
**Test Method** – optional field.

**Data Set ID** – optional field.

**Sample Length** – optional field.

**Sample Thickness** – optional field.

**Failure Mode** – optional field.



## AUTO FILE INCREMENT

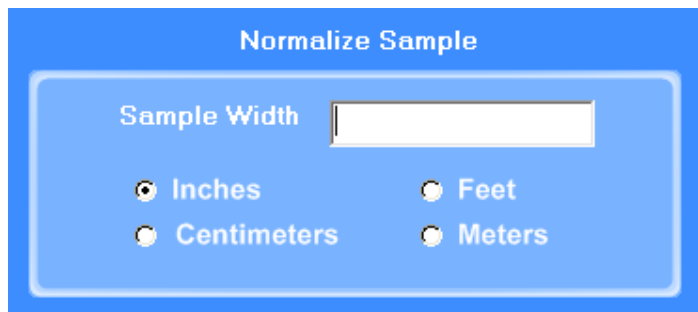
☐ Auto File Increment

“**Auto File Increment**” automatically assigns a sequential number to the “**File Name**”. It allows the operator to perform tests without having to rename each test, but add a number to the “**File Name**” to differentiate them. The feature is activated and deactivated by clicking the box. While active, you will not be able to change any information entered into the “**File Name**” field. EZ Lab will automatically assign sequential numbers in ascending order to each new test performed.

(**Example:** *File Name* – Test. Activating *Auto File Increment* will change the *File Name* Test to Test – 001. The next test performed will automatically be named Test – 002, then Test – 003 and so on.)

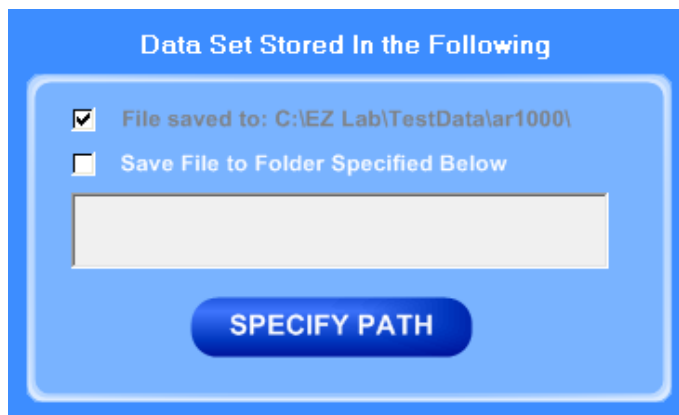
## NORMALIZE SAMPLE

Normalize Sample allows you to record the width of the samples being tested. It also what the “**Normalize Data**” feature uses to calculate force per width.



## STORING DATA

All data is automatically stored in a folder on the computers C: drive. EZ Lab also has the option to store the “**Specify Path**” button will allow you to select an alternative location to store your data. Once the selection is made it will appear in the box above the “**Specify Path**” button. Click the box next to “**Save File to Folder Specified Below**” to





