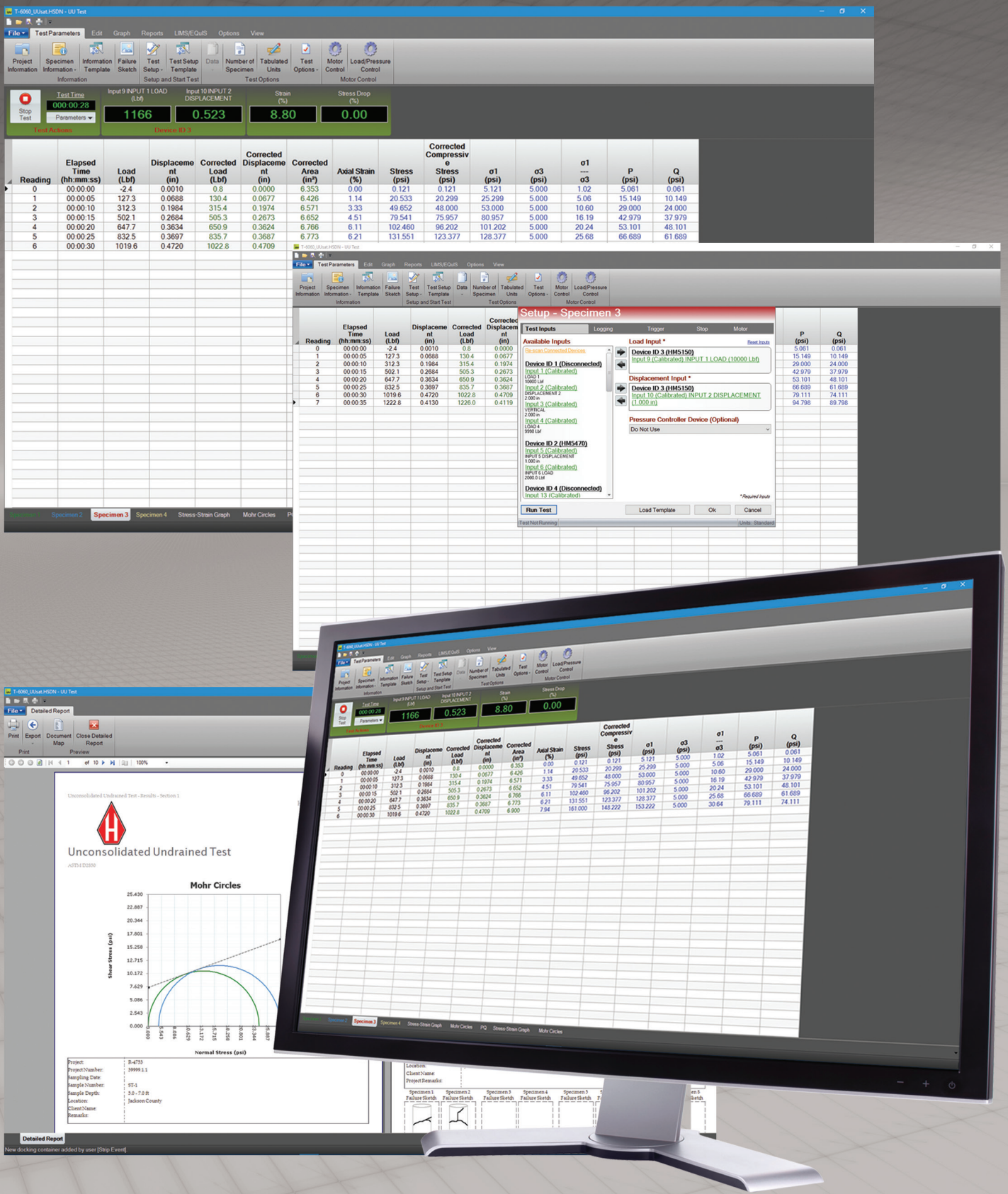
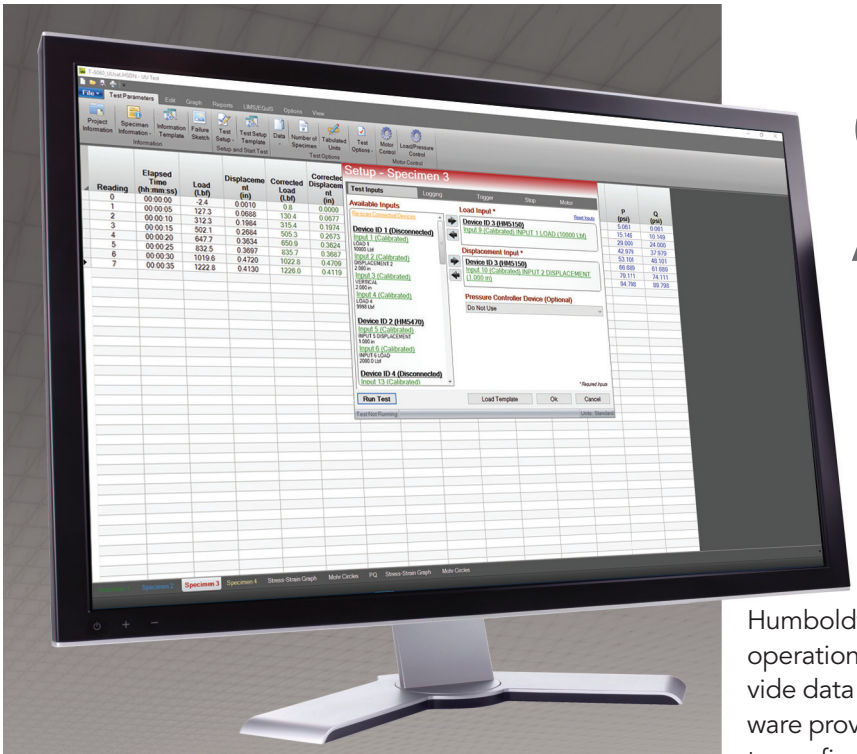
NEXT SOFTWARE

CONTROL, DATA ACQUISITION AND REPORTING





Control, Data Acquisition & Reporting Software

Humboldt's, NEXT Basic software provides:

- Machine control, and data acquisition via networked computer
- Provides the ability to use NEXT software's, advanced test-specific modules
- Real-time graphical chart and numerical display of tests via computer display
- Effective sampling rate of 50 readings per second
- Stores unlimited tests with up to 3000 points per test.
- Up to 255 individual tests can be run simultaneously from a single PC
- Advanced, test-specific modules are available, which provide all the calculations and graphs required per testing standards
- Provides advanced graphing capabilities
- Provides full-unit customization
- Reports can also be exported to Excel or a CSV file, if desired, and, we can provide custom integration/ export solutions for LIMS, EQuIS, gINT, etc.

Humboldt's NEXT Basic software is used to control the operation of Humboldt's testing machines, as well as provide data acquisition and reporting of test data. The software provides a computer-based platform with the ability to configure testing machines and the testing process; calibrate transducers, load cells and digital indicators; specify testing parameters and limits, operate the machine during the testing and provide detailed reports of the data collected in tabular or graphical formats.

From controlling a single operation to a complete geotechnical lab, Humboldt's NEXT Basic data acquisition software, in conjunction with compatible Humboldt testing equipment, provides a complete solution for the acquisition, recording and presentation of test data. NEXT Basic software is included with many of Humboldt's load frames, consolidation and direct shear machines; providing robust machine control, calibration, data acquisition and report generation for those using a computer to control load frame operations. With Humboldt's NEXT Basic software, operators have the ability to view and control testing operations from a PC in the lab, in the next room or at a different location, as well as the ability to control and monitor multiple tests at the same time.

So, whether you are controlling a single testing operation or controlling a complete geotechnical lab, Humboldt's NEXT Basic software, in conjunction with Humboldt's testing machines, provides a complete solution for the calibration, acquisition, recording and presentation of testing data in data tabulation and graphic chart formats.

YOU CAN PURCHASE YOUR SOFTWARE MODULES ONLINE!

https://www.humboldtmfg.com/elitenextsoftware/

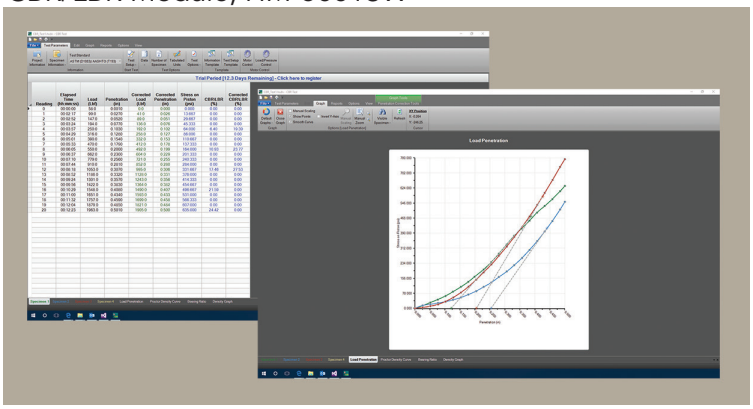
NEXT Test-Specific Software Modules

Humboldt NEXT Basic software can be enhanced with the purchase of test-specific modules. These modules provide you with the following capabilities beyond the standard software included with your ELITE Series load frames.

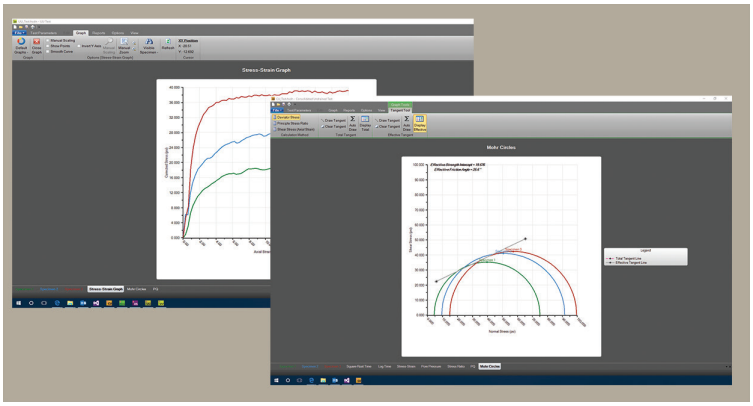
- Test-specific setup, which guides you through the process and includes selecting data collection parameters that best fit the specific test
- Input specific project information for each test, such as project name, client information, etc
- All test-specific initial, intermediate, and final parameters required by ASTM and BS standards are dynamically calculated for you, based on your input of specimen information, such as size, weight, etc
- Tabulated test data, graphs and all test-specific calculations are provided in real time, allowing you to monitor tests in process
- Generate test-specific reports that include all graphs and data presented in a project
- Simultaneously run multiple tests on one computer, involving any of the available NEXT modules and any compatible Humboldt equipment up to 255 device connections, which is up to 1020 inputs
- Create and store test-specific test setup templates for rapid setup of future tests
- Produce test-specific graphs, which allow you to draw construction lines to calculate angles and other test-specific parameters
- Automatically recover from a PC shutdown without loss of data
- All unit parameters can be adjusted individually
- Easily change between different test standards
- Access free, down loadable software upgrades for purchased modules
- Additional modules are available, please inquire

Consolidation Module	HM-5100SW
Direct Shear Module	HM-5700SW
CBR/LBR Module	HM-5001SW
Unconsolidated Undrained (UU) Module	HM-5002SW
Consolidated Undrained (CU) Module	HM-5003SW
Unconfined Compression (UC) Module	HM-5004SW
Consolidated Drained (CD) Module	HM-5006SW
Marshall Module	HM-5005SW
Permeability Module	HM-5007SW

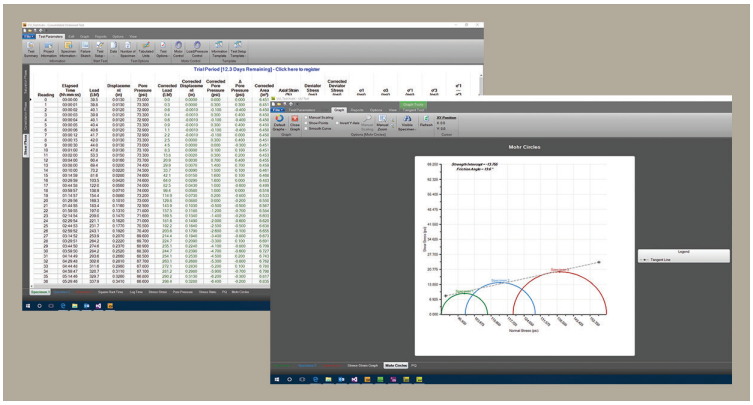
CBR/LBR Module, HM-5001SW



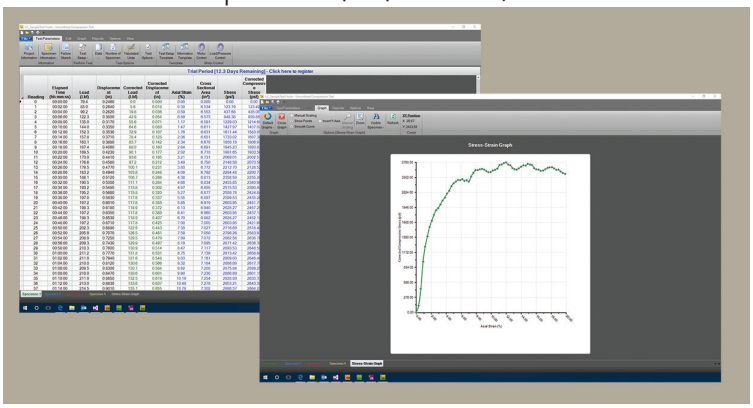
Unconsolidated Undrained (UU) Module, HM-5002SW



Consolidated Undrained (CU) Module, HM-5003SW



Unconfined Compression (UC) Module, HM-5004SW



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09.21

HMTS NEXT Software

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1 Manufacturer's Rights and Responsibilities

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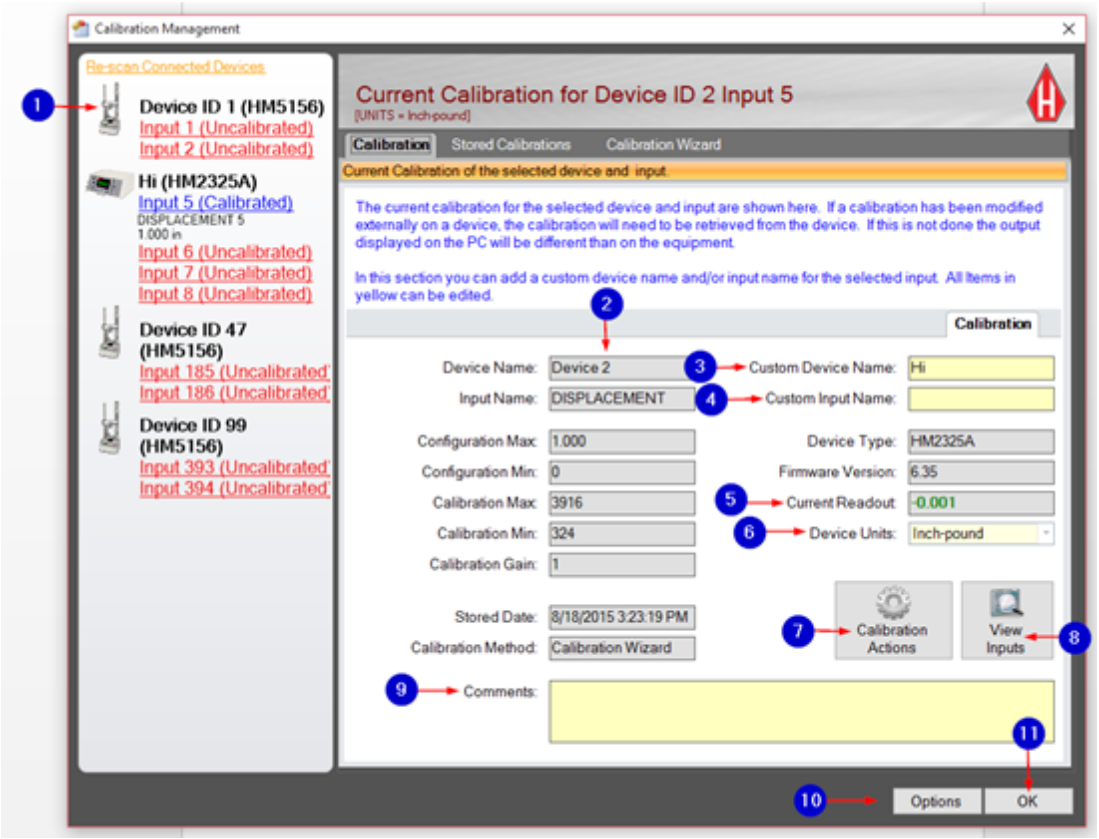
2 Calibration Management



The following information corresponds to the image displayed above.

1. Input Channels

These are connected devices or connected input channels that can be calibrated. If the device name is blue, that means it is selected. If the device name is green, that means it is not selected and has a valid calibration. If the device name is red, then it is not calibrated.

2. Gray Boxes

These boxes automatically fill in with calibrated information based on the device that you selected. If a calibration on a device has been externally modified, the calibration will need to be retrieved from that device. If this is not done, the output displayed on the PC will be different than what is displayed on the equipment.

3. Custom Device Name

This is the overall name of your device that will be used to differentiate

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between other devices when software displays connected devices.

4. Custom Input Name

This is how your input, or channel, will be identified.

Note: Names do not transfer directly to Legacy equipment; they are only shown in the software. This applies to both custom device name and custom input name.

5. Current Readout

This displays the current calibrated value for your selected device.

6. Device Units

These are the current machine units that will be displayed on your computer. They are limited to the type of calibration.

7. Calibration Actions

Available calibration actions include "Retrieve Calibrations," "Send Calibrations to Device," "Clear Calibration," "Export Calibration," and "Import Calibration."

8. View Inputs

This is a tool to see that connected devices are working and communicating. The screen displays the current live values from the connected device.

9. Comments

This is an area where you can include special notes about the calibrations.

10. Options

Available options include "Calibration Management Units," "HMTS Next Options," "Device Connection History," "Manual Motor Control," and "About."

11. Ok

This saves all information and exits the "Calibration Management" screen.

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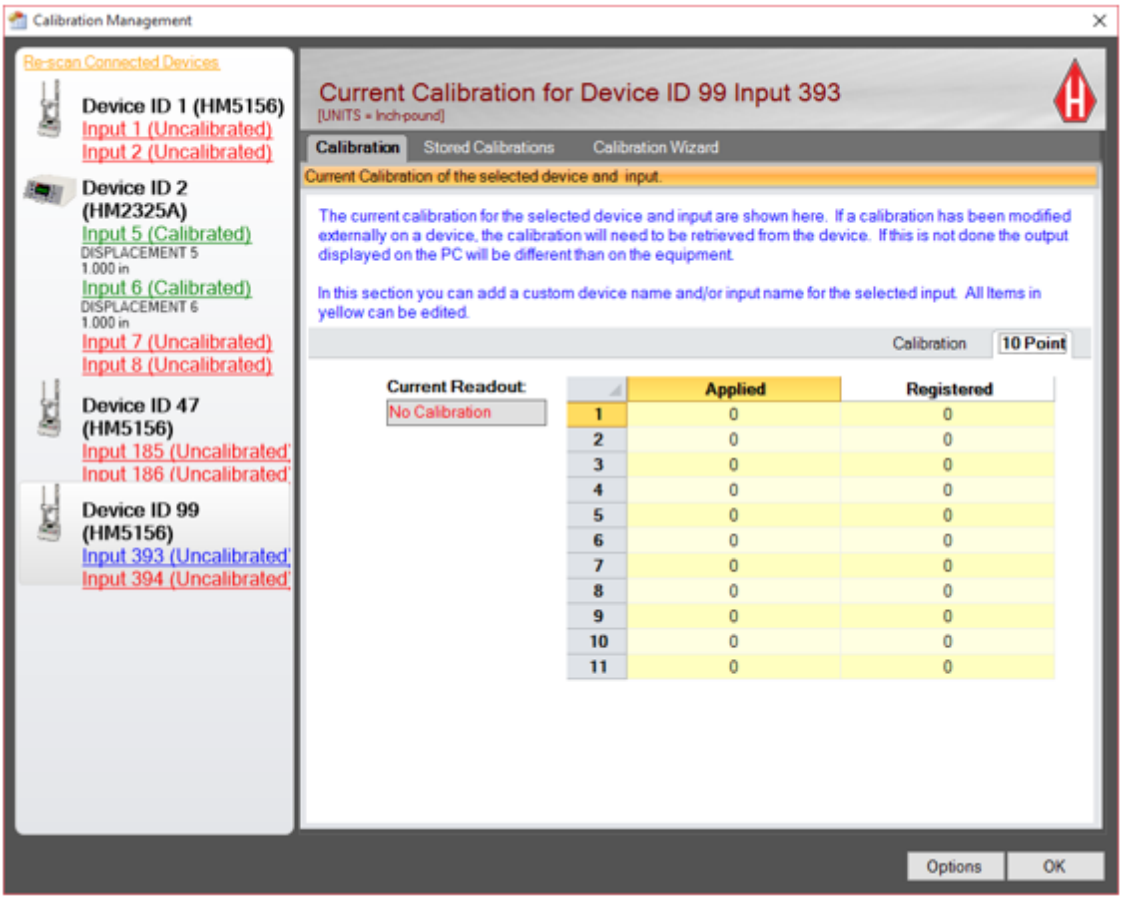

The following information corresponds to the image displayed above.

5000 series loggers support a 1 point calibration up to a 10 point calibration. The full calibration is shown here for all points.

Note: This tab is not shown for Legacy loggers because Legacy loggers only support a 2 point calibration.

2.1 Calibration Actions

The "Calibration Actions" option is located near the bottom of the "Calibration Management" screen.

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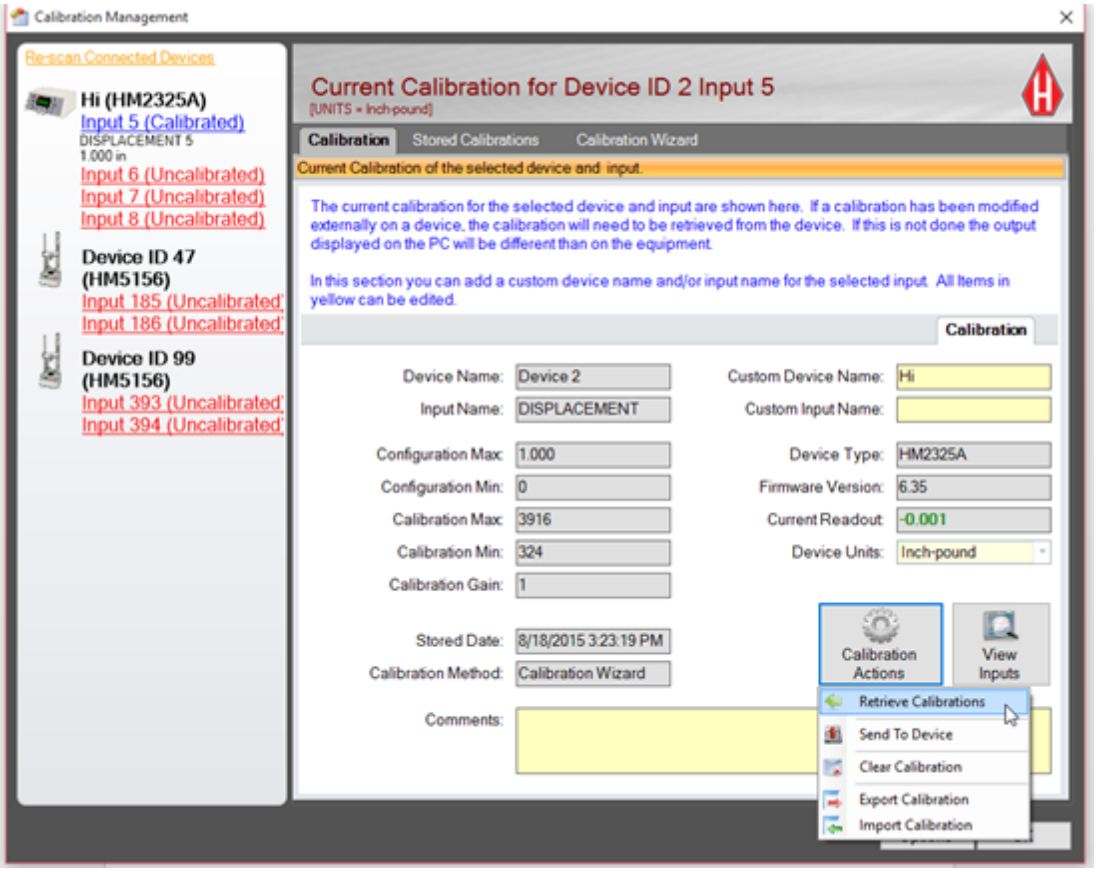

2.1.1 Retrieve Calibrations

Use this tool to retrieve the current calibration off a selected device. This is helpful if a calibration is changed externally or if you are using a new piece of equipment that came with factory calibrations. To retrieve a calibration, click on the selected action in the drop-down list. Once the desired calibrations have been retrieved, click on the "Store Calibrations" button to store the calibration and set it as the current calibration.

