

## 6754 Soil Cement Data Acquisition Software

**NOTE:** Please read the equipment requirements, installation, and operation instructions prior to testing. Reliable test results are dependent on the operator's knowledge of both the software and applicable test methods.

### INTRODUCTION

The Soil Cement Data Acquisition Software automatically records, and graphs load and displacement measurements used to calculate the compressive strength of soil-cement cylinders. Real time data is shown in a tabular format in addition to a graphical display of either strain or displacement. At the conclusion of a test this data is used to perform calculations in accordance with ASTM D1633. These calculations as well as a strain curve are included on the test report generated by the software

Karol-Warner Soil Cement Data Acquisition Software offers a variety of benefits including:

- User friendly interface
- Quick and easy installation and updates
- Automatically performs test calculations
- Customizable professional testing reports
- Data is exportable to spreadsheet applications such as Excel
- Optimized for both touch-screen and mouse/keyboard operation
- Compatible with Windows 10, 8, 7, Vista, and XP

### EQUIPMENT COMPATIBILITY AND TEST SETUP

The following is required for use with the Karol-Warner Soil Cement Software:

Data Readout Box	6572 or 6574
Windows Operating System	Windows 10, 8, 7, Vista, or XP
Computer	Any tablet, PC, or laptop using Windows XP or newer.

Below is a list of Karol-Warner equipment compatible with the software and additional test accessories. Please contact Karol-Warner Technical Support to inquire about compatibility of transducers and load cells not listed below.

Load Frame	7611, 7621, 7631, 7691, or 7731
Displacement Transducer	6151, 6152, 6153, or 6154
Load Cell	6144, 6145, or any Karol-Warner load cell of adequate capacity
Swivel Platen	7041-A, 7041-B, or 7061-A



Figure 1: Typical test setup with laptop computer

Figure 1 is a typical soil cement test setup. Comparable load frames can also be used, but Karol-Warner data acquisition components are required for use.

### INSTALLATION

1. Two USB devices are included with the software: A Karol-Warner flash drive containing the installation files and a small, black USB security key. Insert the Karol-Warner flash drive into the tablet or PC to be used during testing. Navigate to the USB Drive in File Explorer then double click on the USB Drive to open the installation files. Save or copy these files locally. The software can be downloaded onto other devices to open and edit test data, but data collection is only enabled when the USB security key is attached.

If running Windows 7 or below, right click on the application titled **dotNetFx40\_Full\_x86\_x64** and select **Run as administrator**. Doing so will check the current version of the Microsoft .NET framework. If the .NET Framework is not installed or up to date, the most current version will be installed. If the most current version is already installed, the installer will complete with no further action.

**NOTE:** All software installation files and updates are also available for download on [www.karolwarner.com](http://www.karolwarner.com). Log into your **My Karol-Warner Account** to access the **My Downloads** page.

Rev: 04/2020

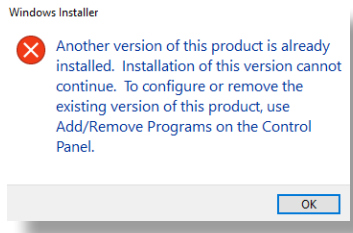


Figure 2: Installation error message

2. Run the **SoilCementSetup** file and follow the prompts on the screen. The software should detect any previous versions and uninstall them automatically. If a Windows Installer message appears, follow the prompts and uninstall the previous version of the software. Once installation is complete, close the installer.
3. Eject the USB containing installation files and insert the USB security key. Open the Soil Cement Data Acquisition Software. Click **Help** along the toolbar then select **Activation** from the drop-down menu. Enter the provided license number, USB ID, and activation code. The software will run normally for 30 days before this information is required to continue use. Activation information can be entered at any point within the first 30 days after installation.
4. Establish the connection between the data readout box and the software:
  - a. Make sure all connections to the computer and data readout box are secure.
  - b. Select the COM port for the data readout box from the **Read Port** drop down menu in the Start Communications tile. To determine the correct COM port, navigate to **Control Panel > Device Manager** and view the devices listed under **Ports (COM & LPT)**. The data readout box will appear as a USB serial port. If multiple devices are listed as a USB serial port, the correct serial port can be identified by unplugging the device from the tablet or PC then identifying which serial port disappeared from the listed devices. Once identified, plug the data readout box back into the tablet or PC and click connect.
  - c. Once connected, the travel values will be displayed at the bottom right of the **Start Communications** tile. Gently move the displacement transducer on the load frame up and down to confirm the connection. The travel value should change.