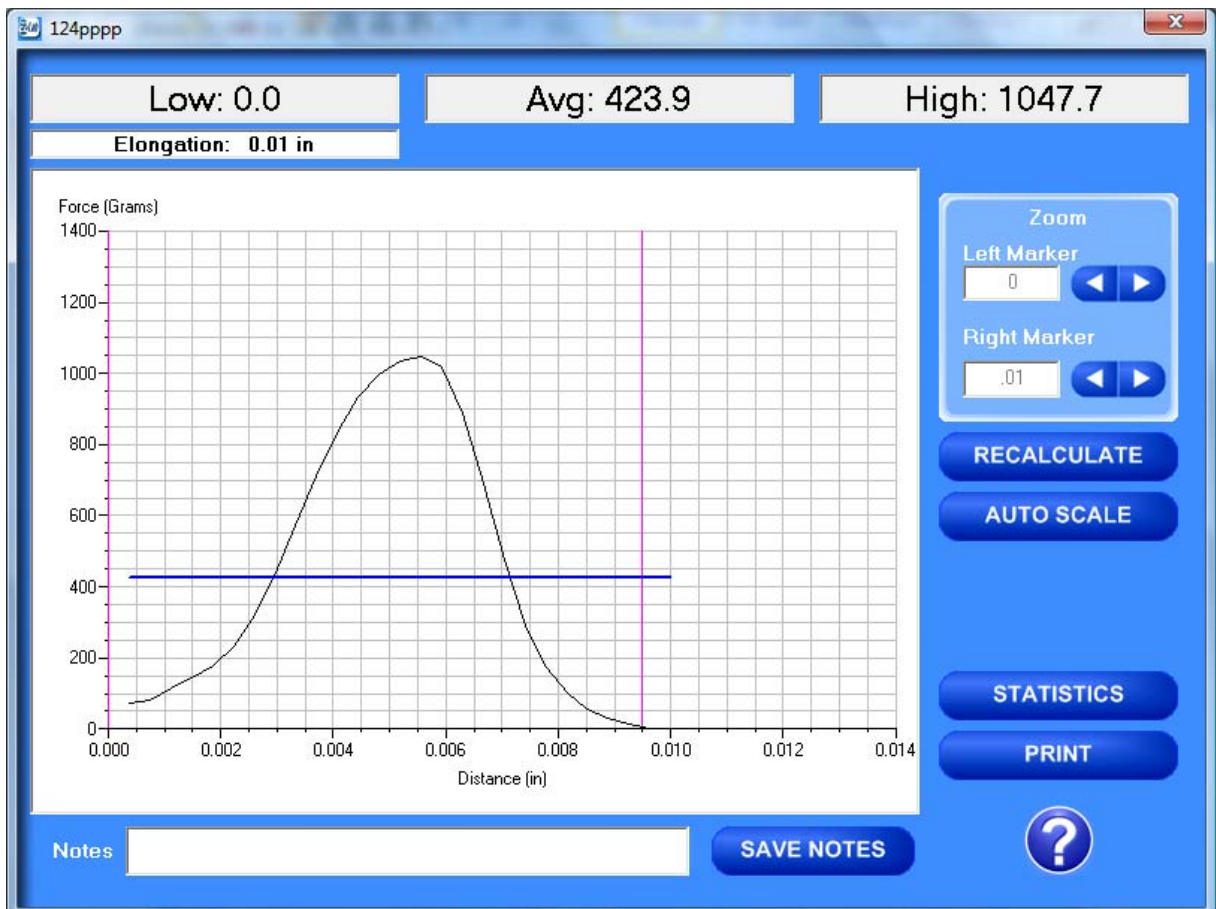
activate the feature. Click the box again to turn the feature off. The previous entered storage location will remain in the box to show the last place data was saved.

## FINISH AND ABORT



Once all the information has been correctly entered on the “**Data Set Information**” screen, click the “**Finish**” button. This will save the data and EZ Lab will automatically go to the “**Graph Screen**”. The “**Abort**” button discards the data from the previous test and EZ Lab automatically goes back to the “**Main Operating Screen**”.

## GRAPH SCREEN



EZ Lab will automatically display the “**Graph Screen**” after the data has been entered on the “**Data Set Information**” screen. The Graph Screen will graph the profile of forces recorded during the test and will display the Low, Average, High, and Elongation values.

## CROPPING GRAPHS

The “**Graph Screen**” provides a cropping feature. Notice the red vertical lines (markers) located at the left and right sides of the graph. These markers can be moved horizontally on the graph by using the arrows labeled “**Left Marker**” and “**Right Marker**”. The field next to the arrows will indicate the position of the marker on the graph.



***Note:** Cropping a graph will not erase the data saved from the original test.*

1. Using the arrows, move the left and right markers to the desired location.
2. Click the “**Recalculate**” button. This will change the data displayed on the graph page to reflect the area inside the markers. A graph can be recalculated up to 3 times.
3. After the “**Recalculate**” button has been selected, a “**Save Markers, Back, and Save**” buttons appear.



**Note:** When the feature is turned on, EZ Lab will save two different files. One file will include all of the data recorded from the test. The other file will be the data automatically cropped by using the “**Save Markers**” feature. These files will be differentiated by the suffix “**-RevA**”. The “**-RevA**” file will be the data automatically cropped by the “**Save Markers**” feature. (Example: Test-001 and Test-001-RevA)

## SAVE MARKERS

A blue rectangular button with a white square icon on the left and the text "Save Markers" in white.