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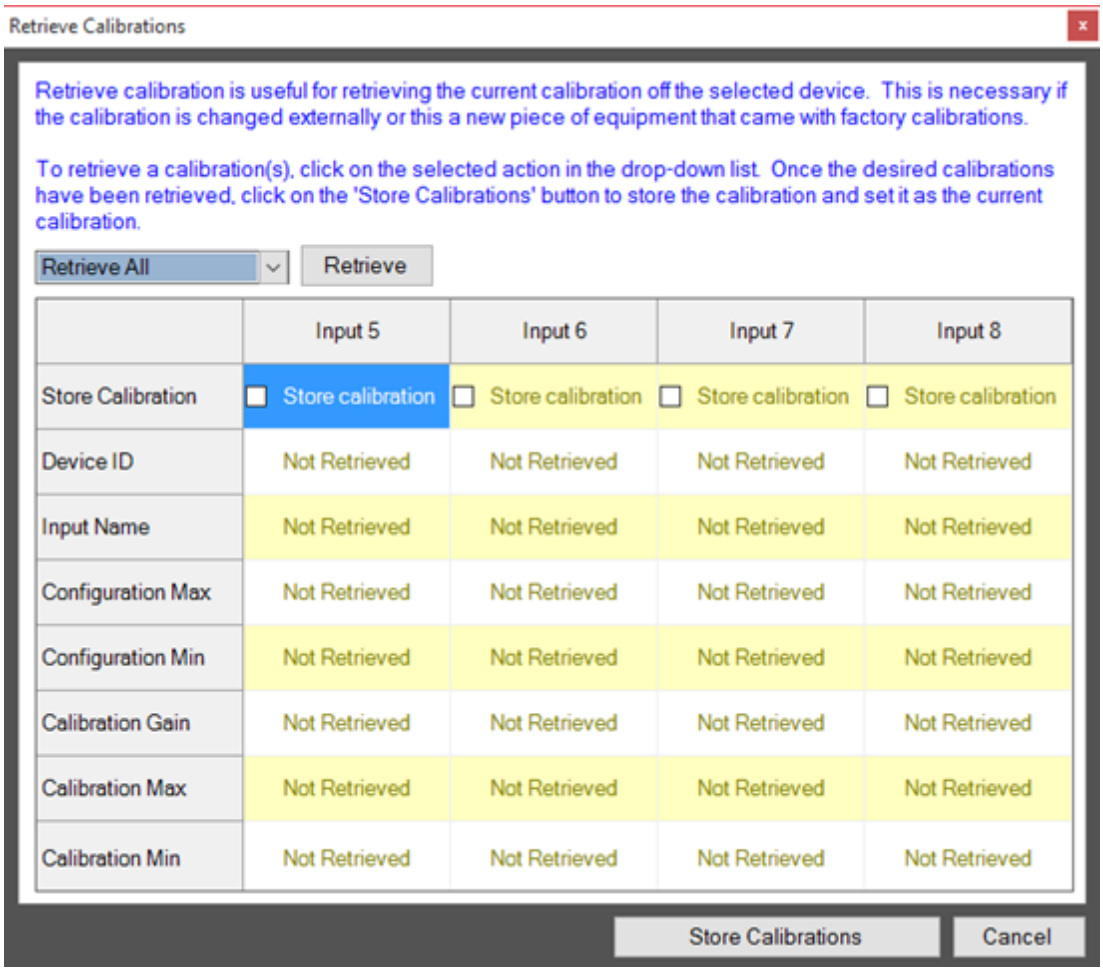

2.1.2 Send to Device

Press this button to overwrite the calibration on the device with the new calibration. The screen will prompt for confirmation of this action.

2.1.3 Clear Calibration

Press this button to mark information for this calibration as "Inactive." This clears information on the PC and software, but not on your device. The screen will prompt for confirmation of this action.

2.1.4 Export Calibration

Press this button to save calibrations to USB.

2.1.5 Import Calibration

Press this button to import calibrations from the computer.

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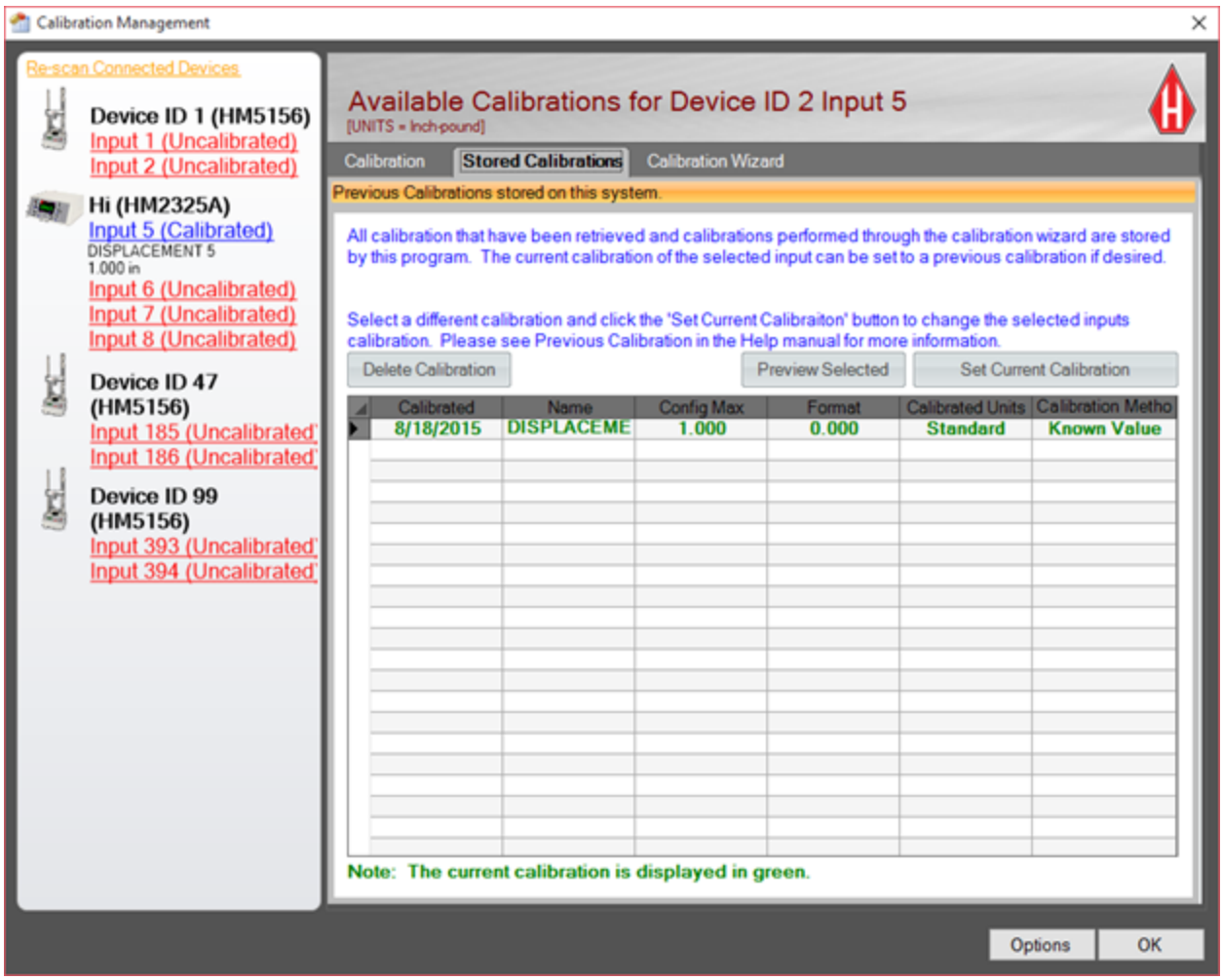
2.2 Stored Calibrations

This screen is a display of calibration history--all calibrations that have been retrieved and performed--from the calibration wizard. The current calibration of the selected input can be set to a previous calibration. For easy identification of the current calibration, this information is displayed in green.



The following information corresponds to the image displayed above.

1. Delete Calibration

Press this button to delete the selected calibration.

2. Preview Selected

Press this button for a calibration preview of the selected calibration.

3. Set Current Calibration

Press this button to set the selected calibration as the current calibration. Past

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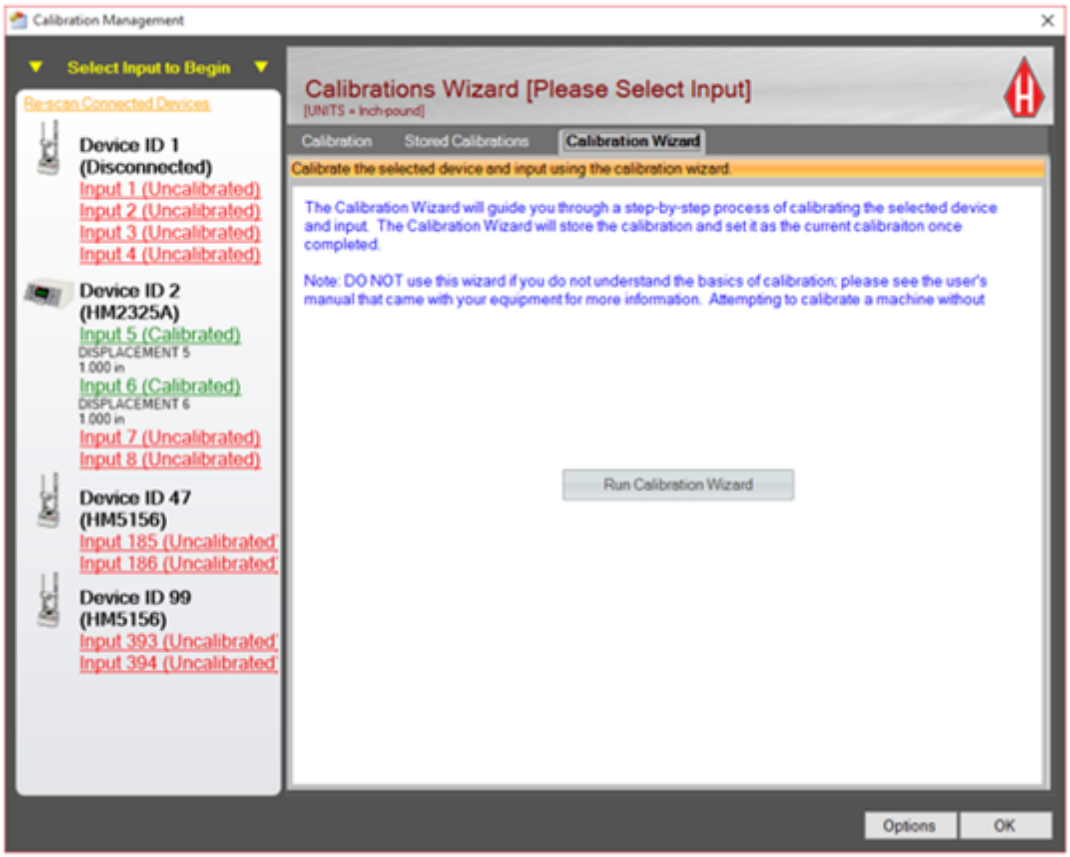
calibrations can be set as current calibrations.

2.3 Calibration Wizard

Calibrations for the select logger cannot be done on the PC and will need to be performed from the face of the logger. Please see the operation manual for instructions. Calibrations can be retrieved from the logger once they are completed, and calibrations that have been retrieved can also be sent to the logger. **Note: The Calibration Wizard is only for Legacy loggers.**



2.3.1 Welcome

This wizard will help you calibrate the selected input. Please exercise caution if a calibration already exists; going any further in this process could corrupt

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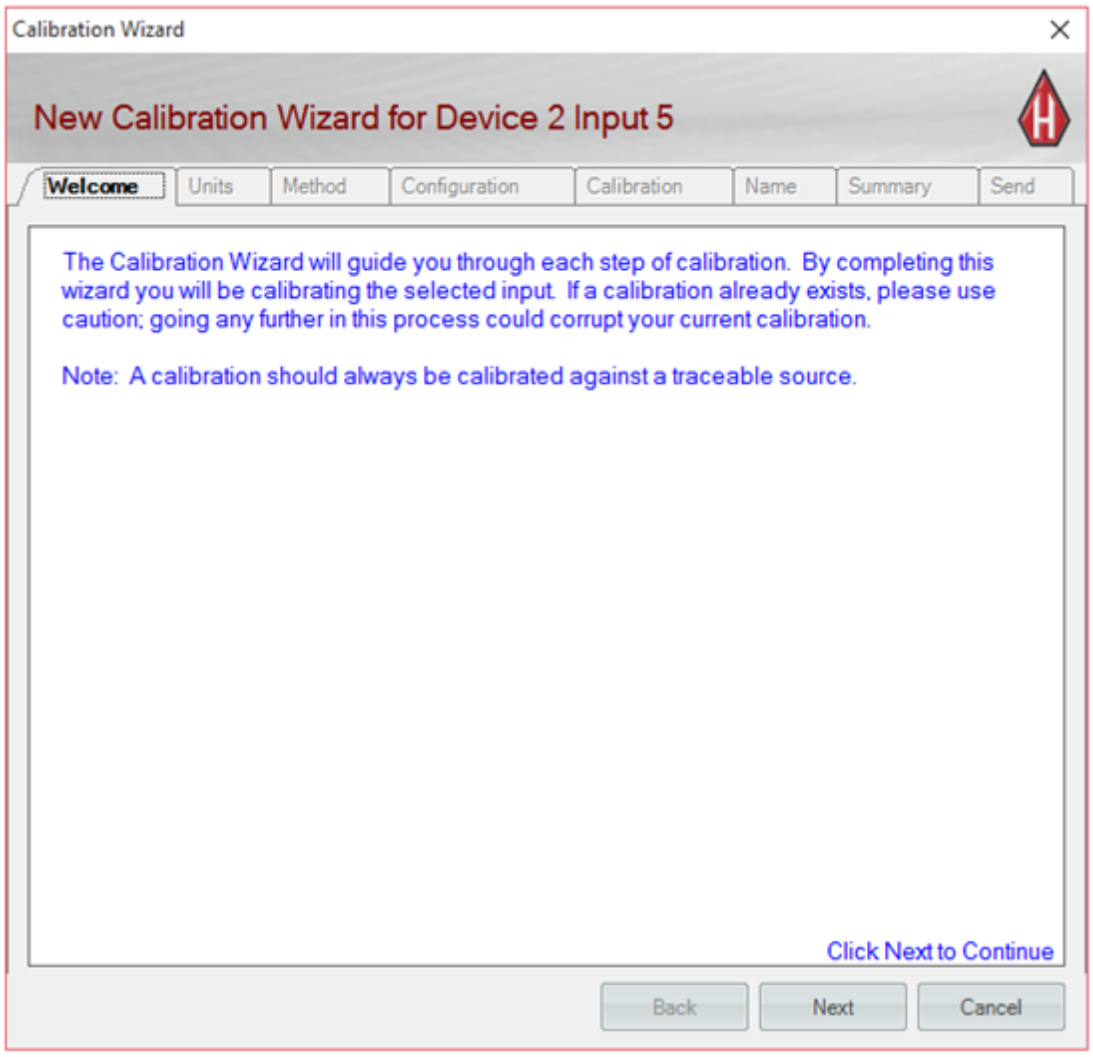
your current calibration. When you are ready to continue to the next screen, click "Next." ***Note: A calibration should always be calibrated against a traceable source.***

WARNING: Calibration should only be performed by trained personnel with proper, certified equipment. The machine and its instrumentation should be calibrated once a year or as the need arises.



2.3.2 Units

Choose between Standard and Metric units of calibration. When you are ready to continue to the next screen, click "Next."

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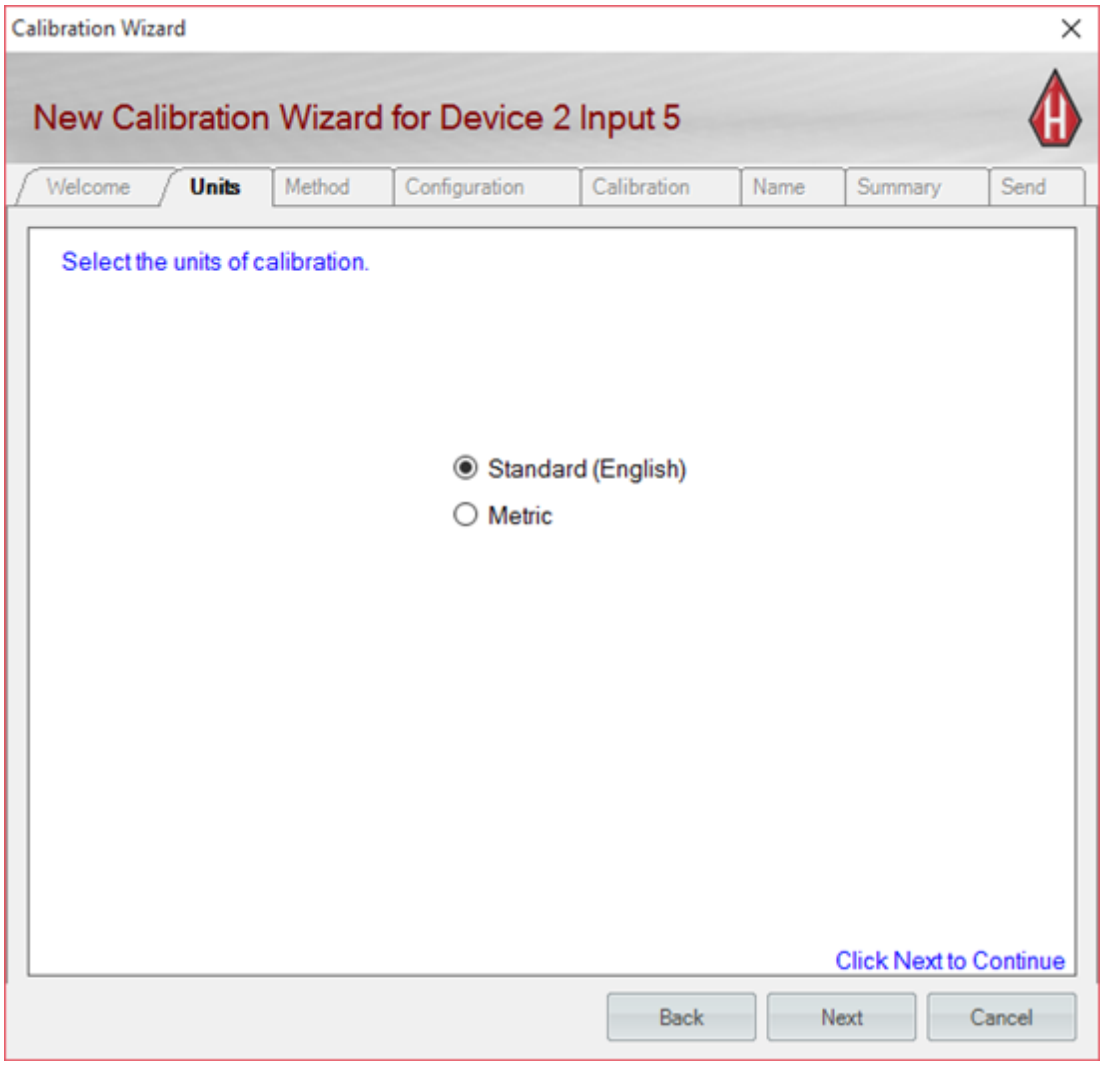

2.3.3 Method

Select the method of calibration. When you are ready to continue to the next screen, click "Next."

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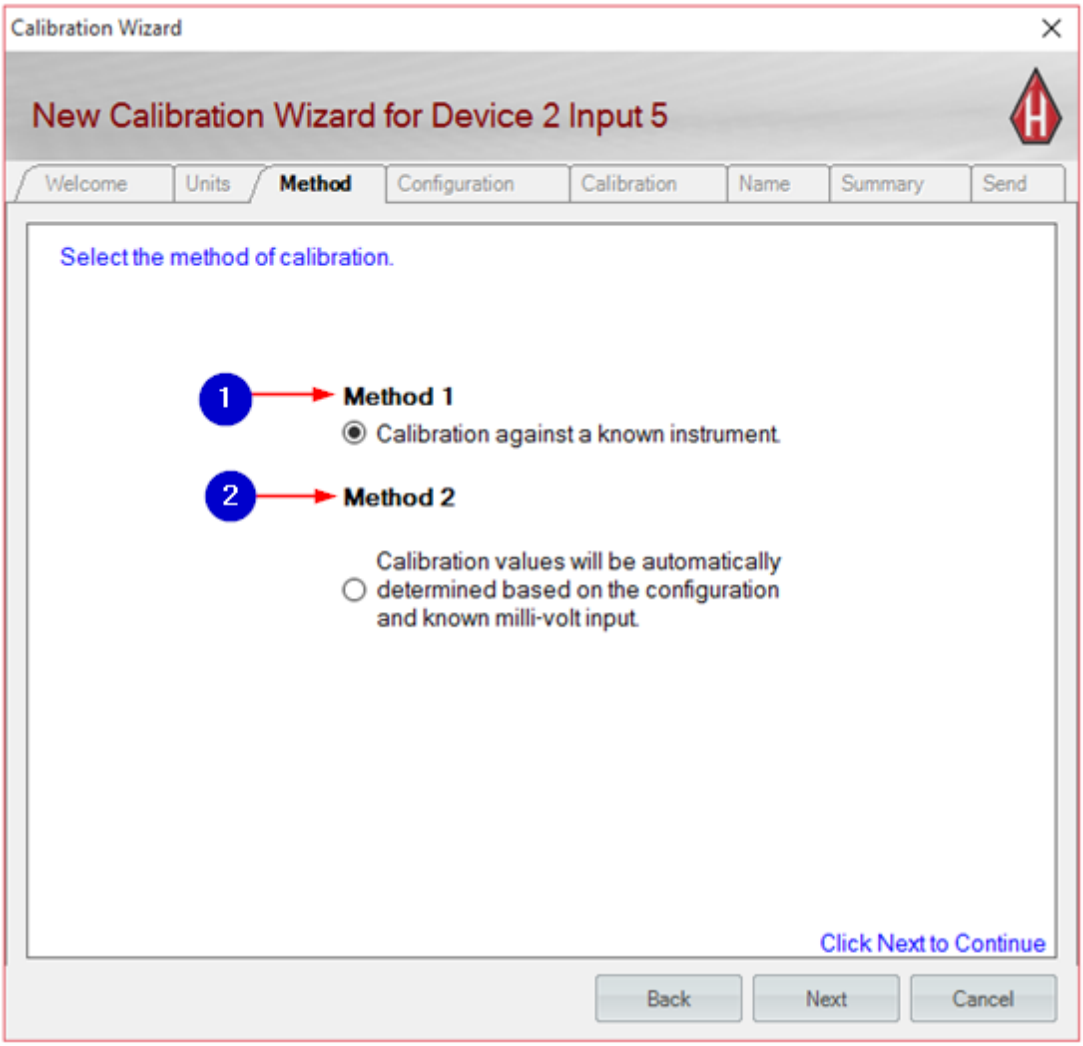

1. Method 1

Select this option to calibrate against a traceable source. This is the recommended option.