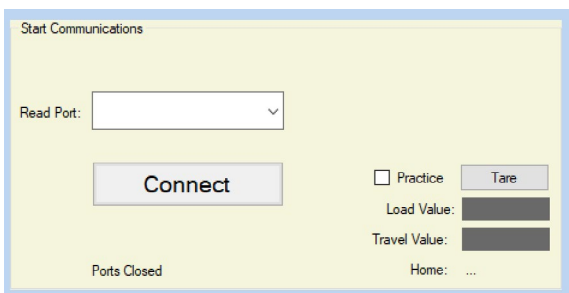


Figure 3: Start Communication

## SETTINGS AND CONTROLS

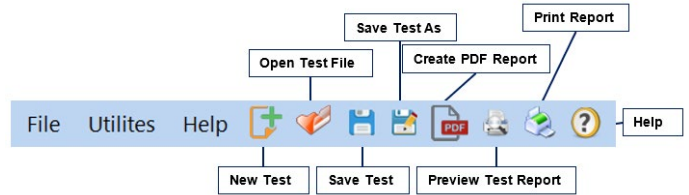


Figure 4: Toolbar

The top toolbar of the Soil Cement Data Acquisition Software consists of icons used to start, open, save, create, and print test reports. These commands are also listed under the **File** dropdown menu.

The program settings can be found under the **Utilities** dropdown menu on the top toolbar. Testing agency and equipment information can be entered here. The information entered here will be displayed on the final test report and included in the data file for the test. In addition to selecting testing units and toggling popup keyboards. Popup keyboards are helpful when using a touch screen operated device. These settings remain saved for future testing.

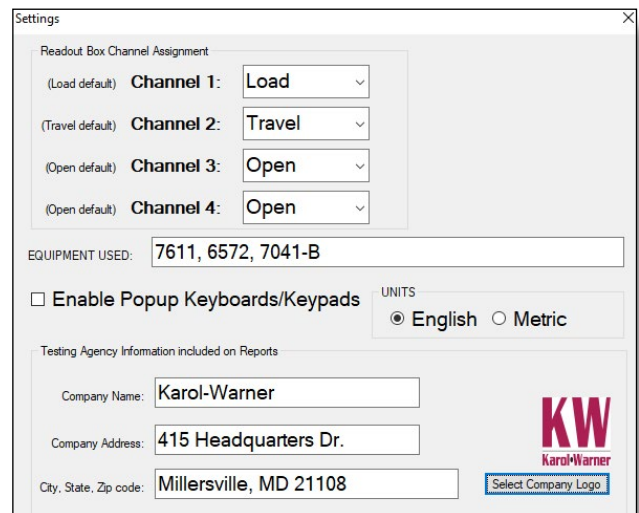


Figure 5: Program settings

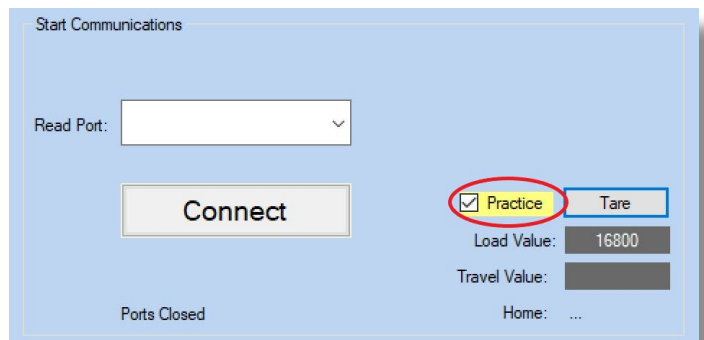


Figure 6: Practice Mode

## RUNNING A TEST

1. Prepare your sample in accordance with ASTM D1632. Enter the sample info in the fields at the top right of the window. These values will be included in the final test report. Once entered, click **Set File** to designate a file location for the test data.
2. Set the recording frequency for the test under the **Run Test** section of the software. The software will automatically record every 5 second unless specified otherwise. The Stop Test function can also be selected here to stop recording data when the load drops below peak load by a specified drop in load.

Figure 7: Project/Sample Info tile

3. Place the sample in the load frame and seat the cross arm. Once seated, click **Start Test** then select UP on the load frame to start the platen advance. The software will continue to collect data until the load has dropped below peak or until **Stop Test** is selected. At this time, you can stop the load frame, otherwise it will travel until the upper limit has been reached.
4. The software will display load, displacement, and the calculated compressive strength in real-time. These values are shown in a table at the bottom left of the screen and as a graph in the bottom right corner.