EZ Lab automatically records the data from the entire test. The “**Save Markers**” feature will hold the place of the left and right marker for future tests. This will automatically crop all test performed while the feature is on. To turn this feature on, click the box located next to “**Save Markers**”. A check mark will appear in the box. To turn it off, click the box again and the check mark will disappear. Turning off this feature will reset the left and right marker to the left and right sides of the graph. Future tests will not be cropped automatically.

## AUTO SCALE

The “**Auto Scale**” button changes the scale of the Y axis of the graph. This feature allows for an enhanced view of the graph profile. Clicking the “**Auto Scale**” button activates the feature. The button will change to “**Full Scale**”. Clicking the “**Full Scale**” button will restore the graph back to the original scale of the Y axis.

A blue rounded rectangular button with the text "AUTO SCALE" in white.A blue rounded rectangular button with the text "FULL SCALE" in white.

## BACK

A blue rounded rectangular button with the text "BACK" in white.

The “**Back**” button is used to undo changes made when cropping the graph. It will appear after the graph has been cropped by moving either of the markers and clicking the “**Recalculate**” button. “**Back**” will only undo the last recalculation done to the graph.

## SAVE

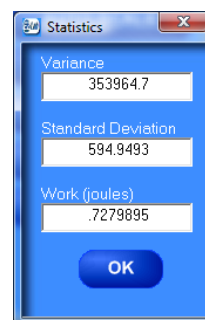
A blue rounded rectangular button with the text "SAVE" in white.

The “**Save**” button will save the cropped data as a new file with the same “**File Name**” as the original file but add the suffix “**-RevA**”. (Example: Test-001 becomes Test-001-RevA) Only one “**-RevA**” file per original test can be saved at a time. Anytime you click the “**Save**” button, a

“-RevA” file will be saved. If there is an existing file name with a “-RevA” file already, the existing “-RevA” file will be replaced.

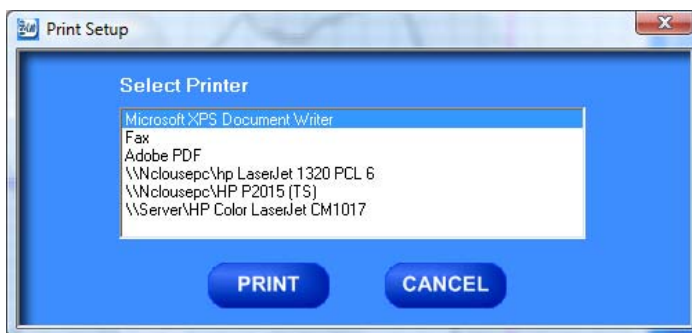
## STATISTICS

The “**Statistics**” button will open a new window and display the **Variance**, **Standard Deviation**, and **Work (joules)** of the data displayed on the graph. The data displayed on this screen will change anytime a change is made to the graph. To exit out of this screen, click either the “**OK**” button or the red “**X**” button. EZ Lab will automatically go back to the graph page.



## PRINT

“**Print**” will allow you to use any printing feature available to your computer. Highlight the desired printer and click the “**Print**” button. This will take you to your computers print menu. You may exit this screen by clicking either “**Cancel**” or the red “**X**” buttons.



## NOTES



The “**Notes**” field allows you to enter notes. Clicking the “**Save Notes**” button will save the notes. The notes will be stored with the information entered on the “**Data Set Information**” page.

## HELP



The help button will open a “pdf” file of the machine manual. This manual contains operation instructions for both the test platform and the EZ Lab software. You must have Adobe Acrobat Reader on your computer to open “pdf” manual file. If the Adobe program is not already installed on your computer, a copy of it is included on the EZ Lab disk.

## REVIEW DATA



The “**Review Data**” button is located on the Main Operating Page. The “**Review Data**” feature will allow access previously recorded test data. The “**Review Data**” button will take you to the screen pictured below.

Every time the “**Review Data**” feature is accessed, the screen will automatically display the test data located in the **EZ Lab** test data folder located on your computers **C:** drive. The individual tests will be displayed in chronological order with the most recent test appearing on the top of

the list. This screen will display the test’s File Name, date and time the test was performed, Low, Average, and High values for the test performed. To access the test data from a test file, click the File Name. You will notice the File name is now highlighted. Once a file is highlighted, you may now use the buttons on the screen to access the test data.