2. Method 2

This is a calibration method that can be used if necessary but is not recommended, as your calibration will not be traceable. This calibration method is based on configuration and the known millivolt per volt input (mV/V). The mV/V value can be found on the manufacturer's calibration sheet for your instrumentation.

2.3.4 Configuration

In this screen, the "Maximum Configuration Value" and "Full Scale Output (mv/V)" can be entered. The "Maximum Configuration Value" is the maximum

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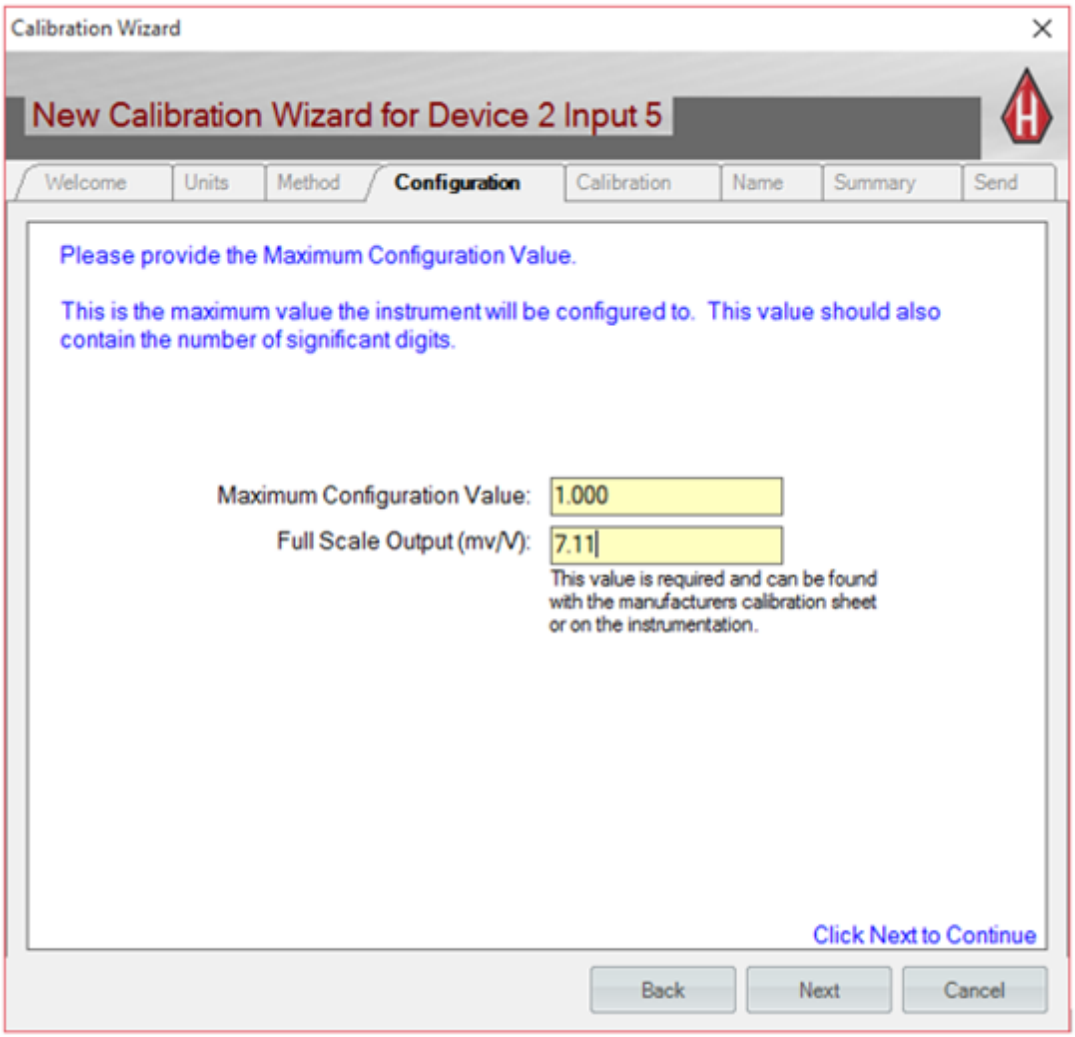
value to which you will be calibrating instrumentation. Significant digits, or the digits to the right of the decimal, should be included for precision. For example, if you are calibrating a one inch lsct and want three significant digits in the calibration, you should enter "1.000." When you are ready to continue to the next screen, click "Next."



The following information corresponds to the image displayed above.

If you selected "Method 2" on the previous screen, you will need to enter a "Full Scale Output (mV/V)" value as well. This value is required and can be found with the manufacturer's calibration sheet or on the instrumentation. If you know the mV/V, the software will automatically choose the gain, calibration zero, and calibration max.

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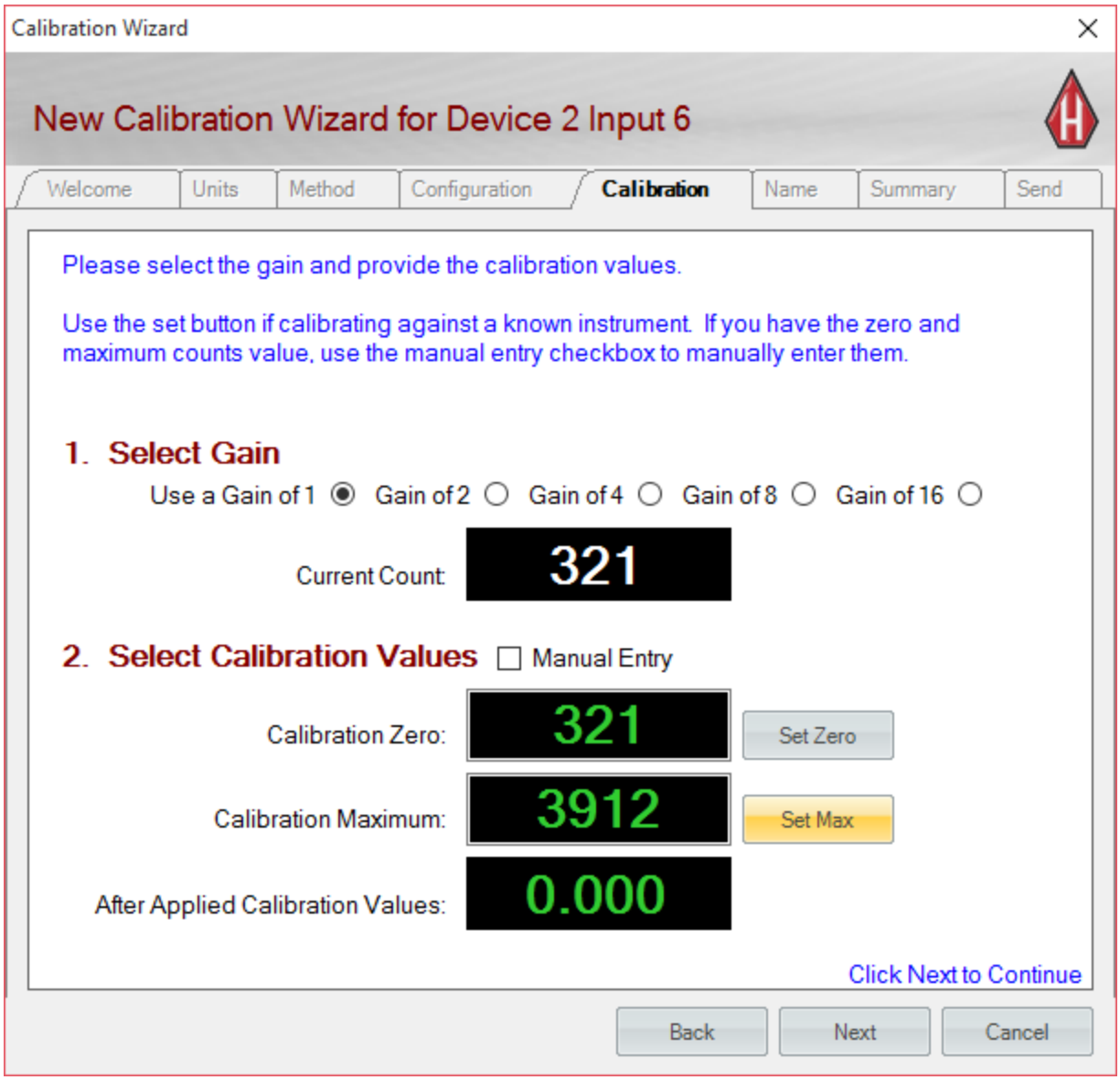
2.3.5 Calibration

This is where you can select the gain and provide calibration values. When you are ready to continue to the next screen, click "Next."



The following information corresponds to the image displayed above.

1. Select Gain and Calibration Values

Make sure that the instrument you wish to calibrate is mounted to a calibration frame and attached to the machine. To choose a gain, first press the "Set Zero" button to record the sensor minimum value with no load on the

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instrument (current count). Then, apply the full engineering load value to the instrument on the calibration frame and press the "Set Max" button to record the sensor max reading (current count). Subtract the two values: "**Calibration Max**" - "**Calibration Zero**." The result should be greater than the sensor maximum required. In the example above, the appropriate gain would be achieved by subtracting 3912-321 = 3,591. The outcome, 3,591, is greater than the calibration max (1.000) with the decimal place removed (1,000). If the number is not greater than the required divisions, the gain needs to be increased to compensate for the difference. Choose the next increased gain and follow this procedure again to ensure that the gain is appropriate. Refer to the instrumentation calibration chart below for examples of required divisions, as well as typical gain factors needed in calibrating each instrument type.

Load Cell	Part#	English Max (lbf)	Metric Max (kN)	English (divisions)	Gain	Metric (divisions)	Gain
10,000 lb. (50kN)	HM-2300.100	010000	050.00	10000	4	5000	4
5,000 lb. (25kN)	HM-2300.050	005000	025.00	5000	2	2500	4
2,000 lb. (10kN)	HM-2300.020	2000.0	10.000	20000	8	10000	4
1,000 lb. (5kN)	HM-2300.010	1000.0	05.000	10000	4	5000	4
500 lb. (2.5kN)	HM-2300.005	0500.0	02.500	5000	4	2500	4
LVDT Transducer	**Part#**	**English Max (in.)**	**Metric Max (mm)**				
0.4" (10.0mm)	HM-2310.04	0.4000	10.000	4000	2	10000	2
1.0" (25.4mm)	HM-2310.10	01.000	25.000	1000	1	25000	2
2.0" (50.8mm)	HM-2310.20	02.000	50.000	2000	1	50000	4
Pore Pressure	**Part#**	**English Max (psi)**	**Metric Max (kPa)**				
100psi (1000kPa)	HM-2300.100	0100.0	001000	1000	1	1000	1

Example: If you are calibrating a 10,000 lb. load cell, you will need a difference value of at least 10,000 divisions. If you register a minimum value reading of 450 divisions with no load on the sensor and your minimum is 8450 divisions at full load on the instrument, your different value will be 8000 divisions (8450 - 450 = 8000). To increase the gain, select the next increased gain until this procedure can be done and you have more than 10,000 divisions.
Once the gain has been set, the calibration zero point needs to be set. To set this point, apply the 0% force to the sensor and press the "Set Zero" button. Next, apply the 100% force to the sensor and press the "Set Max" button.
Note: These values will appear yellow until set; after they are set they will appear green.

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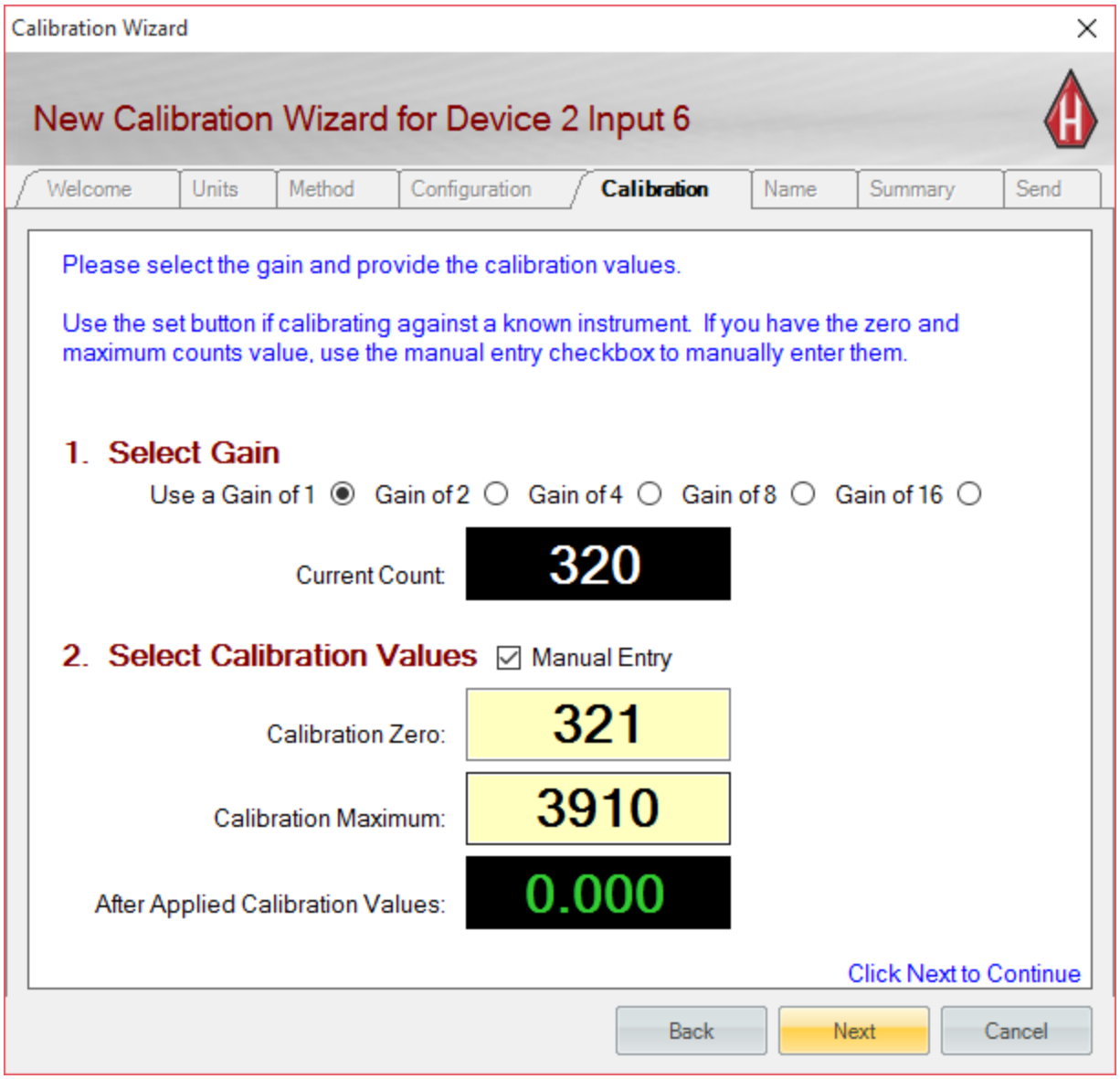

2. Manual Entry

If you know the gain, calibration zero, and calibration maximum, you can manually select and enter these values. To begin, check the box that says "Manual Entry" and then select the gain. Enter the calibration zero and press "enter," then enter the calibration maximum and press "enter."

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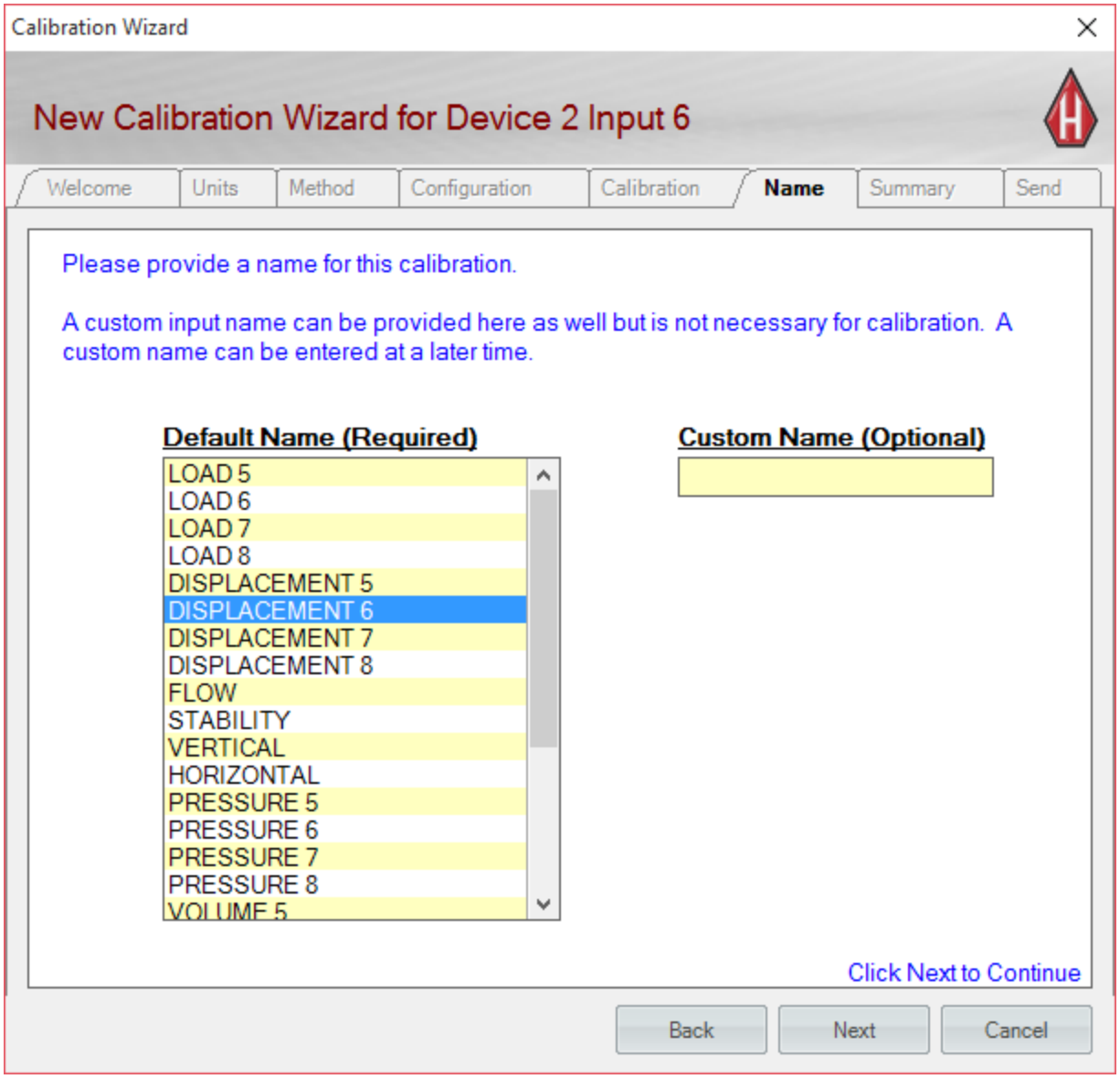
2.3.6 Name

Provide a name for this calibration by clicking in the "Default Name" box. A custom input name can be provided here as well but is not necessary for calibration. This can also be entered at a later time. When you are ready to continue to the next screen, click "Next."

Note: The custom name will not show up on the logger.



2.3.7 Summary

This screen offers an overview of calibration information for your review. When you are ready to send your information to the selected device and input,

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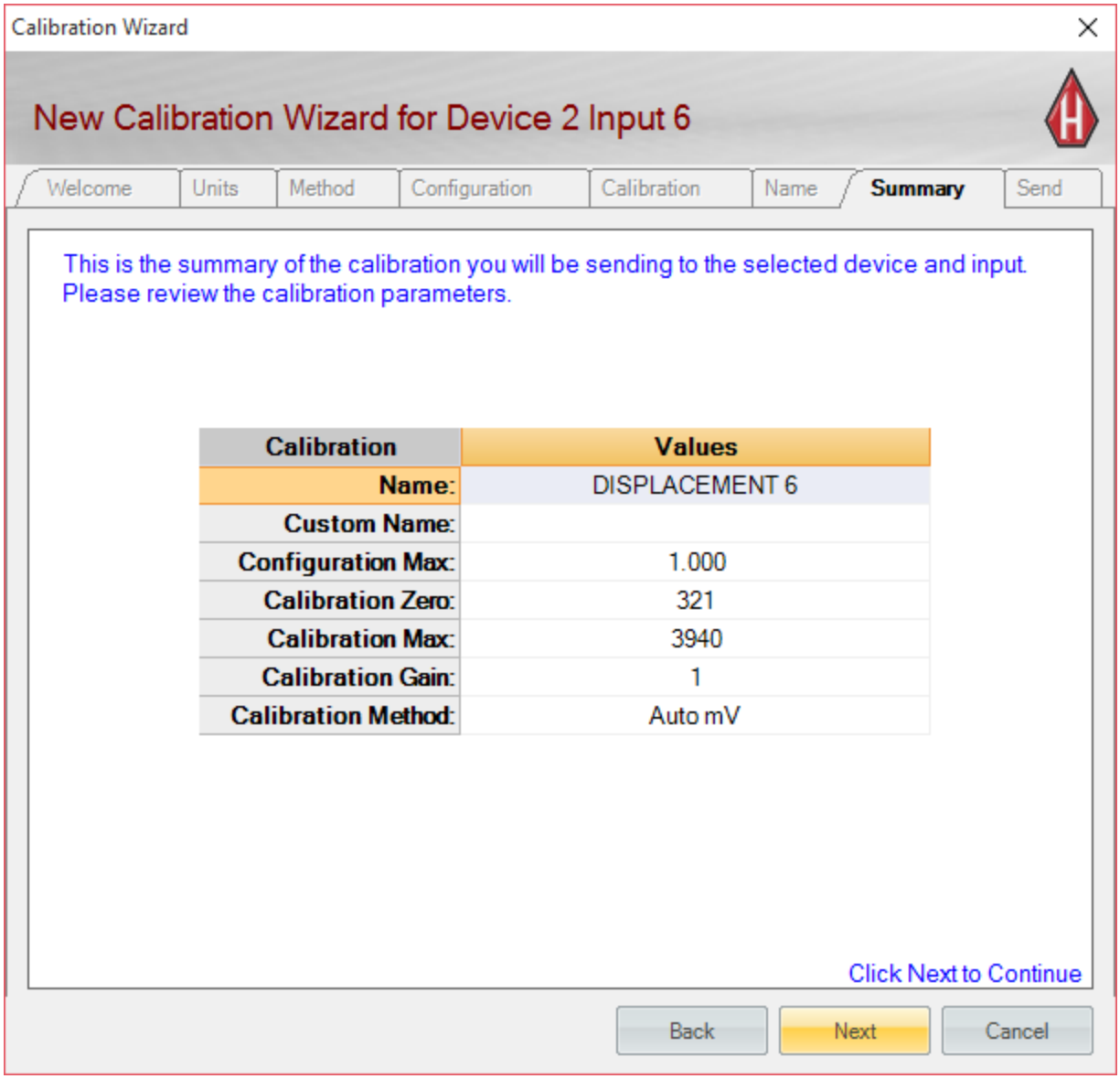
click "Next."



2.3.8 Send

This screen will display after your calibration information has been sent to the selected device and input. You will either be notified that your calibration has been successfully sent or that there is an error. If an error has occurred, select the "Back" button and then the "Next" button to try again. If the calibration transmission continues to fail, please check the calibration and your communication setup.