Figure 8: Run a test

5. Once the test is completed a message will display reading: **Test has finished. Data has been saved to the selected file. Enter a new test or close the ports.** The saved file can be reopened, edited and saved using the icons on the top toolbar. The test data is saved in ASCII Comma Delimited format which can be opened for further analysis and processing using spreadsheet applications such as Excel.

Reading	ET-sec	Load-lbf	Compressive Strength-psi
0	0	2	0
1	5.0	60	6
2	10.0	162	17
3	15.0	248	26
4	20.0	349	37
5	25.0	501	52

Figure 9: Tabular Data

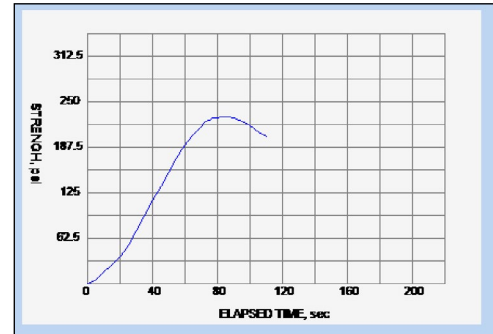


Figure 10: Final Graph

## EXPORTING DATA TO SPREADSHEET APPLICATION

To export spreadsheet compatible test data:

1. Open spreadsheet application. Click **File > Open > Browse** to locate the test file(s). In the bottom right corner of the file explorer (Figure 13) select **All Files** from the drop-down menu.

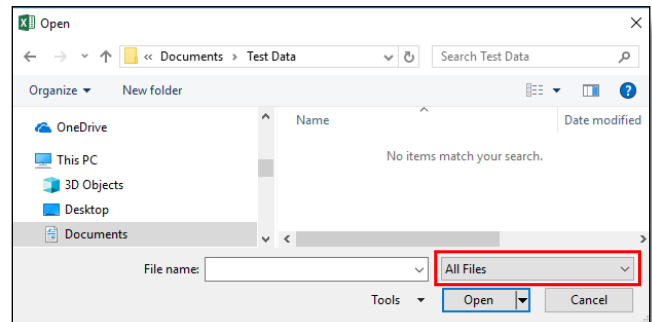


Figure 11: Excel File Explorer

2. Navigate to the test file you are trying to export.
3. Click on the file then select **Open**.

- The **Text Import Wizard** dialog box (Figure 14) will appear. Select **Delimited** then click next.

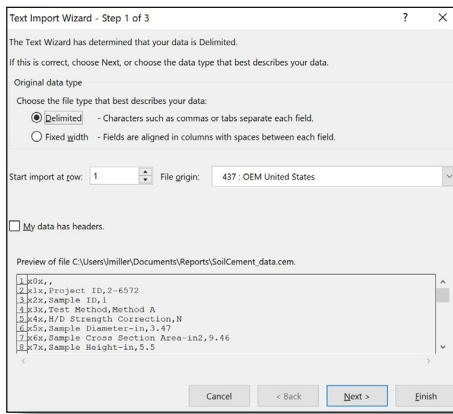


Figure12: Text Import Wizard Step 1

- Uncheck the box labeled **Tab** (Figure 15) and select the box labeled **Comma**. Select **Next** then **Finish**.

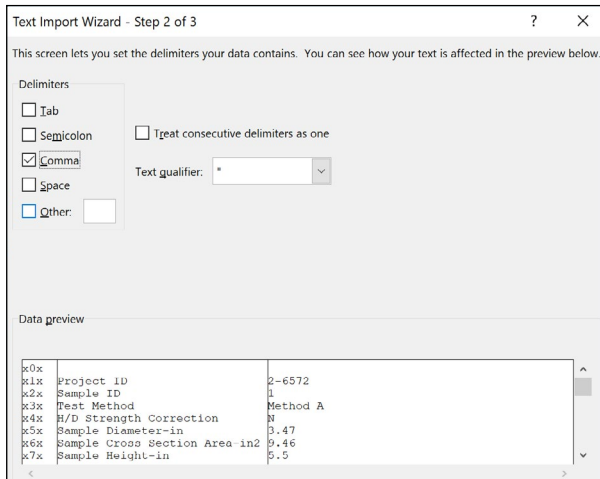


Figure 13: Text Import Wizard Step 2-3

- The company information, sample information, and test data will be displayed on the spreadsheet.