The screenshot shows a window titled "Data Review" with a dropdown menu showing "Data Review - C:\EZ Lab\TestData\ar1000\". The table has columns: File Name, Date, Low, Avg, and High. The first row is highlighted in blue.

| File Name    | Date              | Low    | Avg    | High   |
|--------------|-------------------|--------|--------|--------|
| www-017-RevA | 01/16/09 04:11 PM | 25.5   | 1056.8 | 1577.0 |
| www-017      | 01/16/09 02:39 PM | 0.0    | 835.0  | 1577.0 |
| www-016-RevA | 01/16/09 01:58 PM | 0.0    | 631.2  | 993.5  |
| www-016      | 01/16/09 01:58 PM | 0.0    | 391.6  | 1062.6 |
| www-007-RevA | 01/16/09 01:58 PM | 1223.0 | 1363.5 | 1464.6 |
| www-015      | 01/16/09 10:49 AM | 0.0    | 511.8  | 1430.6 |
| www-013      | 01/16/09 10:39 AM | 0.0    | 116.0  | 790.8  |
| www-012      | 01/16/09 10:38 AM | 0.0    | 903.6  | 1619.1 |
| www-011      | 01/16/09 10:38 AM | 0.0    | 224.8  | 1528.5 |
| www-009      | 01/16/09 10:15 AM | 204.4  | 878.1  | 1069.9 |
| www-008      | 01/16/09 10:13 AM | 232.3  | 784.2  | 954.6  |
| www-007      | 01/16/09 10:13 AM | 142.0  | 1123.4 | 1464.6 |
| www-006      | 01/16/09 10:06 AM | 9.6    | 727.1  | 975.6  |
| www-005      | 01/16/09 10:06 AM | 0.0    | 518.0  | 914.0  |
| www-004      | 01/16/09 10:06 AM | 0.0    | 281.4  | 1585.0 |
| www-003      | 01/16/09 10:06 AM | 0.0    | 141.3  | 1169.7 |

Buttons at the bottom: ADD TO LIST, REMOVE FROM LIST, CLEAR LIST, GRAPH, FILE DETAILS, DELETE, DELETE ALL, SAVE TO EXCEL, TABULATE DATA, OVERLAY DATA.

## GRAPH

GRAPH

The “**Graph**” button will access the “**Graph screen**”. This is the same “**Graph Screen**” displayed immediately following the “**Data Set Information Screen**”. For instructions on operating the “**Graph Screen**”.

## FILE DETAILS

FILE DETAILS

“**File Details**” will display all the information entered on the “**Data Set Information screen**”. It will also display the Test Speed, Length of Test, Average, High, Low, Stand Deviation, Variance, Work, and Notes recorded for the individual test. File Details will only display this information for one test.



The screenshot shows a software window titled "File Details: vvvv-017-RevA". It contains two columns of data entry fields. The left column includes fields for File Name (vvvv-017-RevA), Operator (vvvvv), Test Method (vvvv), Data Set ID (vvvv), Sample Length, Sample Thickness, Sample Width (4 inches), and Failure Mode. The right column includes fields for Test Speed (1000 m/min), Length of Test (2.1 seconds), Average (1056.8 Grams), High (1577.0 Grams), Low (25.5 Grams), Std Deviation (467.8964), Variance (218899), Work (6163362 cycles), and a Notes section with a text area.

## DELETE

DELETE

“**Delete**” will permanently delete the test file.