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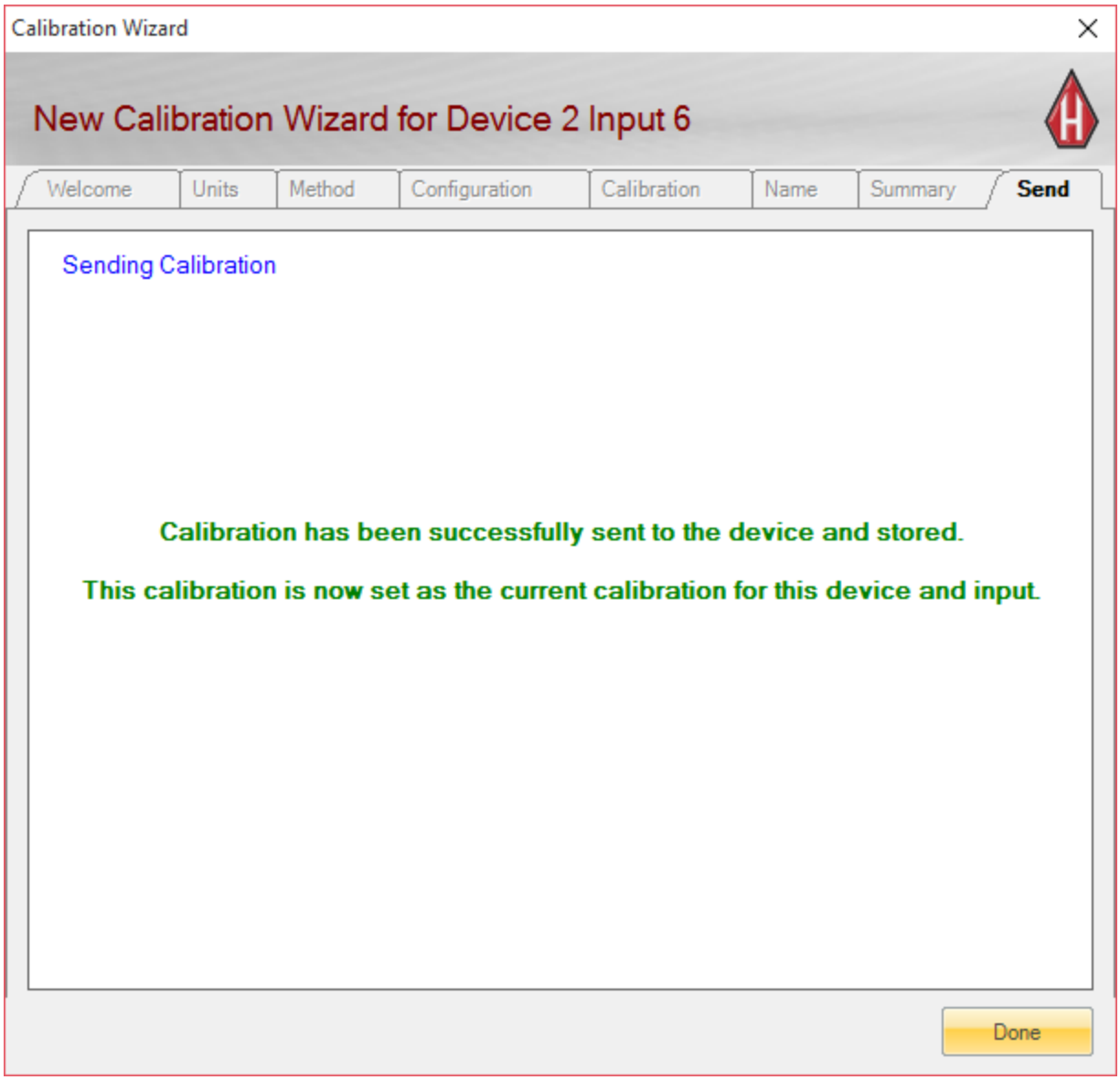

2.4 View Inputs

This screen displays the calibrated and uncalibrated inputs of your selected device in real time.

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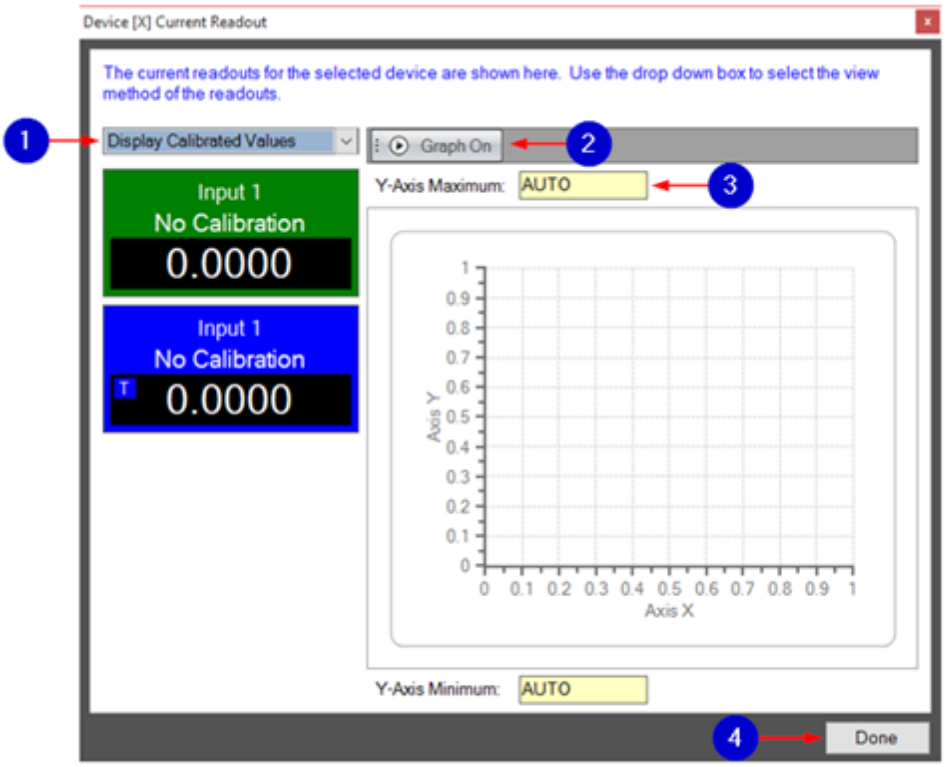

The following information corresponds to the image displayed above.

1. Readout View Methods

The drop-down menu gives the option to either "Display Calibrated Values" or "Display Raw Data." Click "Display Calibrated Values" to view the values that have been calibrated for your selected device. Click "Display Raw Data" to view the ATOD values.

2. Graph On/Off

Click "Graph On" to view a strip-chart of real-time input values.

3. Y-Axis Maximum/Minimum

These values will adjust automatically. Enter values to change the scale; values must be valid or the graph will not change. Clear the box to return to "AUTO."

4. Done

Press this button to return to the "Calibration Management" screen.

3 Registration Details

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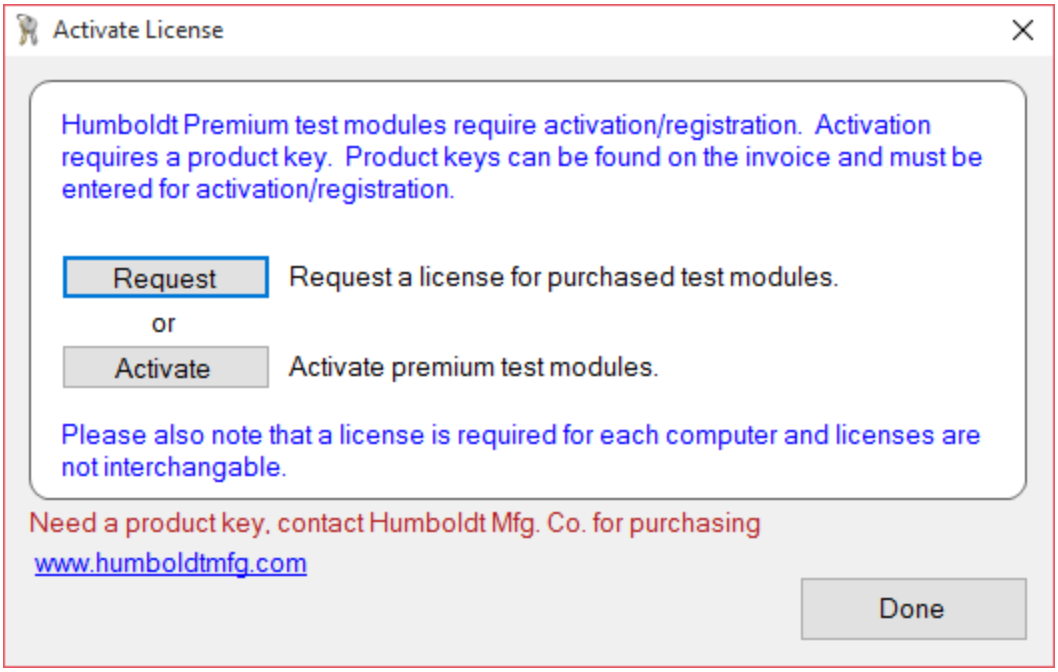
3.1 Activate License

Humboldt Premium test modules require activation/registration. Activation requires a product key. Product keys can be found on the invoice and must be entered for activation/registration.

Click “Request” to request a license for purchased test modules or click “Activate” to activate premium test modules.

Upon your request of a test module, Humboldt will send a licensing file. Licenses are not interchangeable; a license is keyed specifically for the computer from which the license was requested. Humboldt will allow you to request licenses for up to 3 computers.



3.2 Activate Request

This screen is accessed through the selection of "Request" on the "Activate License" screen.

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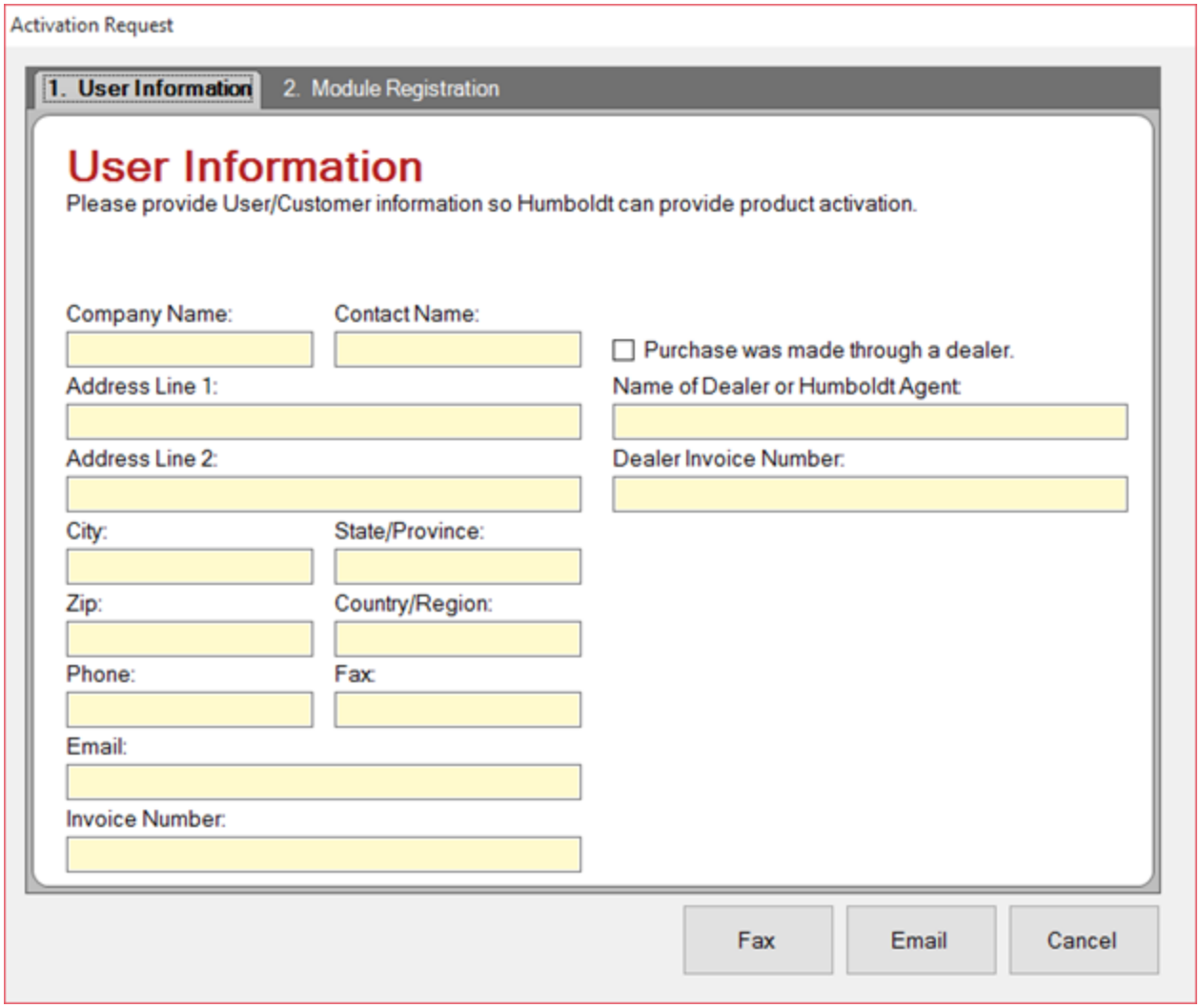
3.2.1 User Information

To begin, fill in your user information, including company name, contact name, contact information, and invoice number. Check the box if your purchase was made through a dealer, then enter the dealer or Humboldt agent's name and invoice number in the spaces below.

Click on "Module Registration" to continue. If any spaces are left blank before submission, the program will prompt for missing information.



3.2.2 Module Registraton

Each product will contain a unique product key that can be found on your

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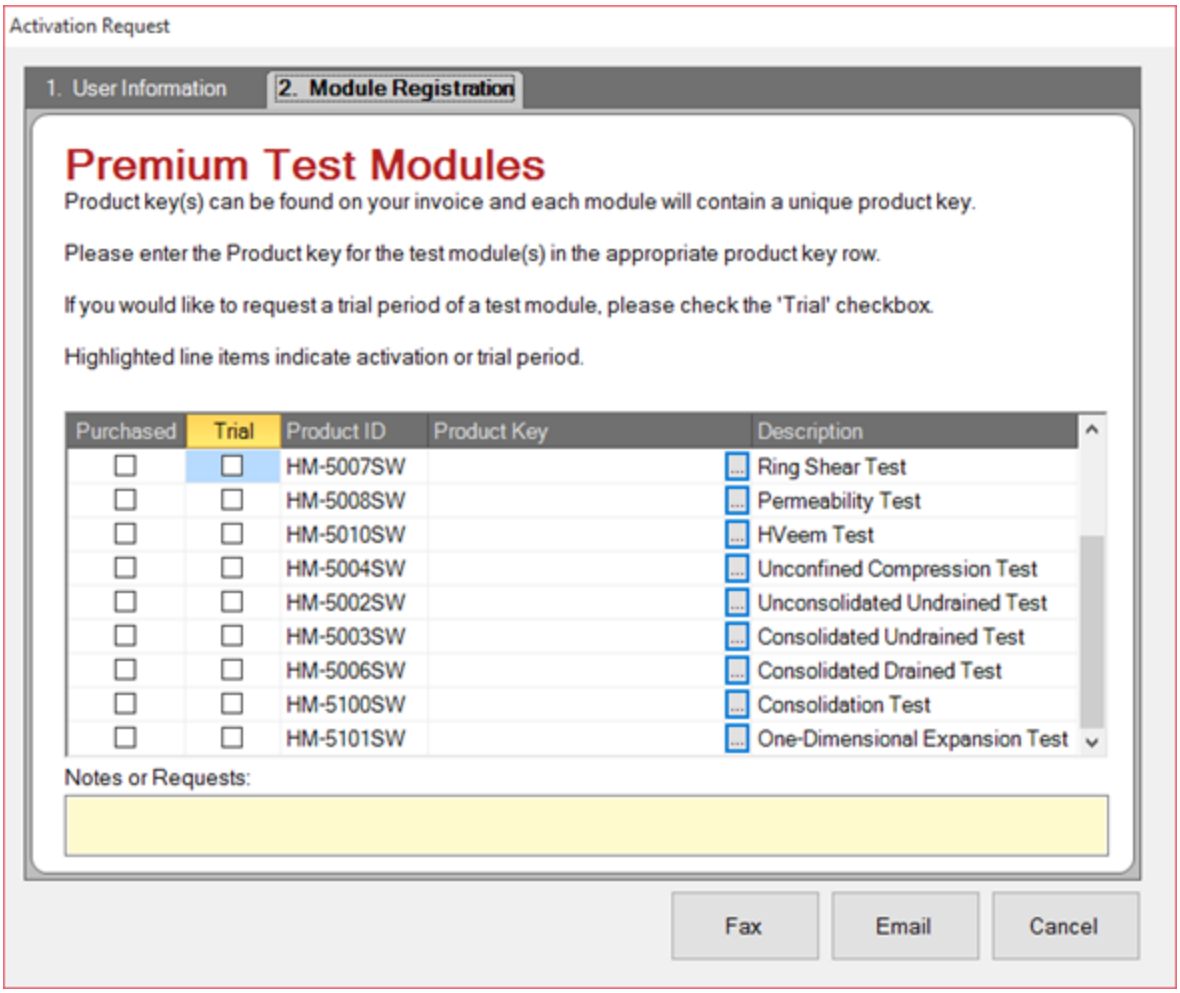
invoice. If your test module was purchased, check the "Purchased" box and click the corresponding box outlined in blue to enter the product key. If you wish to request a trial period of a test module, check the "Trial" box. You must select at least one "Purchased" or one "Trial" item to request registration.



3.2.3 Product Key

The product key is hexadecimal, which means it is A-F and/or 0-9. This can be found on your invoice. If you have purchased the software and did not receive a product key, please contact your dealer or Humboldt Mfg. Co.

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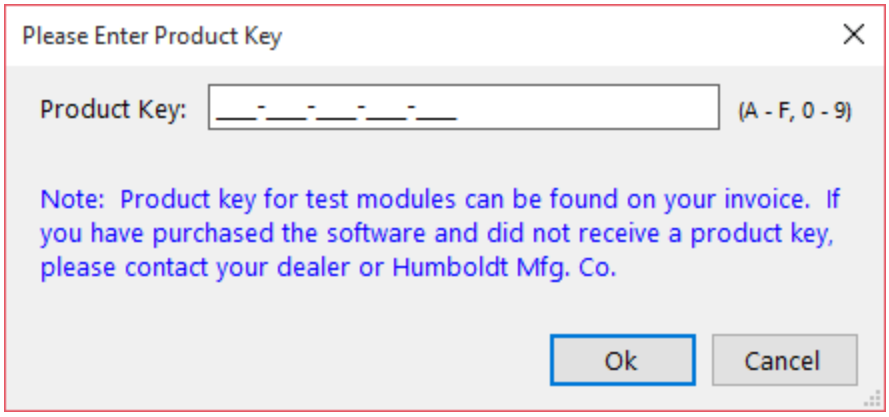
Note: If you check to send this information through the program, this option could be blocked by your company's firewall.



4 HMTS Next Options

This screen is accessed through selection of the "Options" button at the bottom of the "Calibration Management" screen, then "HMTS Next Options."

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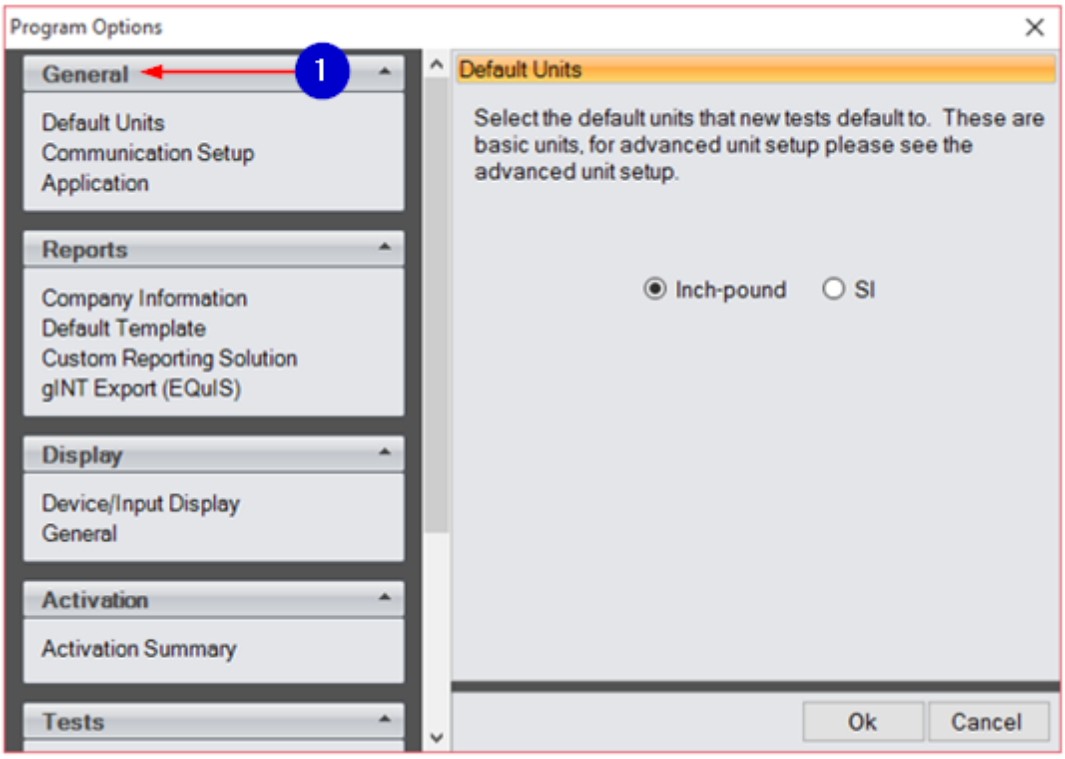

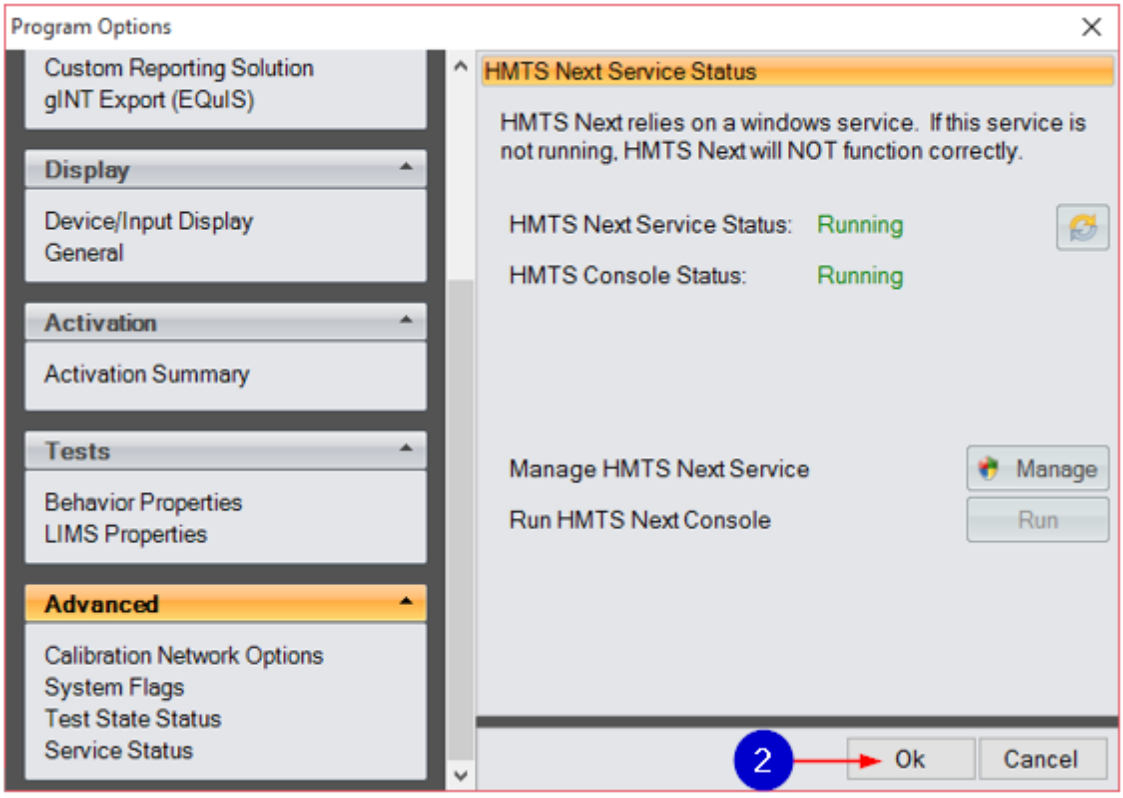

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The following information corresponds to the image displayed above.