## TROUBLESHOOTING

### Software is not identifying serial port connections

Confirm there is power going to the data readout box and that all connections to the box and computer are secure. Make sure all ports and connections are free of dust or debris. Open Windows Device Manager to see if the readout box is listed as a device under **Ports (COM & LPT)**. Instructions for determining the correct serial port can be found in the Installation instructions. Once the readout box appears under **Ports (COM & LPT)**, close then reopen the Software and try reconnecting.

### Application License Error Message Appears

This message (Figure 16) will appear when more than the allowed number of test windows is opened. If you would like more than the currently allowed test windows to be opened simultaneously, additional licenses can be purchased. Please contact Karol-Warner at **1.800.999.7645** or **customerservice@karolwarner.com** to purchase additional licenses.

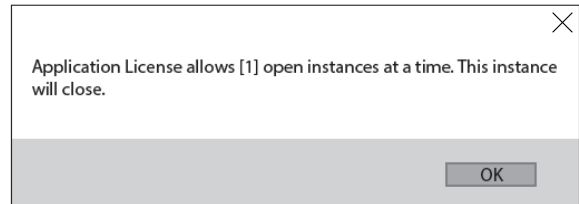


Figure 14: Application License Error Message

If you are not attempting to open more than the allowable windows open Task Manager. If you see **CBR Test**, select it from the list then select **End Task**. Try reopening the Software.

**COMPRESSIVE STRENGTH OF SOIL-CEMENT CYLINDER**

ASTM D1633

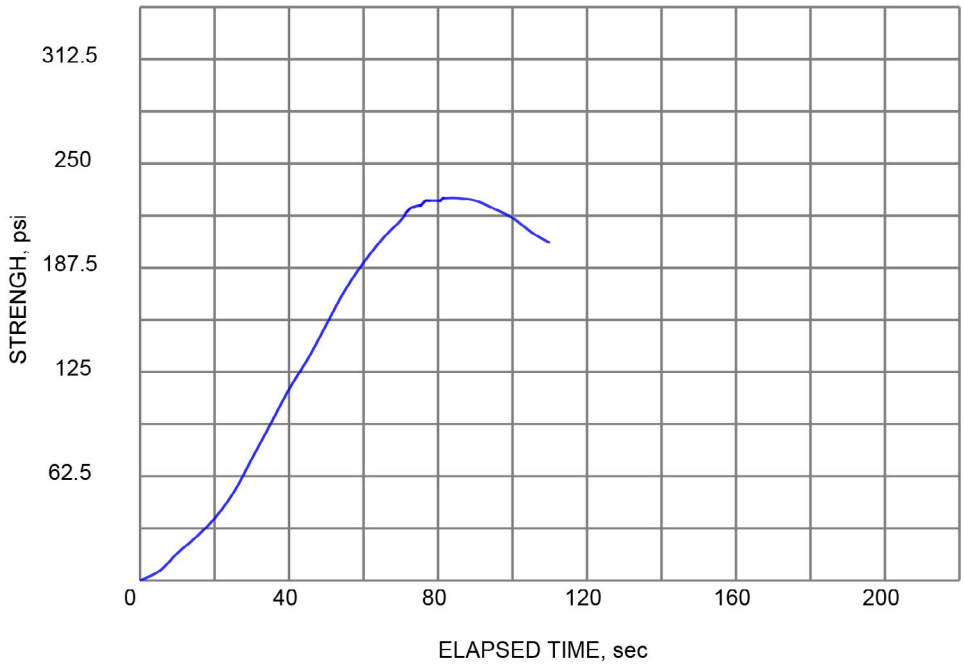
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SAMPLE ID: 7645  
METHOD: Method A  
H/D CONVERSION USED: None  
SAMPLE DIA., in: 3.47  
SAMPLE HEIGHT, in: 5.5  
CROSS-SECTION AREA, in<sup>2</sup>: 9.46  
DATE TESTED: 6/22/2018  
AGE OF SPECIMEN: 14  
SPECIMEN MOISTURE, %: 9.1

LOAD RATE, psi/sec: 3  
PEAK LOAD, lbf: 2,165

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**COMPRESSIVE STRENGTH, psi: 229**



Equipment: 7611, 6572, 7041-B



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**Project: Soil Cement**  
**Project ID: 7330**  
**Client: Karol-Warner**