## DELETE ALL

DELETE ALL

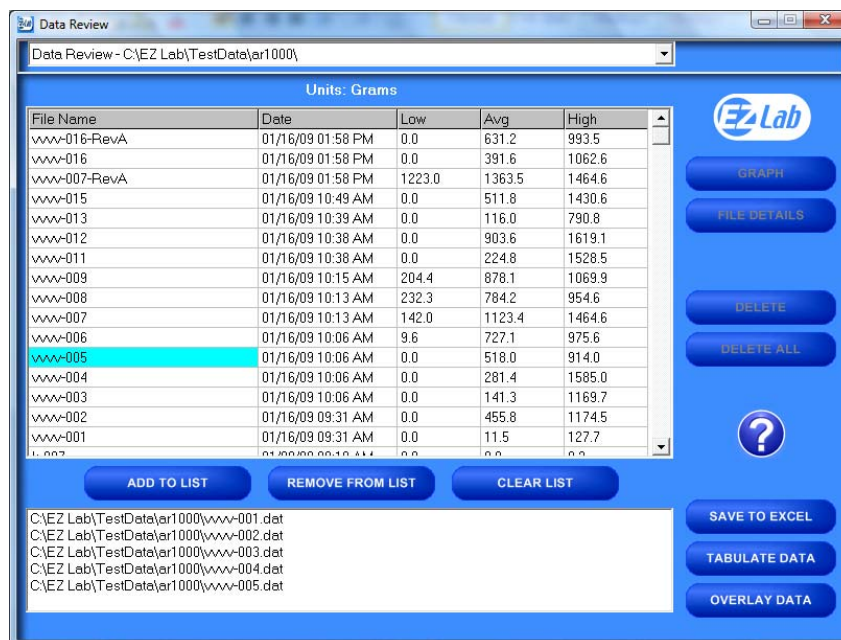
“**Delete All**” will permanently delete all the test files located in the **Test Data Folder** located on your computer’s **C:** drive.

## HELP



The “**Help**” button will open a **PDF** file of the machine manual. This manual contains operation instructions for both the test platform and the **EZ Lab** software. You must have Adobe Reader on your computer to open **PDF** manual file. If the Adobe program is not already installed on your computer, a copy of it is included on the **EZ Lab** disk.

The following instructions allow you compile test data from multiple files



In order to compile test data from multiple tests, you must first create a list of the test files you would like to compile. To create a list, highlight a test file and click the “**Add To List**” button. To delete a test file from the list, click the desired file on the list and then click the “**Remove From List**” button. The “**Clear List**” button will clear all the files from the list. There is no need to highlight the files first.



## SAVE TO EXCEL

## TABULATE DATA

## TABULATE DATA

[illegible]



## SAVE LIST

SAVE LIST

“**Save List**” will save table as a file on the **C:** drive of your computer. This will allow you to recall the table at a later time. Click the “**Save List**” button. Follow the on screen prompts to select a location to save and name the table. The table should be saved in the **Test Data folder** for the AR-1000 located on your computers **C:** drive. You may save the file in another location, but it must be moved into this folder in order to be recalled.

## SAVE TO EXCEL

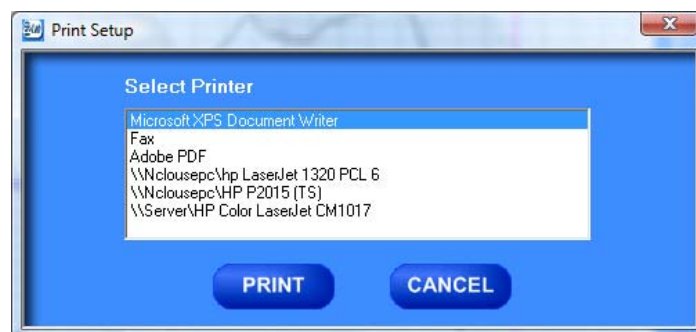
SAVE TO EXCEL

“**Save To Excel**” will save the table to the Microsoft Excel program in the same format displayed on this screen. The unit of measure the data is reported in will be saved and displayed in the upper right hand corner of the table. This allows you to use any of Excels feature to further analyze the test data. Click the “**Save To Excel**” button. Follow the on screen prompts to create a file name and save the table.

## PRINT

PRINT

“**Print**” will allow you to use any printing feature available to your computer. Highlight the desired printer and click the “**Print**” button. This will take you to your computers print menu. You may exit this screen by clicking either “**Cancel**” or the red “**X**” buttons.



## OVERLAY DATA

OVERLAY DATA

“**Overlay Data**” allows you to overlay graphs from up to five different tests. Create a list. Click the “**Overlay Data**” Button. The following screen will appear. The file names of the graphed tests will appear in the box labeled Legend. The file names are color coded to correspond with the colors of the graph.