1. Options

These options are grouped under the following headings: "General, Reports," "Display," Activation," "Test," and "Advance."

2. Ok

Press "Ok" to save information and return to the "Calibration Management" screen, or press "Cancel" to close this window and return to the "Calibration Management" screen.

4.1 General

Available options under "General" include: "Default Units," "Communication Setup," and "Application."

4.1.1 Default Units

Determine how all new tests in the application will initially load their base units (Inch-pound or SI). For Legacy loggers, the tabulated columns in black will reflect this base unit.

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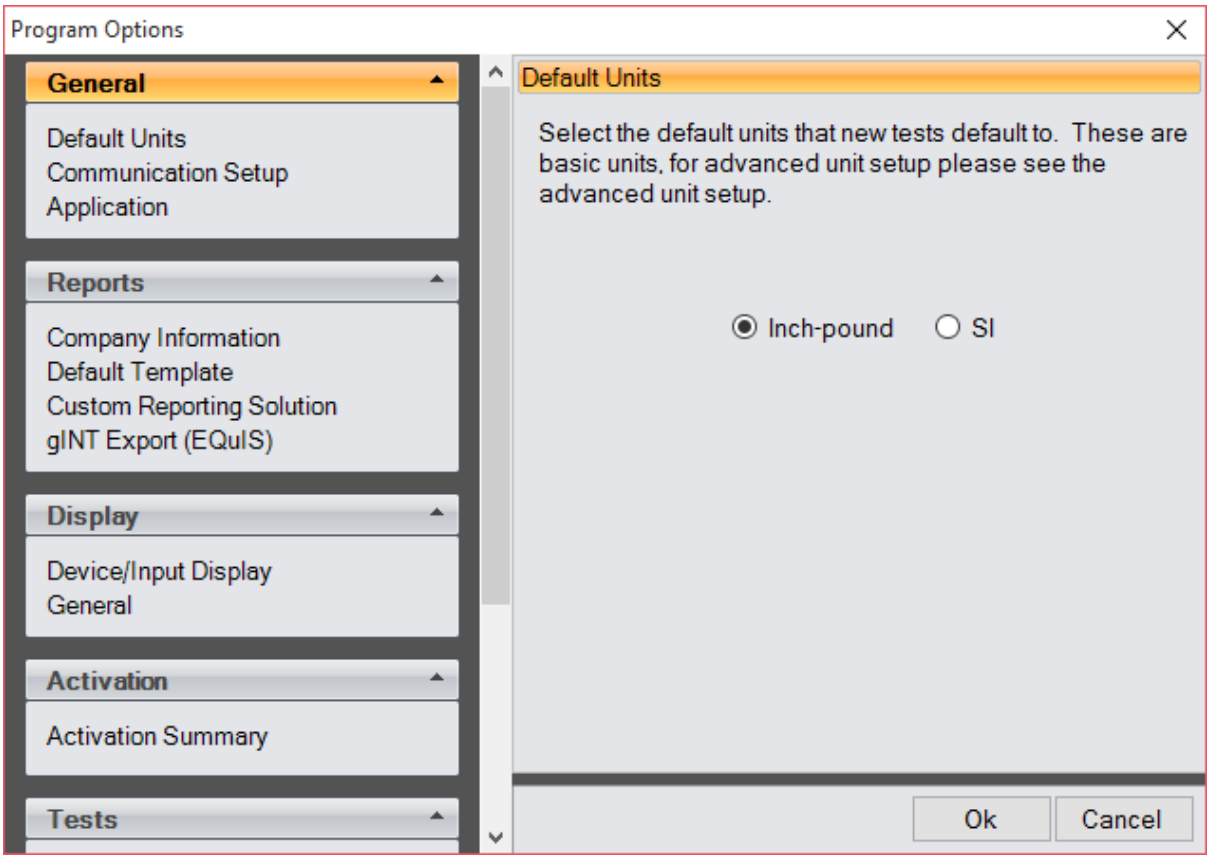

4.1.2 Communication Setup

This is where serial settings required to communicate with Legacy loggers can be changed. Legacy loggers require a communication port to be selected: this setting is not optional and must be completed for Legacy loggers to communicate with the PC. This screen can also be accessed through the Management Console.

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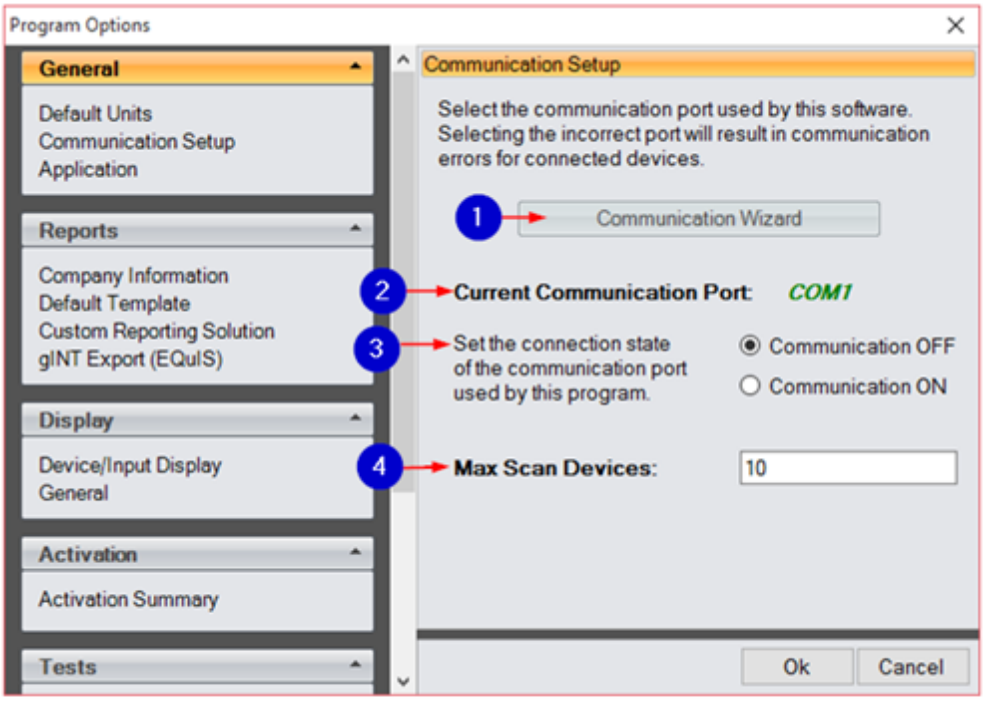

The following information corresponds to the image displayed above.

1. Communication Wizard

The "Communication Wizard" can assist if you are using a Humboldt USB adapter (HM-000379). See below for details and an example of this screen.

2. Current Communication Port

This indicates the current communication port that you are using.

3. Communication State

Set the connection state of the communication port used by this program. Communication can be turned on or off.

4. Max Scan Devices

This number reflects the highest logger ID for which the software will search.

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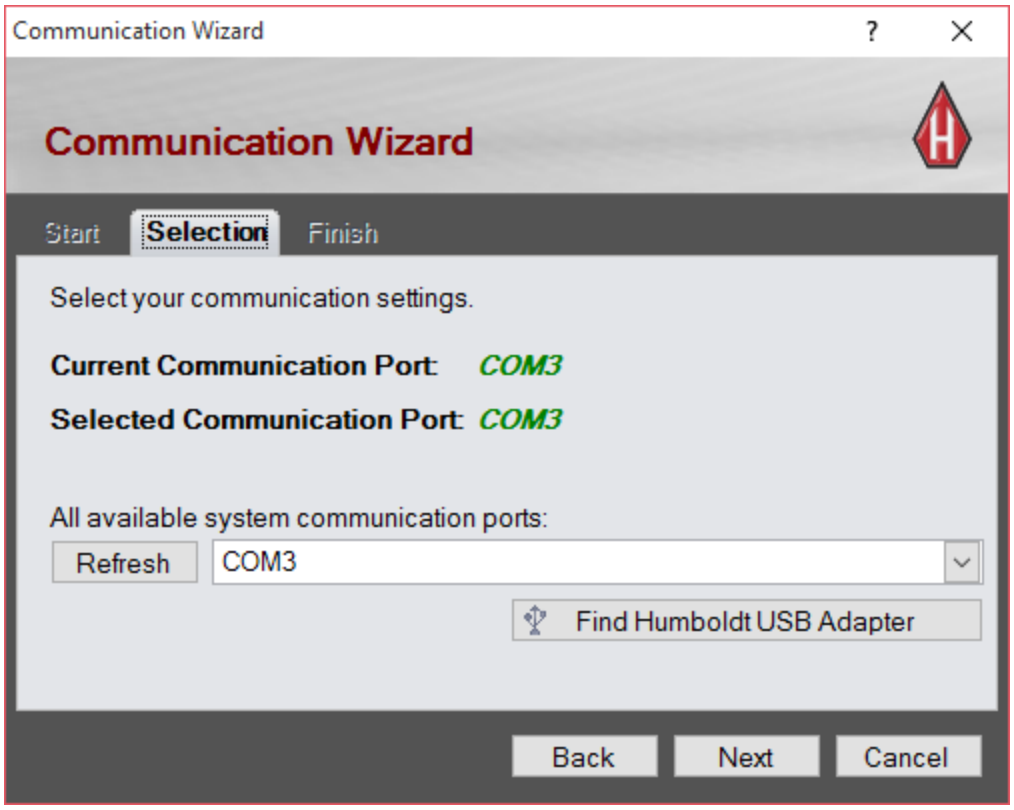

The following information corresponds to the image displayed above.

The "Communication Wizard" will help guide you through configuring your PC to work with Humboldt Data loggers. All available system communication ports are displayed here. If you have a Humboldt USB adapter(HM-000379), then you can have the wizard automatically find the Humboldt USB adapter. If you do not have a Humboldt USB adapter (HM-000379) and are unsure of which communication port to select, contact your IT department for assistance.

4.1.3 Application

This displays available options that are not test-specific. These options can be modified at any time and will not affect any tests that are currently running.

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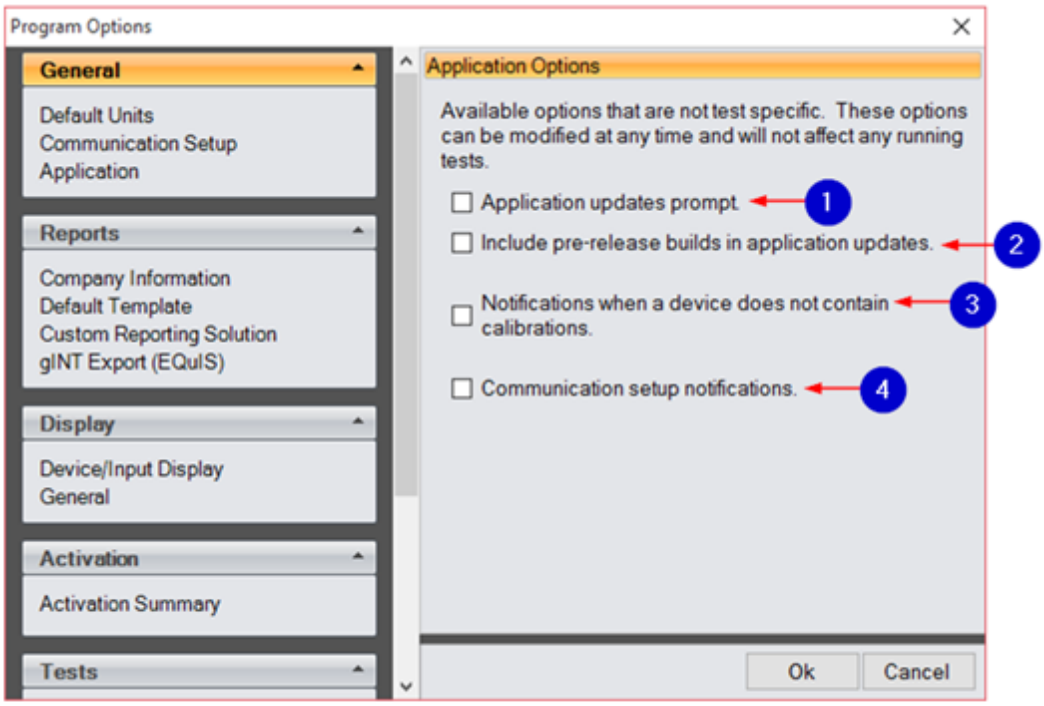

The following information corresponds to the image displayed above.

1. Update Prompt

If an update is available, the program will prompt to update your software. Check this box to enable this feature or uncheck this box if you would not like to receive software update prompts.

2. Pre-release Builds

Check this box to enable/disable the receiving of developmental builds before they are released. **Warning: Developmental builds are a work in progress and may contain bugs.**

3. Calibration Notifications

Check this box to enable/disable pop-up notifications when devices do not contain calibrations.

4. Communication Setup Notifications

Check this box to enable/disable pop-up notifications when there is a problem with the communication port or there is a communication port status change.

4.2 Reports

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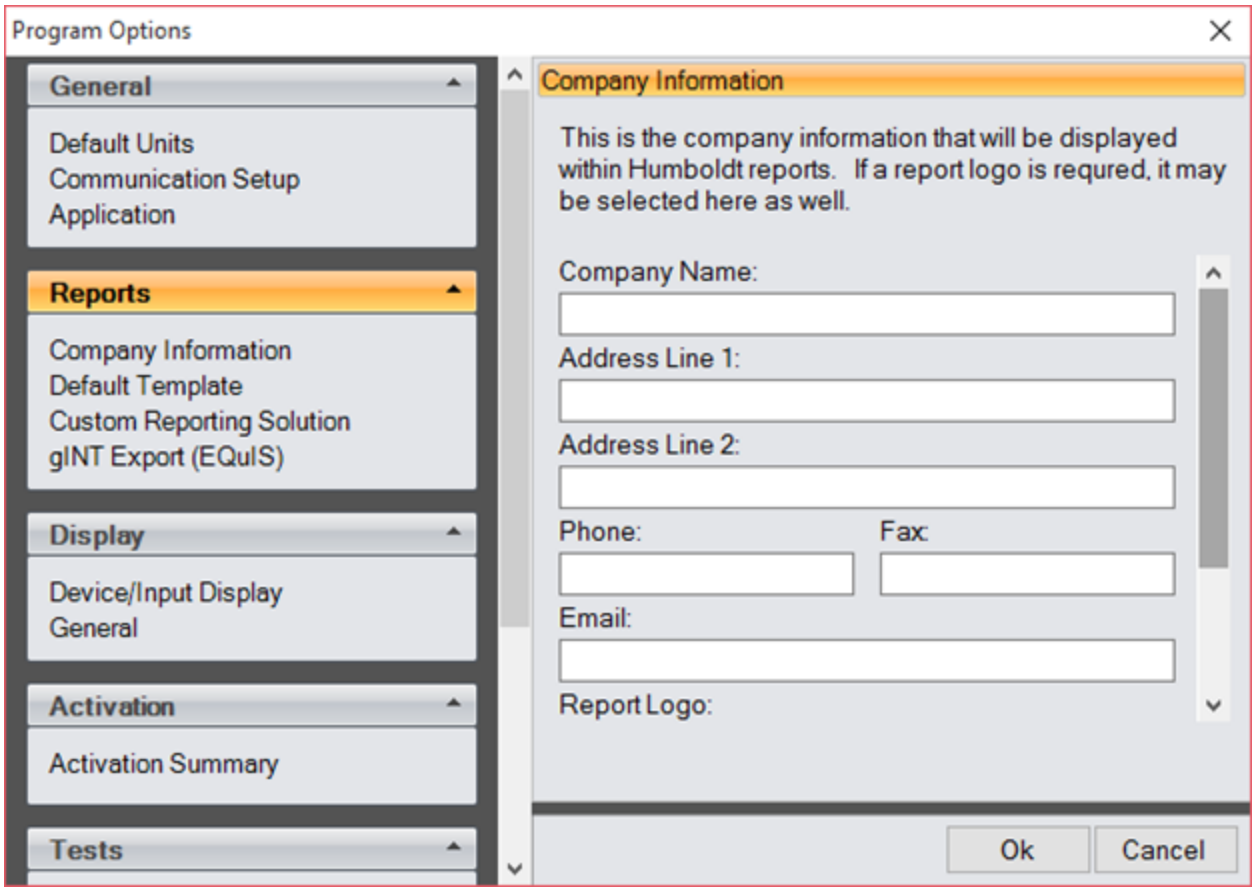
4.2.1 Company Information

The company information entered here is what is placed in the header for Humboldt reports. If applicable, upload you company logo here.



4.2.2 Default Template

Default templates, Excel templates to which data is exported, can be modified for custom Excel exportation. The Excel export is not the primary export--all project information, specimen information, and tabulation data will be exported. If data will be used for presentation purposes, you will need to have an understanding of Excel to modify the template to meet presentation needs. As an update of the software will overwrite the existing default template, it is recommended that a copy of the default template be made.

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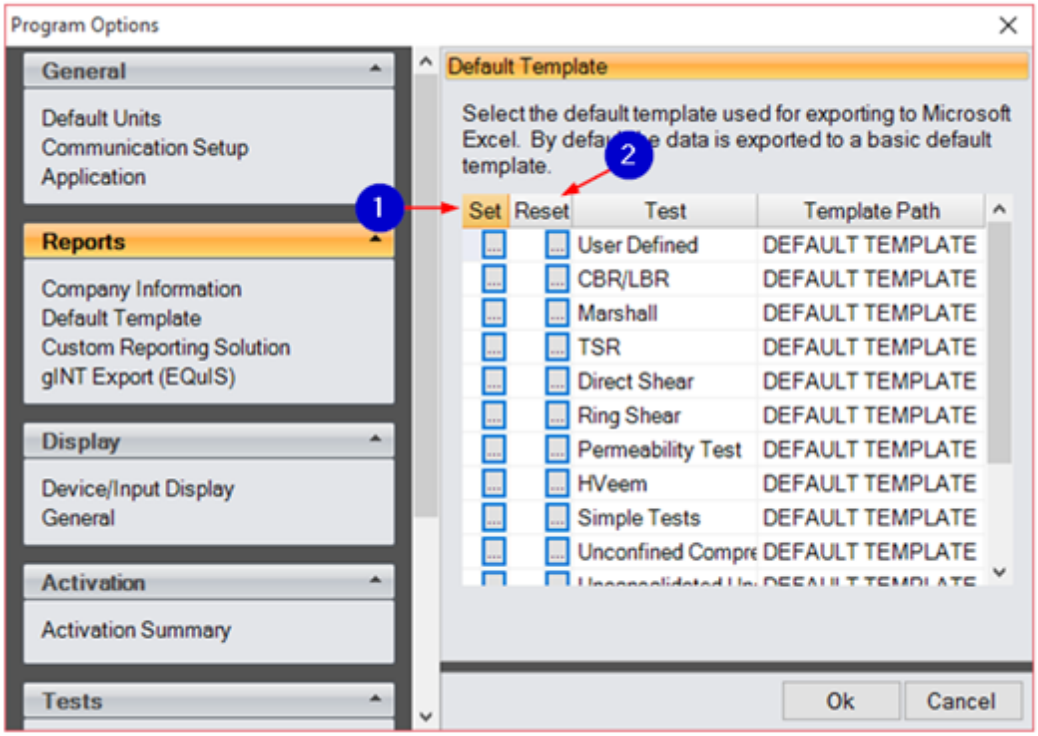

The following information corresponds to the image displayed above.

1. Set

Check this column to choose a template to be used for exporting to Microsoft Excel.

2. Reset

Check this column to reset a template back to the default.

4.2.3 gINT Export (EQuIS)

Please contact EQuIS for more information, as this implementation is custom per company.

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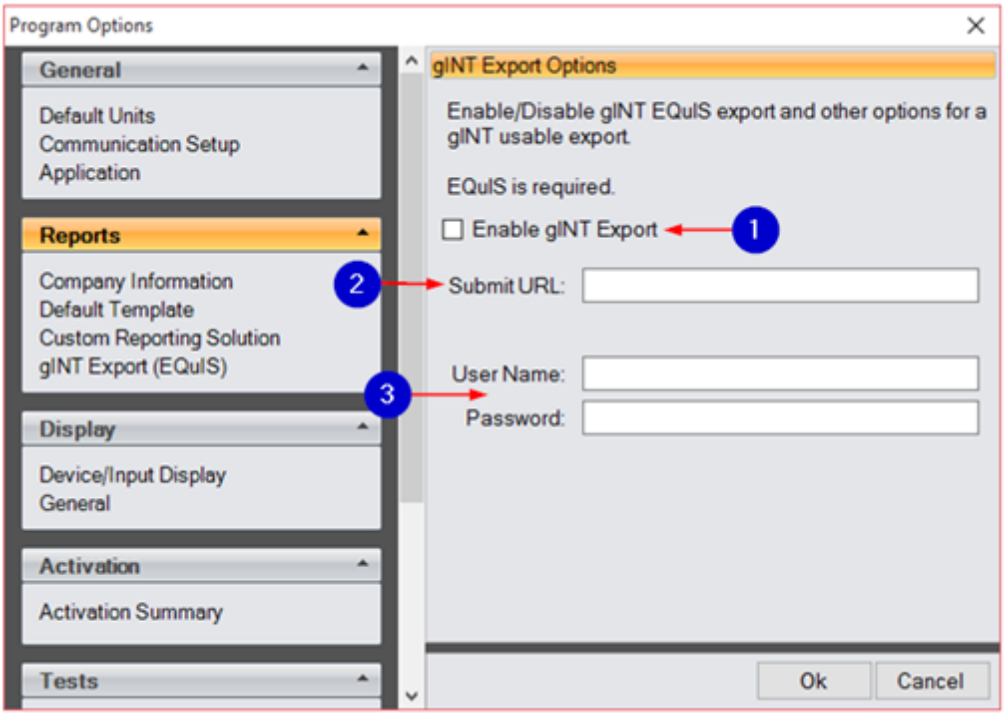

The following information corresponds to the image displayed above.

1. gINT Export

Check this box to enable/disable gINT Export.

2. Submit URL

The URL is provided by EQuIS for submission of files.

3. Username and Password

These are provided by EQuIS and are required for connection.

4.3 Display

This is a way to change visuals in the program--you can limit what is displayed, but will not affect the performance of the software.

4.3.1 Device/Input Display

Check/uncheck the following boxes to enable/disable actions. These settings will eliminate/enable items in the test setup visuals and calibration management visuals for devices/inputs. This screen can also be accessed by opening "User Defined Test," then "Options," then "Program Options."