## CROPPING GRAPHS

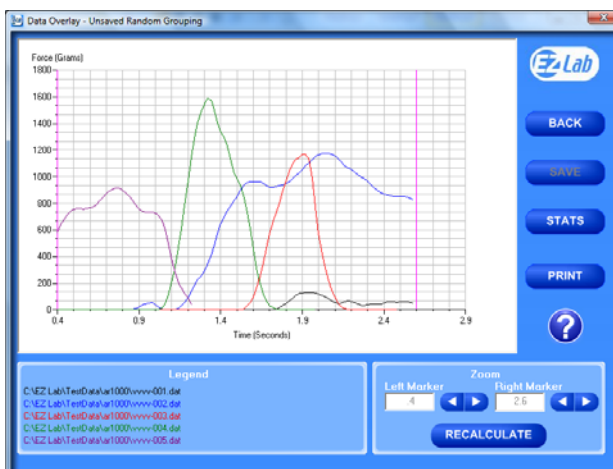
The “**Overlay Screen**” provides a cropping feature. Notice the red vertical lines (markers) located at the left and right sides of the graph. These markers can be moved horizontally on the graph by using the arrows labeled “**Left Marker**” and “**Right Marker**”. The field next to the arrows will indicate the position of the marker on the graph.



RECALCULATE

*Note: Cropping a graph will not erase the data saved from the original test.*

1. Using the arrows, move the left and right markers to the desired location.
2. Click the “**Recalculate**” button. This will change the data displayed on the graph page to reflect the area inside the markers. A graph can be recalculated up to 3 times.
3. After the “**Recalculate**” button has been selected, a “**Save Markers, Back, and Save**” buttons appear.



BACK

SAVE

SAVE

STATS

STATS

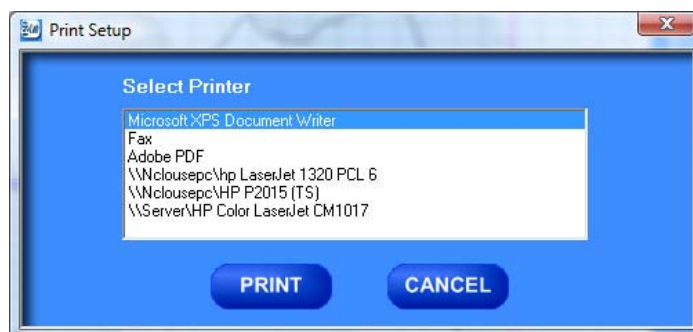
| File Name                              | Avg      | High     | Low | StDev    | Var      | Work (joules) |
|--|----------|----------|-----|----------|----------|---------------|
| C:\EZ Lab\TestData\ar1000\vvvv-001.dat | 11.5     | 127.7    | 0.0 | 28.1697  | 793.532  | 2.377260E-02  |
| C:\EZ Lab\TestData\ar1000\vvvv-002.dat | 455.8    | 1174.5   | 0.0 | 452.8695 | 205108.9 | 5676897       |
| C:\EZ Lab\TestData\ar1000\vvvv-003.dat | 141.3    | 1169.7   | 0.0 | 320.9726 | 103023.4 | 1454381       |
| C:\EZ Lab\TestData\ar1000\vvvv-004.dat | 281.4    | 1586.0   | 0.0 | 487.5503 | 247566.3 | 2313020       |
| C:\EZ Lab\TestData\ar1000\vvvv-005.dat | 518.0    | 914.0    | 0.0 | 315.6199 | 99615.93 | 2579064       |
| Averages                               | 281.6    | 994.2    | 0.0 |          |          | 0.2452219     |
| Standard Deviations                    | 189.1363 | 483.6310 | 0   |          |          | 18166         |
| Variances                              | 35773.29 | 233899.7 | 0   |          |          | .033          |

Units: Grams

## PRINT

PRINT

“**Print**” will allow you to use any printing feature available to your computer. Highlight the desired printer and click the “**Print**” button. This will take you to your computers print menu. You may exit this screen by clicking either “**Cancel**” or the red “**X**” buttons.