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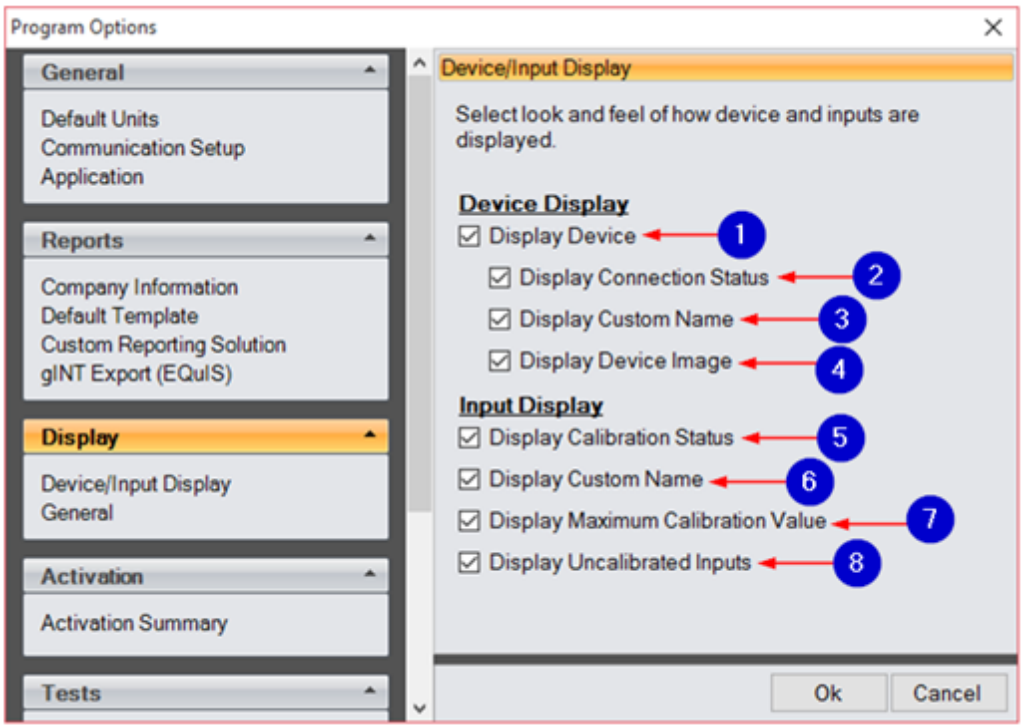

The following information corresponds to the image displayed above.

Device Display:

1. Device

This refers to the overall device name.

2. Connection Status

This indicates if the PC is connected to the device.

3. Custom Name

This shows the custom name for the device. If unchecked, the device ID will be displayed.

4. Device Image

This displays a picture summary of the device.

Input Display:

5. Calibration Status

This displays whether or not the input is calibrated.

6. Custom Name

This displays the custom name, if applicable. The absence of a custom name will cause the name to read as its default input name, i.e., "Input 6."

7. Maximum Calibration Value

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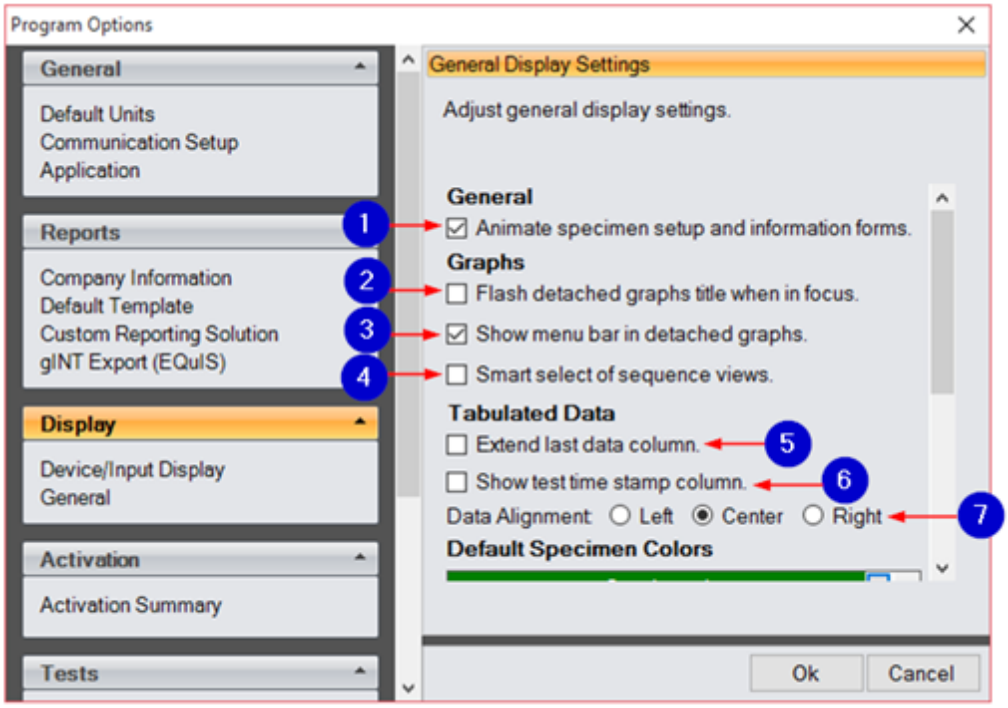
Every calibration has a maximum value. This allows the maximum calibration value to be displayed for each input.

8. Uncalibrated Inputs

This allows the option to show or hide uncalibrated inputs in test setup.

4.3.2 General



The following information corresponds to the image displayed above.

1. Animate Specimen Setup

Enable/disable form transitions. This applies to setup and specimen information forms. Disable animation to improve load times if you are experiencing slow application performance.

2. Flash Detached Graphs

This enables/disables the option to flash and show the menu. User defined graphs can be detached. When a graph is selected, there will be a flashing title bar.

3. Show Menu Bar in Detached Graphs

If a graph is detached, the menu bar will show below the title bar. The menu bar contains graphing shortcuts.

4. Smart Select of Sequence Views

When selecting the sequence in tabulated data, log/square graphs will also

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have that sequence selected. If a sequence graph is selected in a graph, then the tabulated data will switch to that sequence as well. This feature is for consolidation of tests.

5. Extend Last Data Column

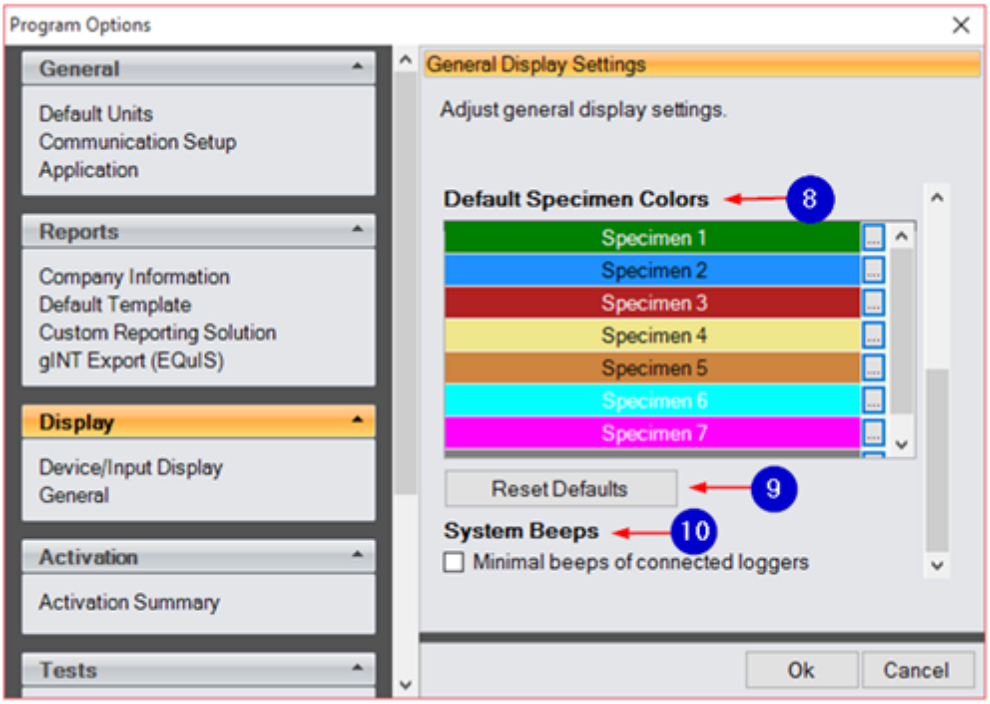
Select this option to have the last data column occupy the remainder of your screen.

6. Show Test Time Stamp Column

Select this option to show the full-time stamp in tabulation.

7. Data Alignment

This refers to the alignment of data within columns (left, center, or right).



The following information corresponds to the image displayed above.

8. Default Specimen Colors

Most tests can have up to 8 specimens per test. You can customize the color representation for each specimen to differentiate between them.

9. Reset Defaults

This resets the specimen colors back to their original colors.

10. System Beeps

Check this box to minimize communication audio between the PC and logger.

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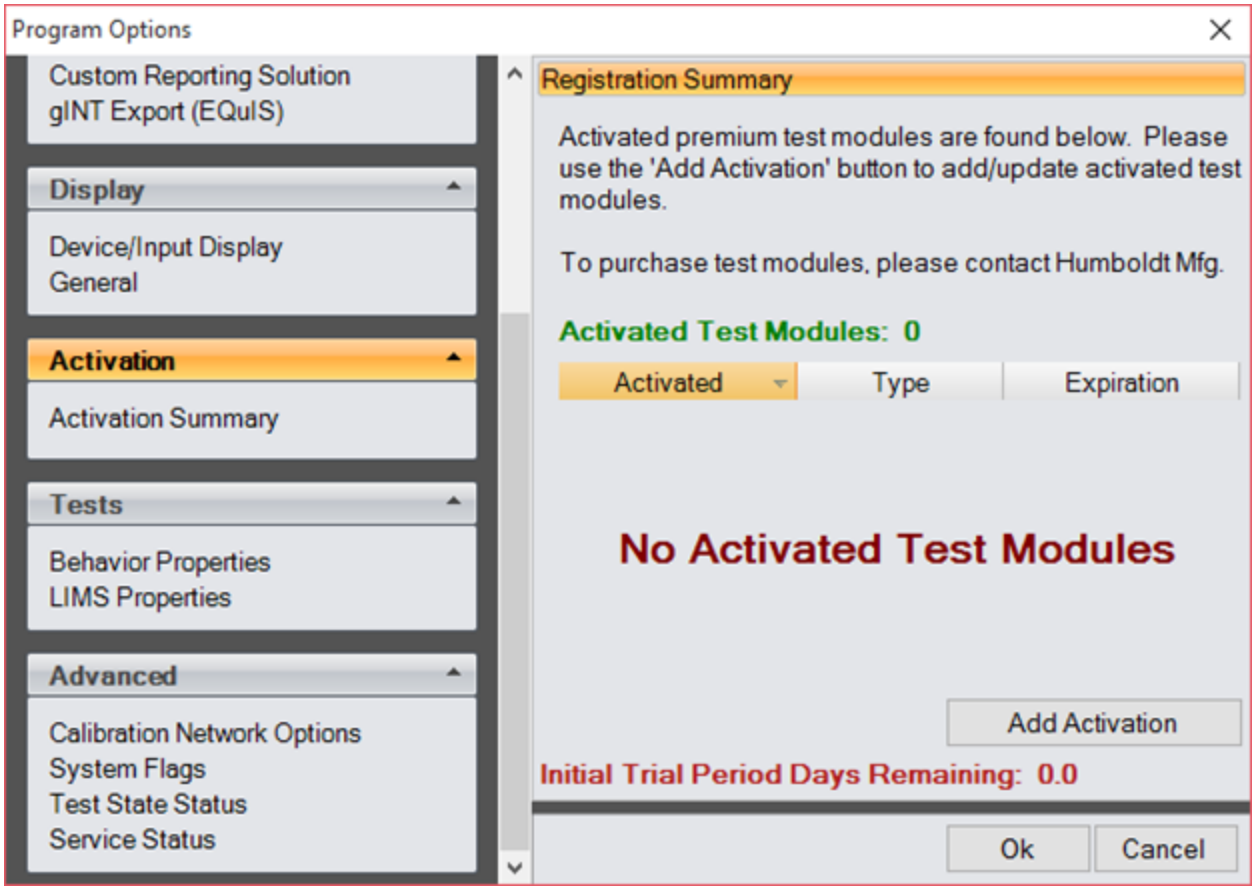
4.4 Activation

4.4.1 Activation Summary

Use this section of options or the "Premium Test Activation" tool to add activations. If you do not have an activation file, you will need to use the "Premium Test Activation" module to register/request an activation file. Please see "Premium Test Activation" tool for help. This screen offers a summary of activated test modules and any requested trial period activations. After 30 days, you can request more trial time for any module. This can be done in the "Premium Test Activation" tool. Contact Humboldt mfg. to purchase test modules.

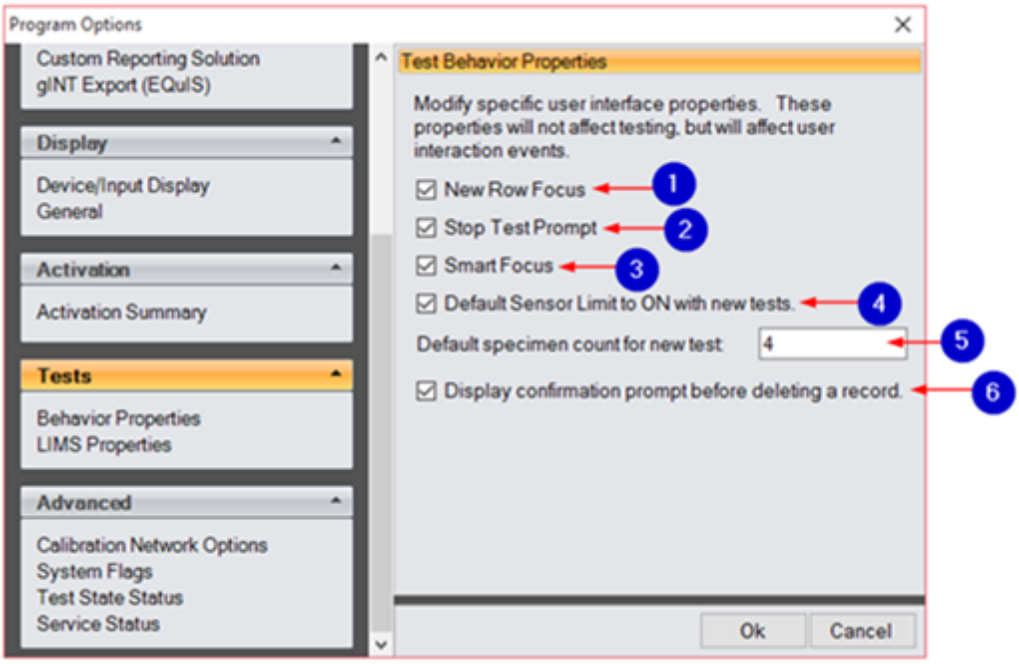


4.5 Tests

This refers to behavior during testing.

4.5.1 Behavior Properties

Modify specific user interface properties. These properties will not affect testing, but they will affect user interaction events.



The following information corresponds to the image displayed above.

1. New Row Focus

Every time a new test point is received, the software will place focus on that point.

2. Stop Test Prompt

Check this box to receive a confirmation prompt after clicking the "Stop" button on an active test.

3. Smart Focus

The appropriate ribbon tab will be selected depending on the state of the test. For example, if the test is running and the "graph" tab is clicked, the "graph" ribbon item will be automatically chosen.

4. Default Sensor Limit to ON

When creating new tests, the sensor limit will be on by default. This selection

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can be changed per test, but this setting refers to the default value. Check this box to enable or disable this action as the default value.

5. Default Specimen Count

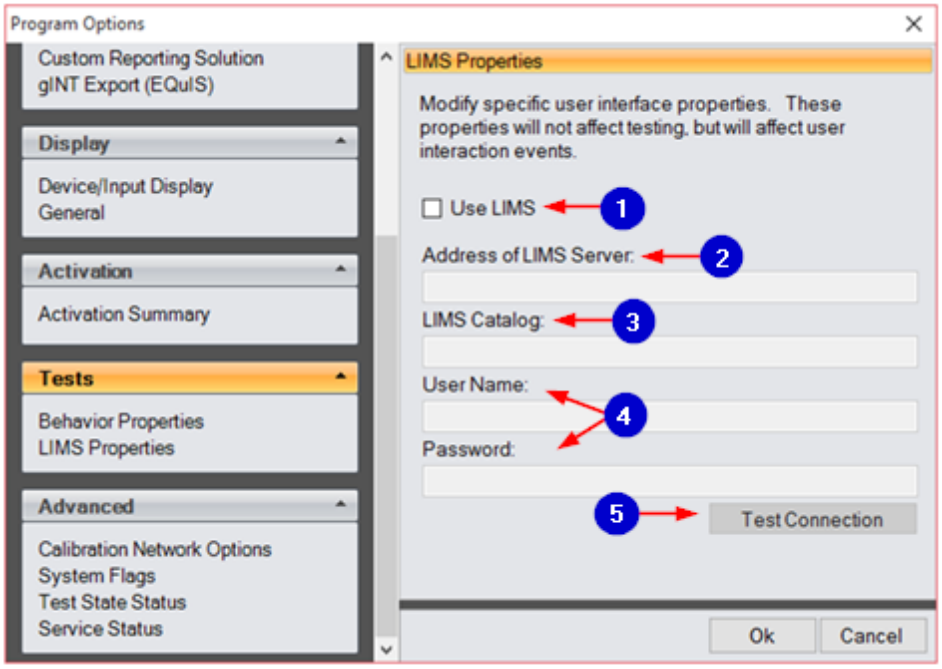
This refers to the number of default specimen created when a new test begins. This number must be between 1-8.

6. Display Confirmation Prompt

If you attempt to delete a record, the screen will prompt for confirmation of this action. Uncheck this box to disable the confirmation prompt.

4.5.2 LIMS Properties

This refers to custom implementation. Please contact Humboldt for more information.



The following information corresponds to the image displayed above.

1. Use LIMS

Check this box to enable LIMS.

2. Address of LIMS Server

The LIMS database resides on the SQL server.

3. LIMS Catalog

This is the name of the LIMS SQL database.

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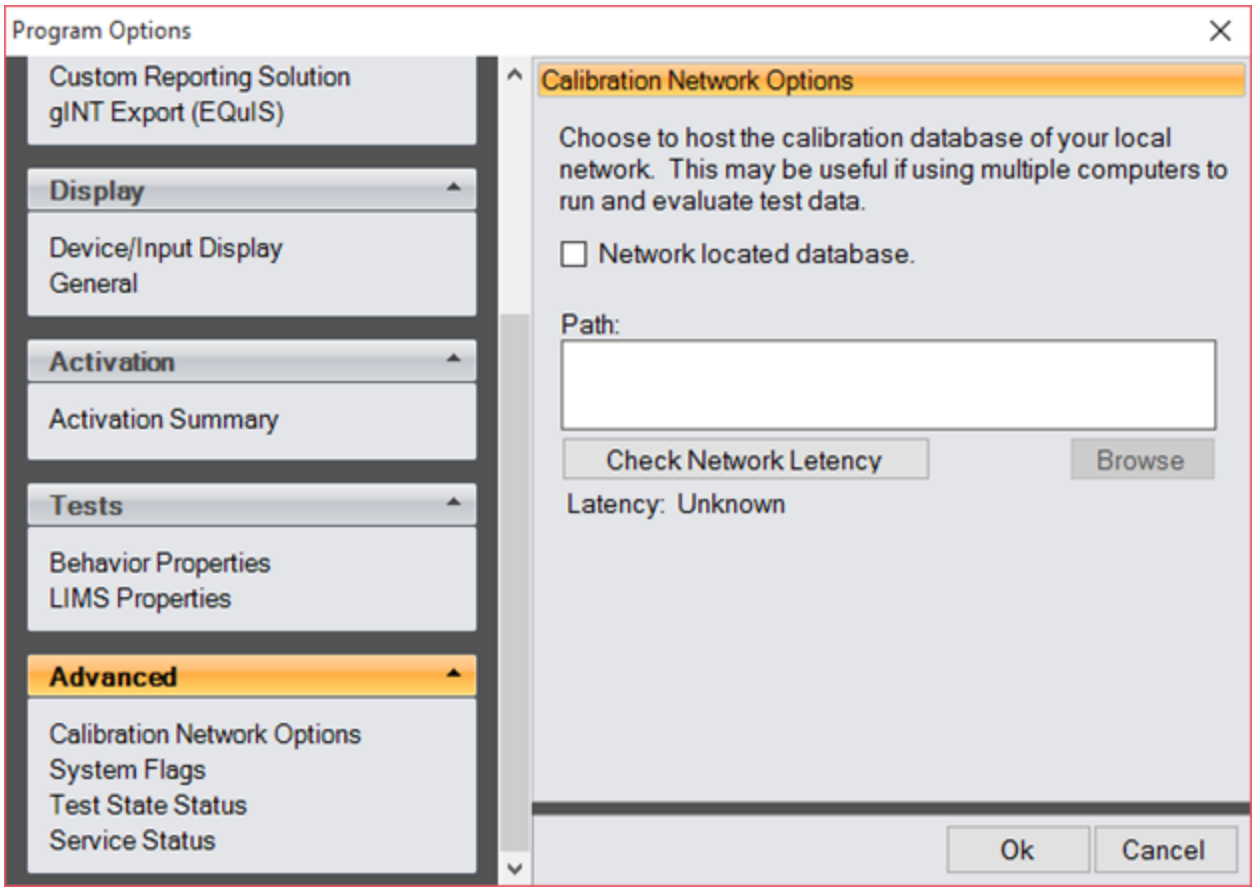
4. User Name and Password
This is provided by your SQL administrator.
5. Test Connection
Press this button to test the SQL connection to LIMS with the information you have entered.

4.6 Advanced

4.6.1 Calibration Network Options

Choose to host the calibration database of your local network. This may be useful if you are using multiple computers to run and evaluate test data.



The following information corresponds to the image displayed above.
1. Network Located Database
Check this box to place the calibration management database in a remote

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location for multiple PCs running HTMS Next. This centralizes the calibration database.

2. Path

Click "Browse" to select a path for the database.

3. Check Network Letency

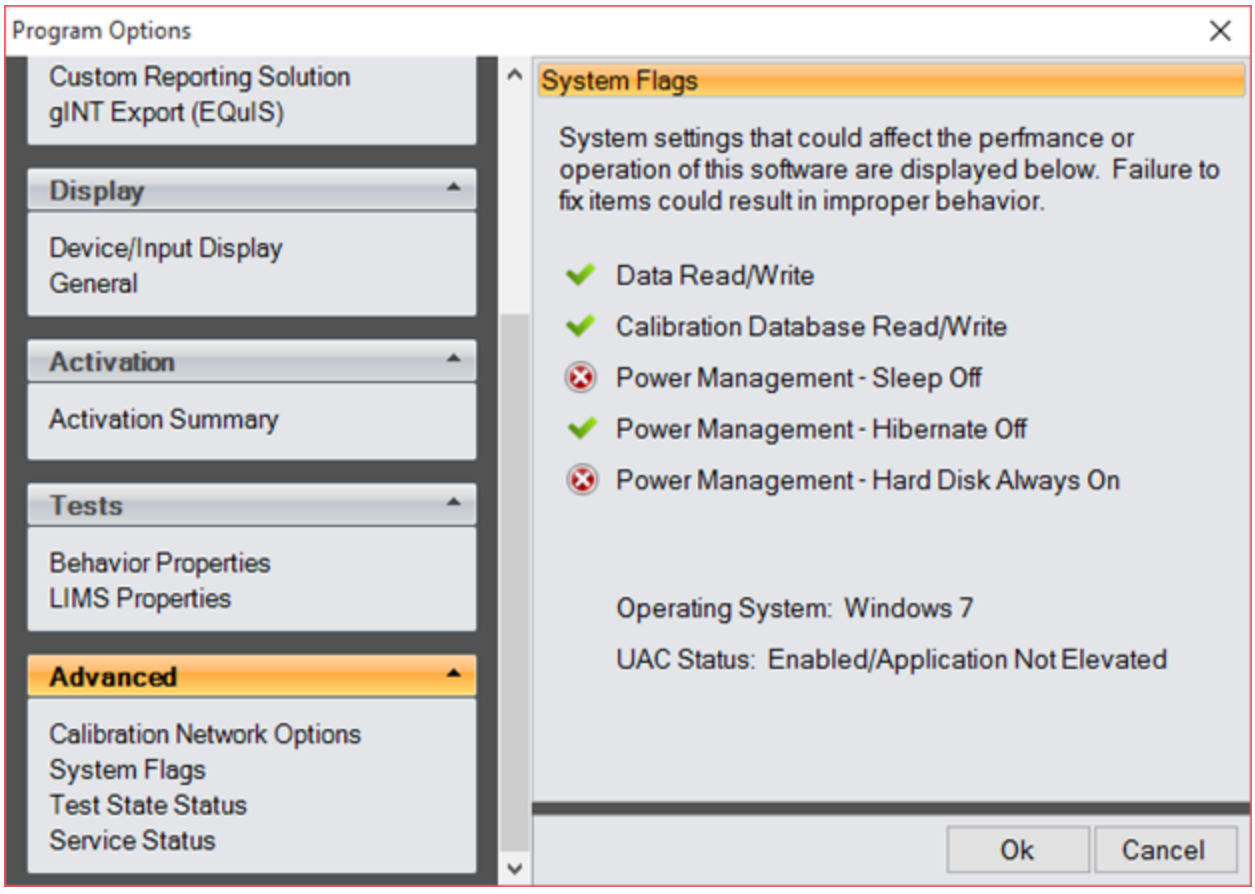
Press this button to check the lag of the PC to the selected remote location.

4. Latency

This will display the latency of the network. It will read "unknown" until the network latency check is performed.

4.6.2 System Flags

This warns users of PC settings that may result in unexpected errors or events. For the best performance, make sure that all flags are green. To fix flags that are not green, go into "Windows Power Management." The first two flags verify that the system can read/write to the database; all other flags relate to power management.



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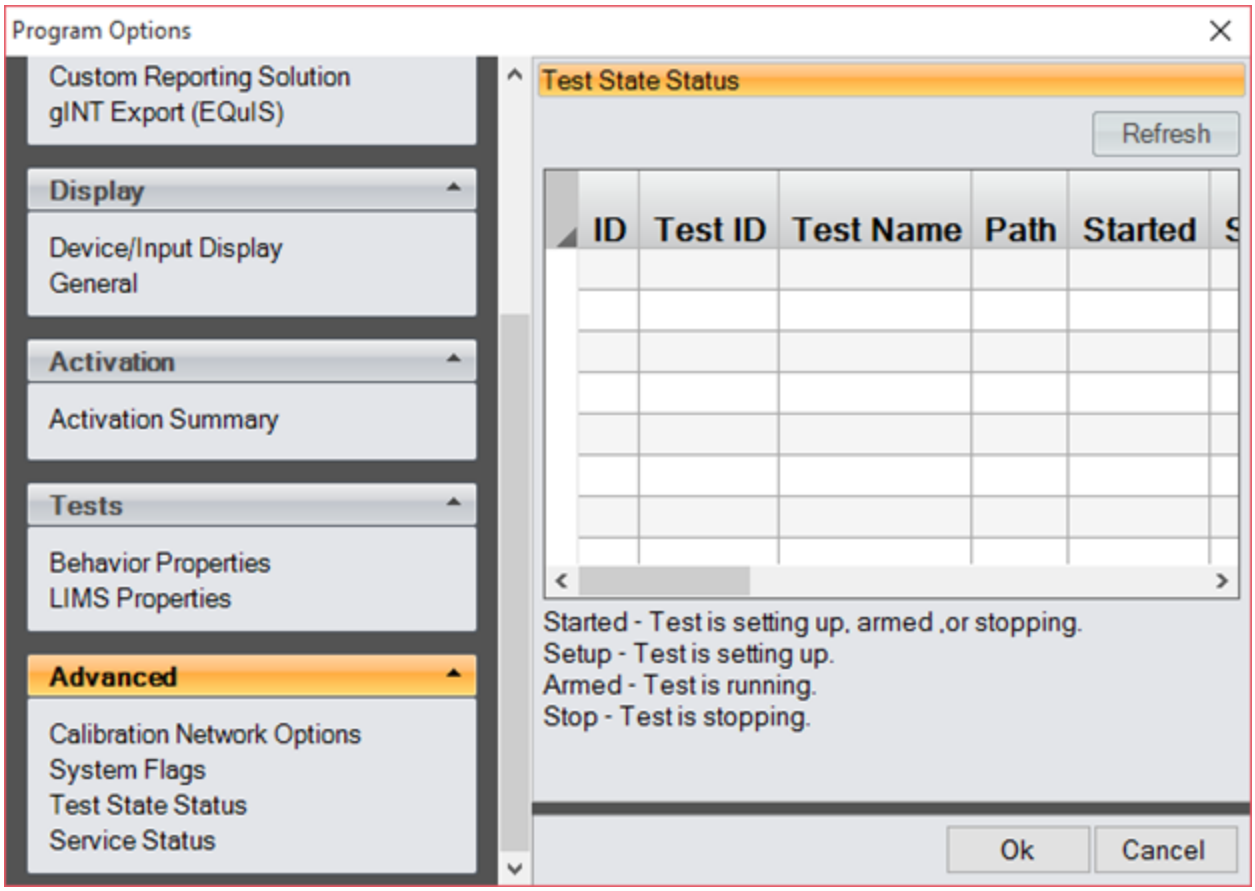
4.6.3 Test State Status

This screen displays details about any tests that are currently running. In the event of an orphaned test, or a test that did not initialize or terminate properly, logger resources will be held and logger inputs will not be utilized for other tests. If this occurs, tests can be permanently terminated. This is done as a precaution and should not be used to terminate valid tests.



4.6.4 Service Status

This screen tells a summary of the status of HMTS Next, Windows service, and the Message Console. See the "HMTS Message Service Wizard" section for more details.
Click "Manage" to open the "HMTS Message Service Wizard." Please note that elevated/administrative privileges may be required to access this wizard. This may require contacting your IT department.

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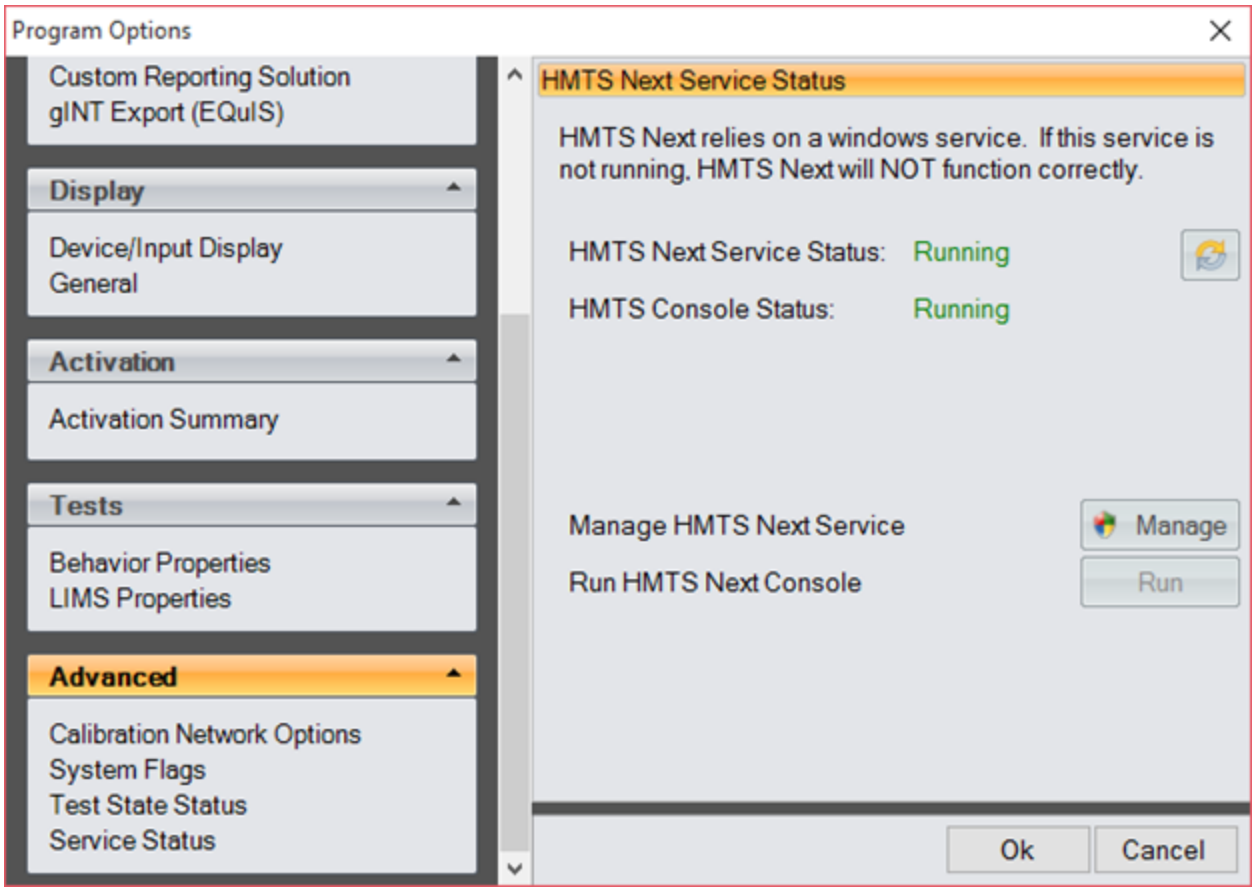

4.6.4.1 HMTS Message Service Wizard

HMTS Next utilizes a background windows service for device communication and interprocess communication. The service must be running at all times for software to function correctly. The "HMTS Message Service Wizard" can be used to start or stop the HMTS Next Windows service.

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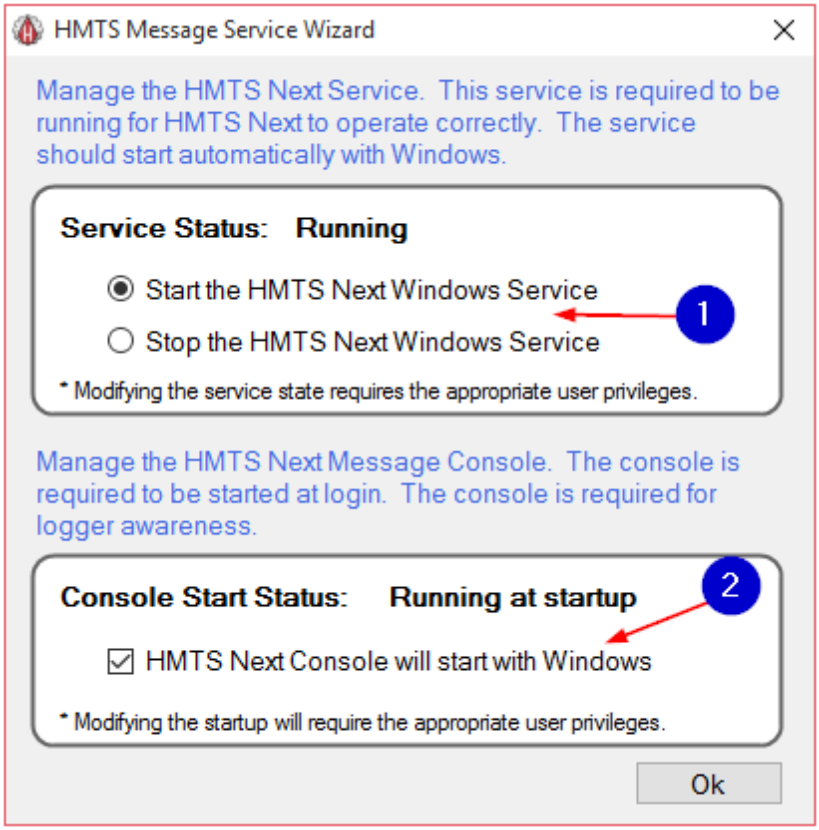

The following information corresponds to the image displayed above.

1. Start/Stop

This indicates the service status. Select "Stop the HMTS Next Windows Service" to hide this service status. "Start the HMTS Next Windows Service" should not be needed, but in the event of a service error, the service may need to be manually started. This will have the same effect as rebooting Windows. To connect back up, click "Stop the HMTS Next Windows Service," then "Start the HMTS Next Windows Service." Please note that elevated/administrative privileges may be required to access this wizard. This may require contacting your IT department.

2. Start HMTS Next Message Console with Windows

The "HMTS Next Message Console" runs in the Windows status bar and should be running at all times. This is where notifications, updates, device additions, and device calibrations are handled. Check this box to enable/disable the startup of the "HMTS Next Message Console" with Windows. The console is required to be started at login for logger awareness; if you choose not to have

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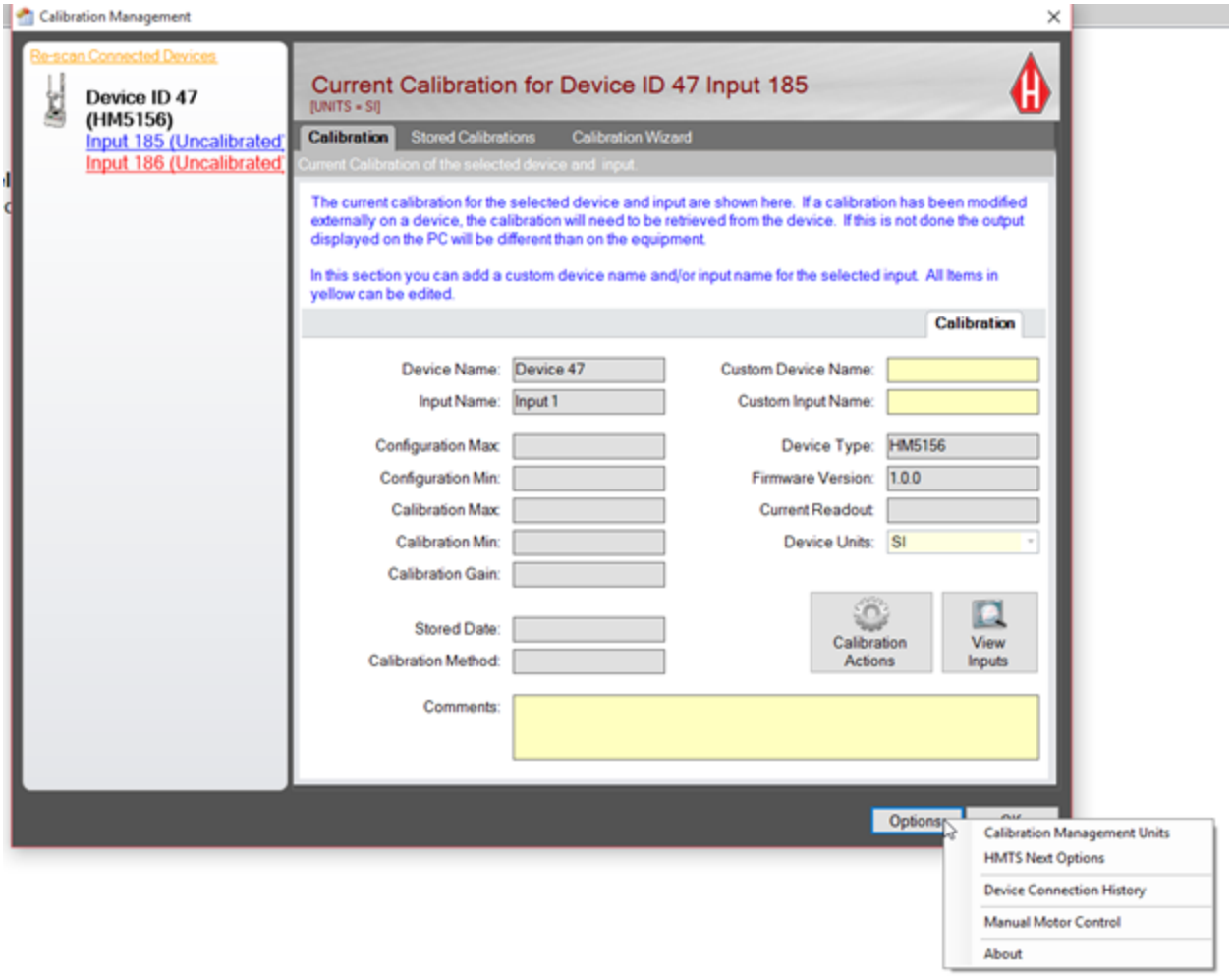
it run at startup, it will be opened automatically by "Calibration Management" or any test window because it is a vital part of the HMTS software package. Modifying this startup will require the appropriate user privileges.

5 Options

This screen is accessed by clicking the "Options" button at the bottom of the "Calibration Management" screen.



5.1 Calibration Management Units

These are the units of the calibration manual software. Choose between "Inch-Pound" and "SI."

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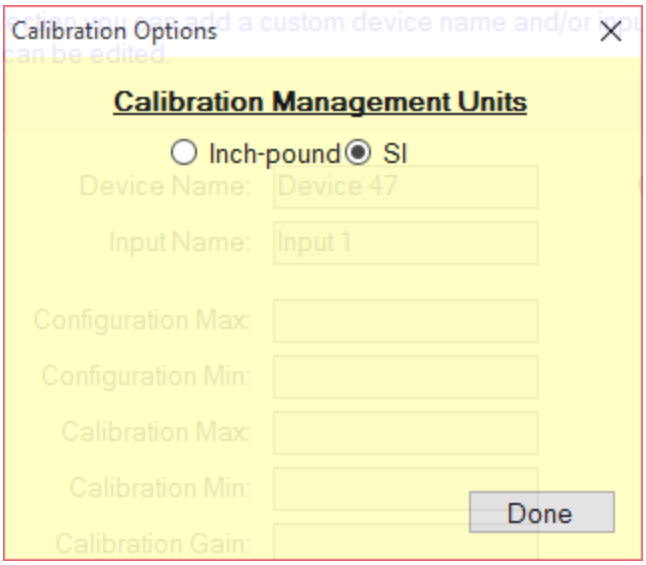
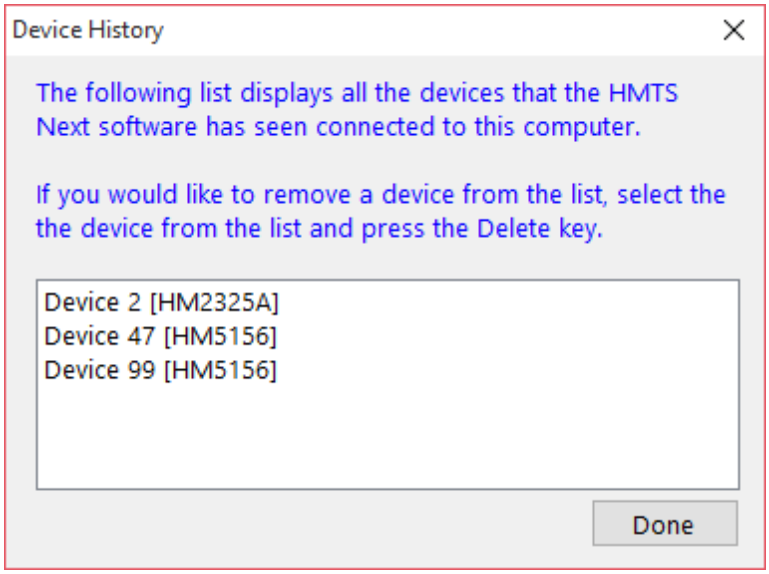


5.2 Device Connection History

This is a list of devices that HMTS Next software recognizes as having been connected to this computer. To remove a device from this list, select the device and press the "Delete" key on your keyboard. To close this screen, press "Done."



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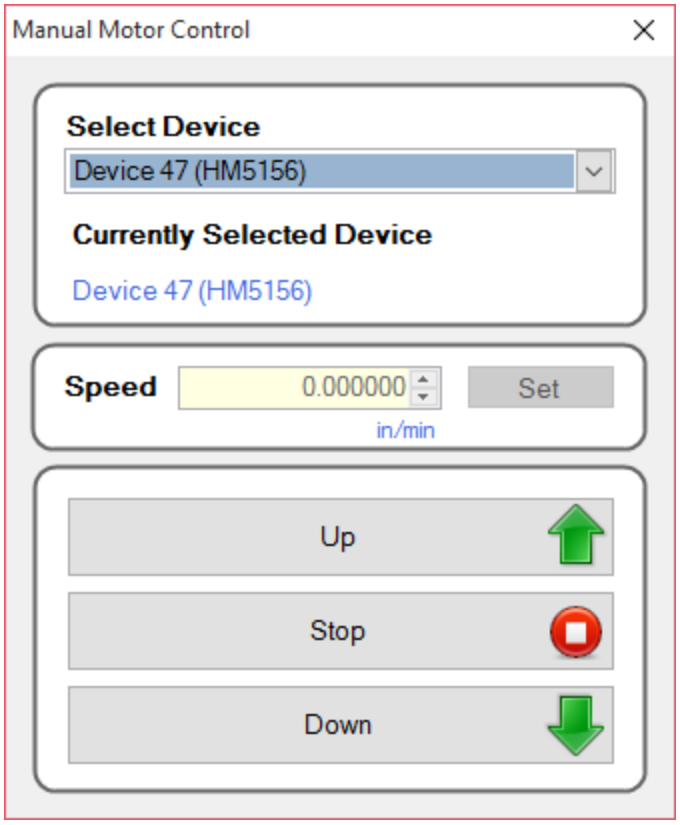
5.3 Manual Motor Control

Any instrumentation containing a motor can be manually controlled by the software. To manually control a motor from the PC, select a device from the drop-down list. Once a device is selected, the current speed will be retrieved and displayed in the "Speed" box. To change the speed, enter the desired value in the "Speed" box. Press the "Set" button to send the new speed to the machine. The "Up"/"Stop"/"Down" buttons can be used to set the state of the motor.

Note: The HM-4156, HM-1327, HM-5150, and HM-5127 speeds cannot be controlled by the user. The HM-2800, HM-2850, and HM-1322 do not interact with and cannot be controlled by the PC. The manual motor control is not needed if automated tests are running from any test modules. This is because automated test modules will operate and control the motor per test settings.



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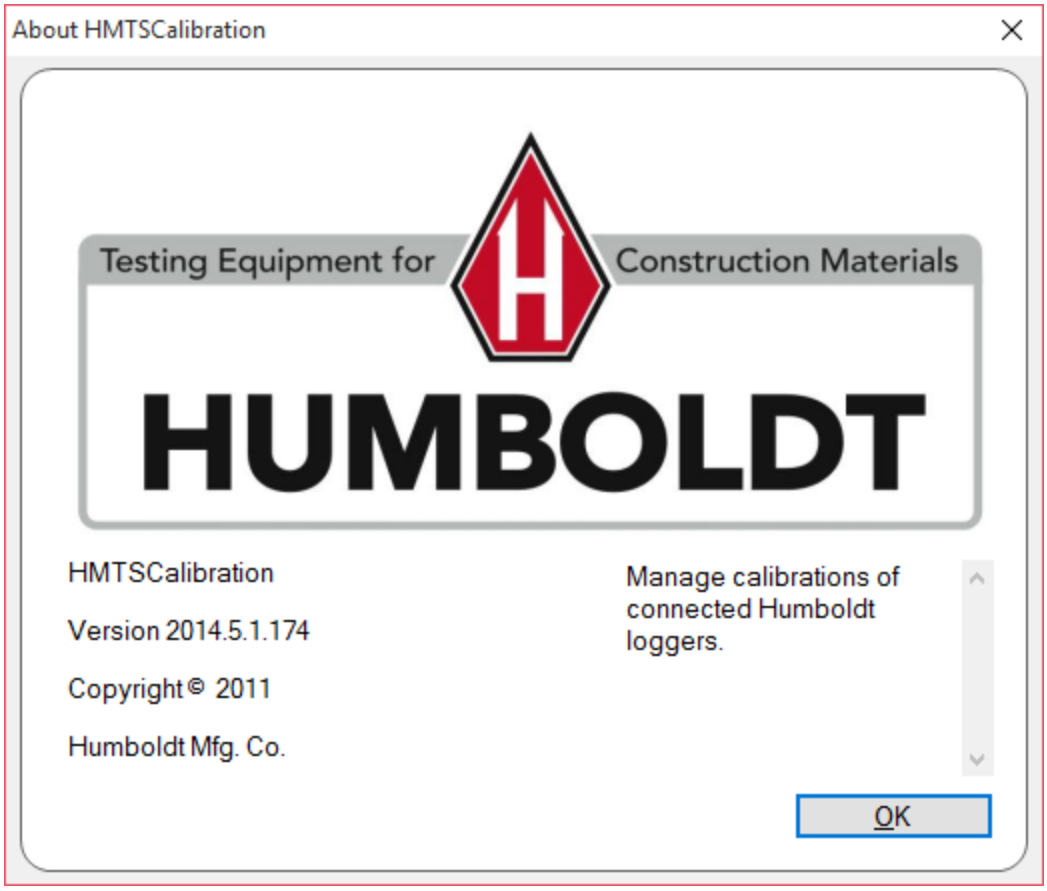
5.4 About

This screen displays the software version information. Press "OK" to close this window and return to the "Calibration Management" screen.