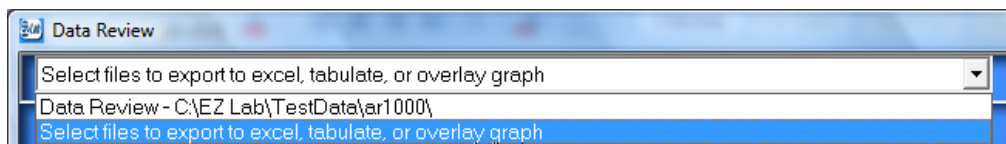
## HELP



The help button will open a **PDF** file of the machine manual. This manual contains operation instructions for both the test platform and the **EZ Lab** software. You must have Adobe Reader on your computer to open **PDF** manual file. If the Adobe program is not already installed on your computer, a copy of it is included on the **EZ Lab** disk.


## CHANGING DIRECTORIES

**EZ Lab** allows you to store your test data in multiple locations. Files can be stored in any location connected to your computer. This is accomplished on the “**Data Set Information screen**”. To change directories, click the drop down menu bar located on the top of the “**Review Data screen**”.



Click “**Select files to export to excel, tabulate, or overlay graph**” (above). This will bring you to the following screen.

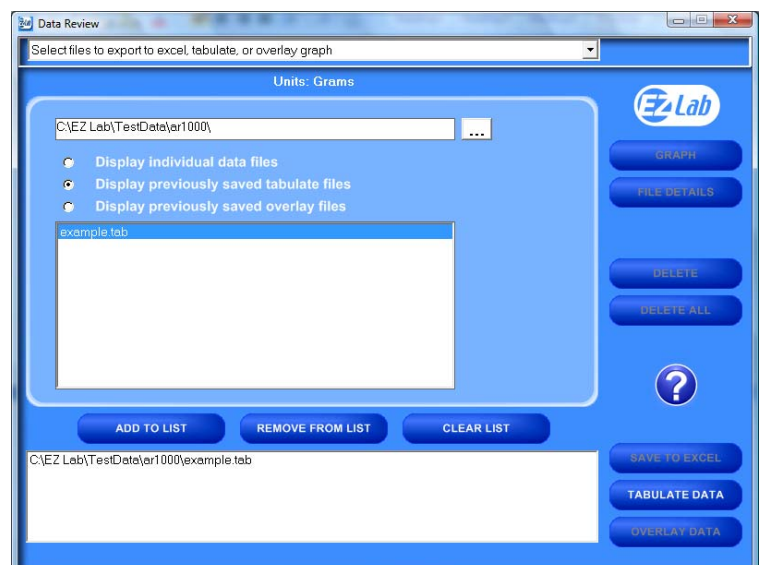


This screen will display all the test files located in the on your computer under the directory **C:\EZ Lab\TestData\bp1000\**. To change directories, click the button  located to the right of the directory address bar. Scrolling over the button will pop up a window **“Press this to change directories”**. Follow the on screen prompts to select files from a different directory.

This screen allows you all of the same features as the **“Review Data screen”**. It also allows you the ability to display previously saved tabulate files and overlay graphs.

## PREVIOUSLY SAVED TABULATE FILES

To recall previously saved tabulated files, click the bullet next to **“Display previously saved tabulate files”**. You will notice all previously saved tabulate files stored under this directory will appear in the box. Highlight the desired file and click **“Add to List”**. Click **“Tabulate Data”** to display the previously



saved tabulate file. To remove an item from the list, highlight the item on the list and click the **“Remove From List”** button. The **“Clear List”** button will automatically clear the list; there is no need to highlight the file first. You can only display one previously saved **Tabulate** file at a time.

## PREVIOUSLY SAVED OVERLAY GRAPHS

To recall previously saved overlay files, click the bullet next to **“Display previously saved overlay files”**. You will notice all previously saved overlay files stored under this directory will appear in the box. Highlight the desired file and click **“Add to List”**. Click **“Overlay Data”** to display the previously saved tabulate file. To remove an item from the list, highlight the item on the list and click the **“Remove From List”** button. The **“Clear List”** button will automatically clear the list; there is no need to highlight the file first. You can only display one previously saved overlay file at a time.

The Display previously saved overlay files screen will bring up the **“Overlay Graph”** screen. To operate this screen, see **“Overlay Data”**.