6 Update

To check for updates, click the HMTS "Updates" option. This will automatically prompt your computer to check for updates. The first picture below is how your screen will look during this time. Press "Cancel" to stop this check for updates. If your HMTS Next software is up-to-date, a prompt with this information will appear on your screen. Press "OK" to close this window.

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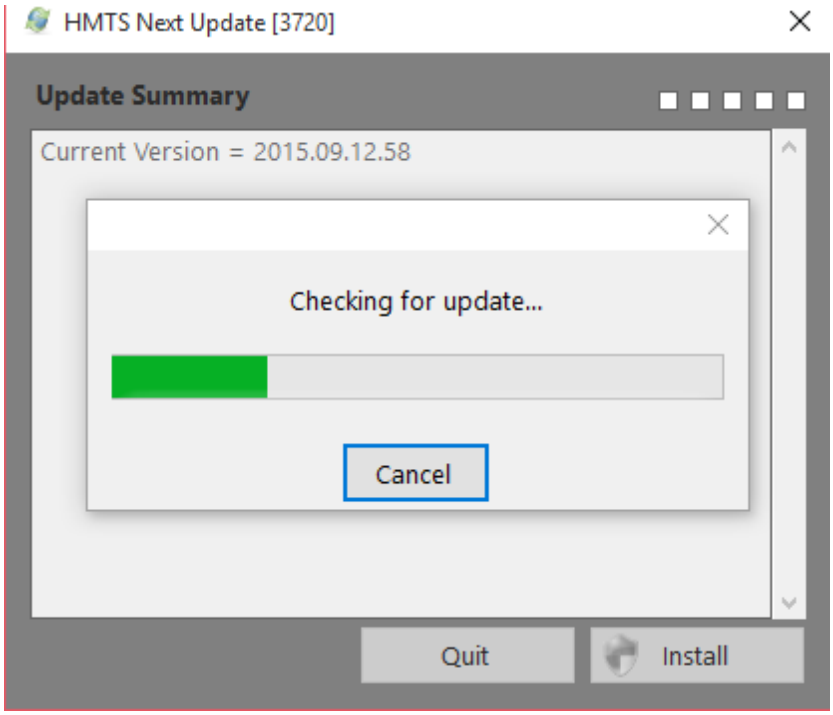

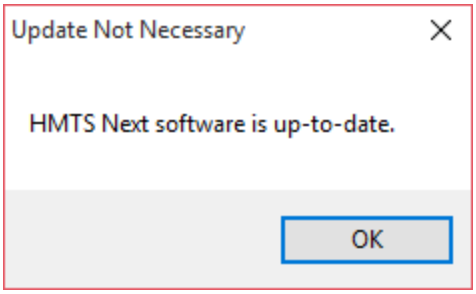

If there are software updates available, the following screen will be displayed with a summary of the new software builds. Click "Install" to update your software with these changes or "Quit" to opt out of these updates at this time. You can return to this screen to update your software at any time. After you have updated the software, the prompt displayed above will appear to confirm that your software is up-to-date.

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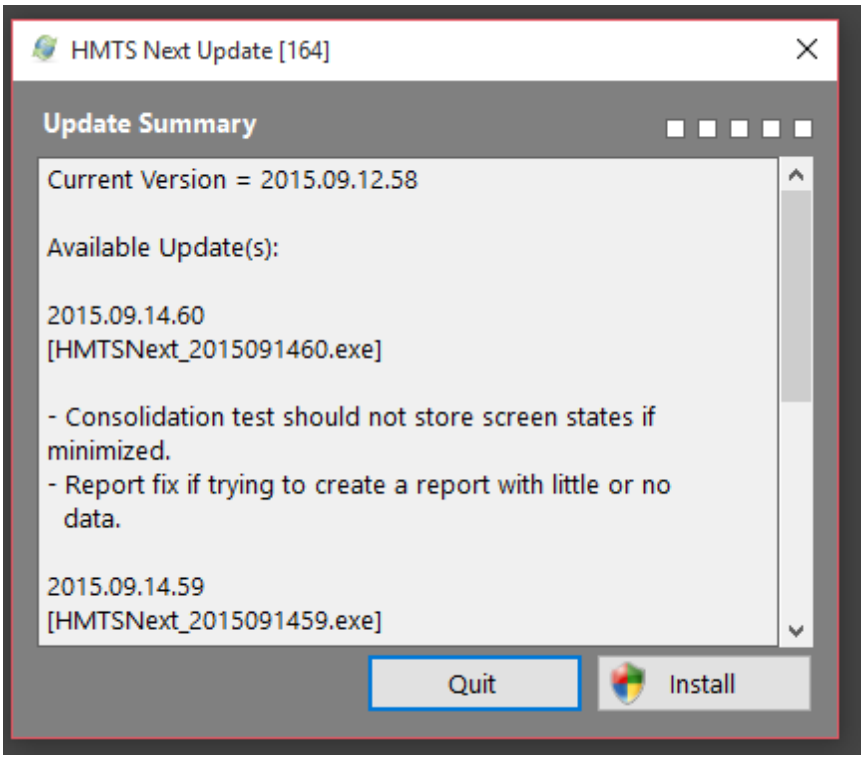
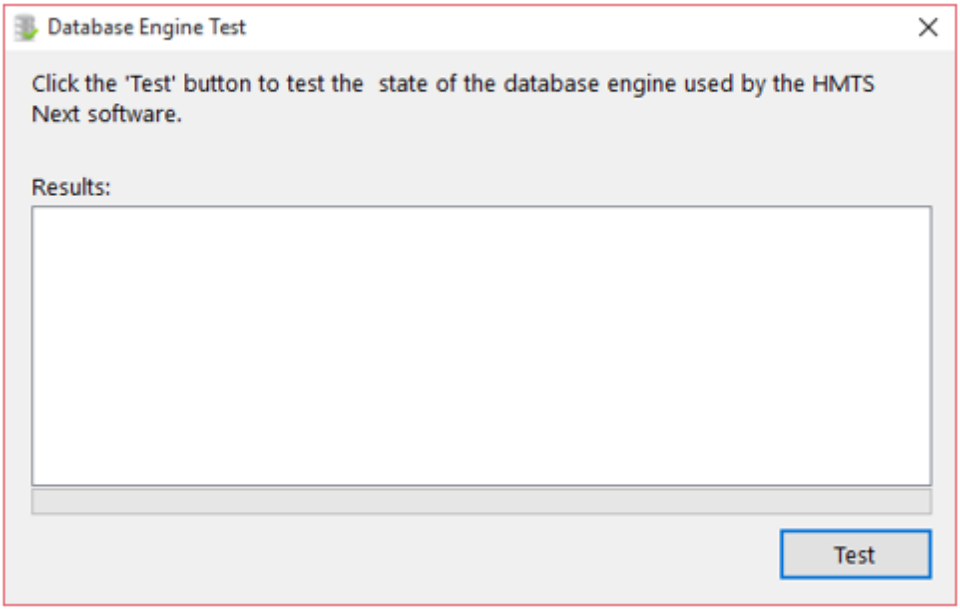


7 Test Connection

This is a database engine test to test the state of the database engine used by the HMTS Next software.



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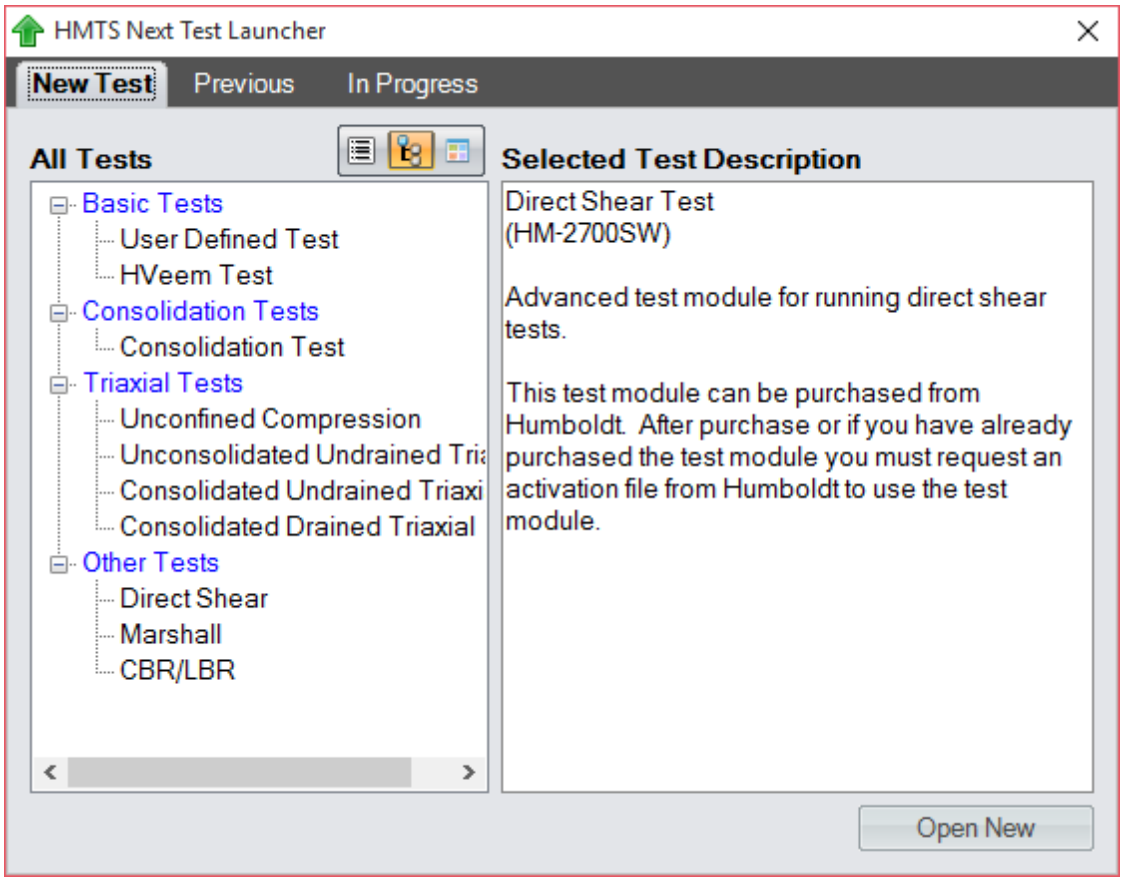
8 HMTS Next Test Launcher

The HMTS Next Test Launcher displays a description of the tests offered with this software. The tests are organized under headings for easy access. Available tests can be viewed in list view, tree view (displayed in the image below), and new command. These options can be changed by selecting one of the three icons located between "All Tests" and "Selected Test Description." Select "Open New" to open a new test in the module that you have selected. The "Previous" tab displays a list of tests that have been previously run and the "In Progress" tab displays a list of any tests that are currently running.



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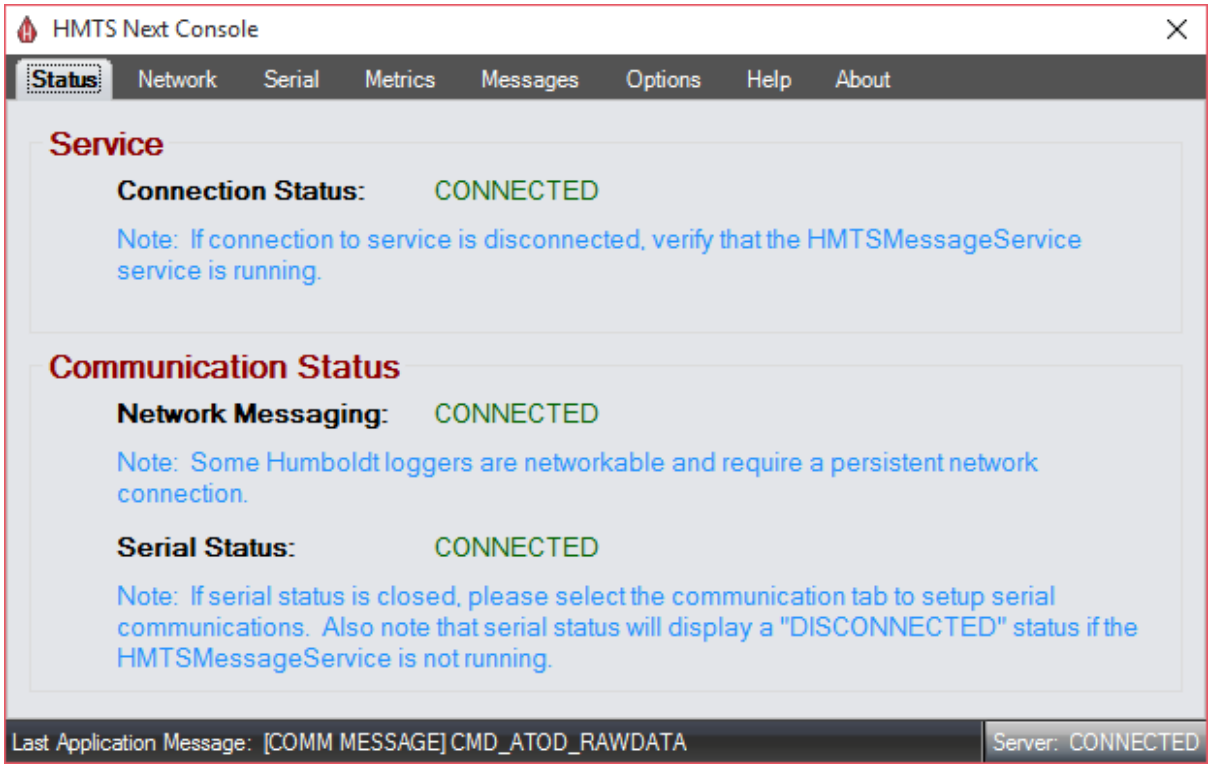
9 Communications

9.1 Legacy Loggers/Machines

HMTS Next has been completely redesigned, and in this process we have radically changed the user experience. HMTS Next now runs each test in its own Windows process in a manner that is similar to Microsoft Office products. Here is a quick look at some of the different parts of the HMTS Next components.

HMTS Next Console



The following information corresponds to the image displayed above.

The status of the HMTS Next application can always be found in the Windows Notification Area. Double-Clicking on the "Humboldt" icon in the Windows Notification Area will bring up the HMTS Next Console program. The console

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program summarizes the status of the HMTS Next communications and HMTS Message service.

Right-click the HMTS Next Console icon to pull up a menu that will allow access to a list of useful shortcuts. Shortcuts include quick launching of current and previous tests, as well as activating or registering premium test modules.

Double-click the HMTS Next icon in the Windows Notification Area to open the HMTS Next Message Console.

HMTS Next Tests

New Tests: A new test can be opened by clicking the Windows start button and locating the HMTS Next folder within "All Programs." In this folder you will have the option to create a new test of the type you need.

Existing Tests: To open an existing test, go to where you saved the test and double-click it.
Note: New and existing tests can also be created or opened from a currently opened test.

HMTS Calibration Management

This tool stores and manages all of the connected loggers' calibrations. Calibrations can be managed, created, and retrieved. The calibration

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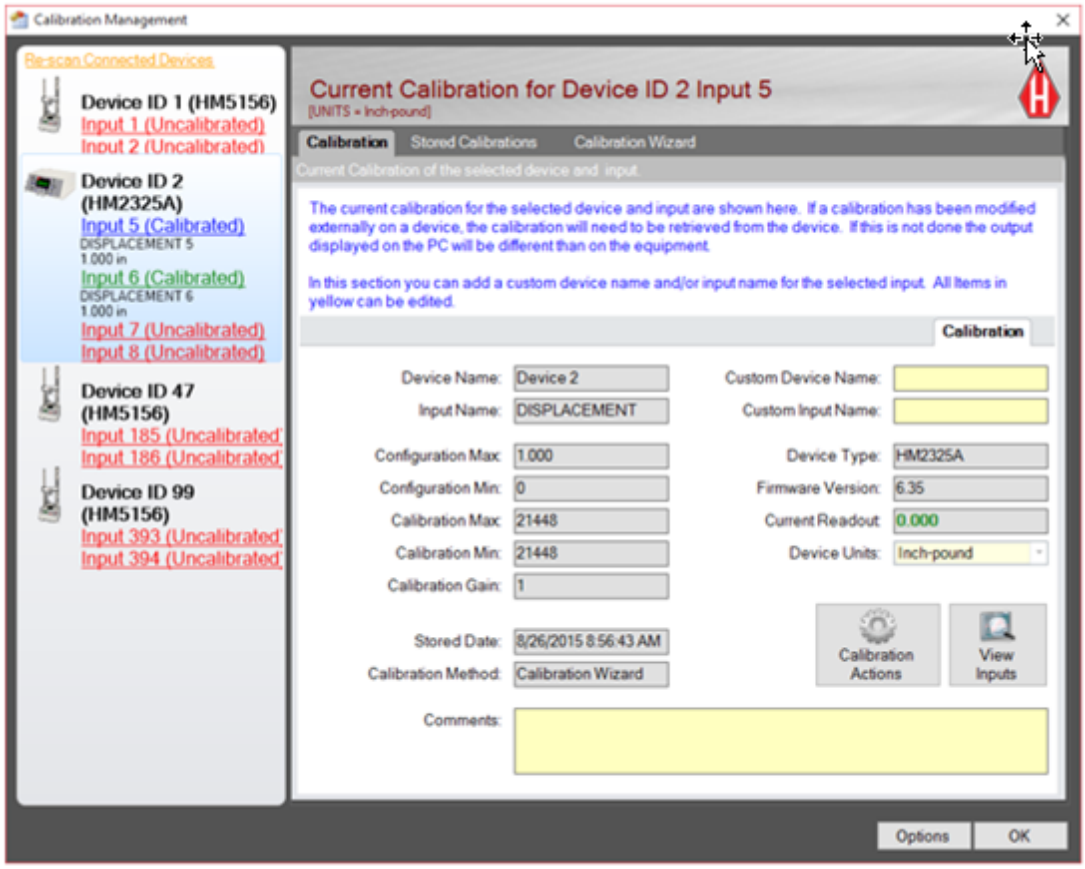
management tool can be found in the HMTS Next Windows start menu, be opened from within any opened test, or accessed by right-clicking on the HMTS Next Message Console in the Windows Notification Area.



Adapters

Humboldt USB adapter (HM-000377 or HM-000379)

Figure 1: HM-000377

Figure 2: HM-000379

The following information corresponds to the image displayed above.

You may have the Humboldt USB adapter. Drivers for this adapter can be found in the HMTS Next installation folder. Both adapters use the same driver.

Adapter HM-000377 is used for connecting a single computer to the PC; the logger should be in Single Mode. Adapter HM-000379 is for connecting multiple loggers to the same computer. All loggers connected to the adapter must be in Multi-Mode.

Please see your hardware manual for a description of the communication mode.

Note: For multi-logger (MULTI-MODE) communications, use HM-000379. The HM-000379 replaces the older HM-000375 adapter. The HM-000375 adapter can still be used and is still compatible with HM loggers.

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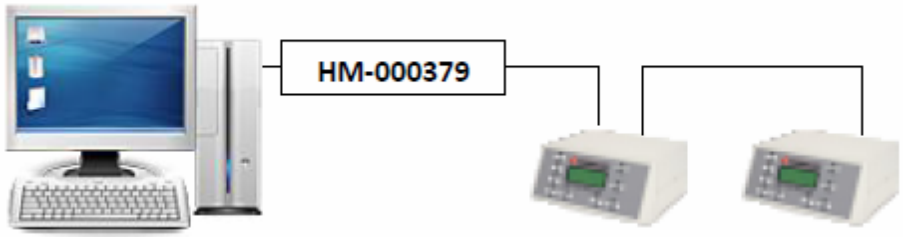
Single Mode (A single logger connected to a computer.)

Multi Mode (Multiple loggers connected to a computer.)



The following information corresponds to the image displayed above.

Single Unit Connection Instructions:
Connect serial connection from the computer to the “RS-232 TO COMPUTER” connection on a single logger.

Multi-Unit Connection Instructions:
Connect the RS-485 connector to your computer (HM-000375 or HM-000379). From this convert, connect to the IN or OUT port of the first logger. Use the IN and OUT connections to daisy-chain multiple loggers.

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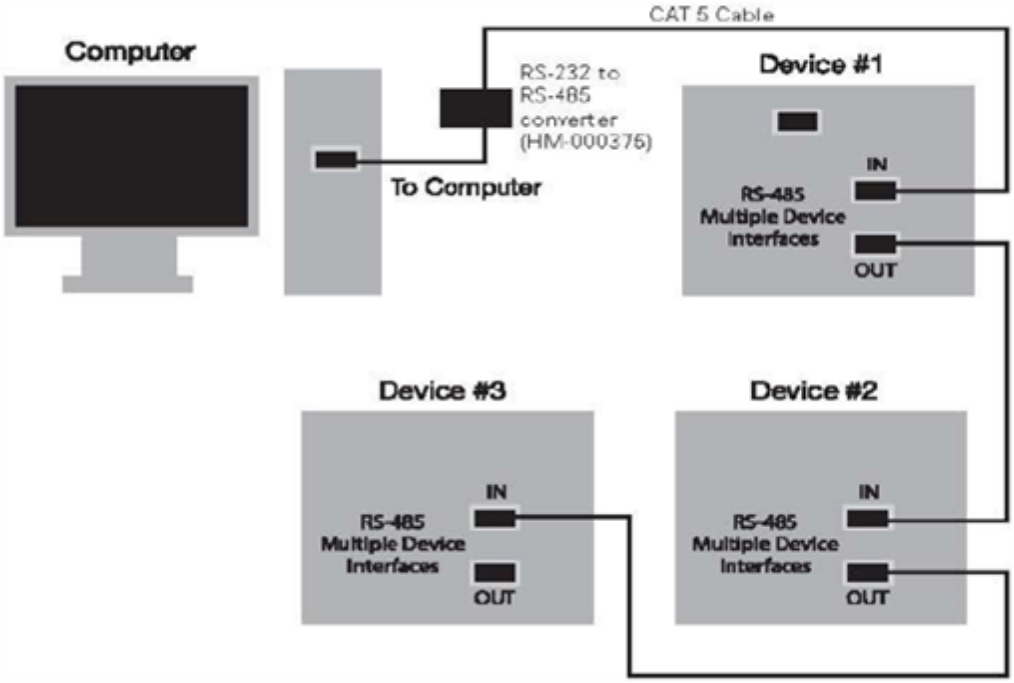

9.2 5000 Series Loggers/Machines

The 5000 series loggers/machines connect to your local area network. Please see the operator's manual for connected equipment. For HMTS Next to operate correctly, the HMTS Next software needs access through the following ports:

HMTS Next Application Update will use FTP port 20 (TCP port)
HMTS Next Windows Service will use port 8737 (TCP port)
To communicate with loggers, the 5000 series will use ports 15,001 and 15,002 UDP ports.

By default, the 5000 series will obtain their IP addresses using DHCP. If you need to adjust the IP address of your equipment, please consult the operator's manual for your equipment.

9.3 Frequently Asked Questions for Communications

Introduction

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HMTS Next software requires a communication port to properly communicate with connected loggers. HMTS Next will fail to find your loggers if the communication adapters are not installed, the incorrect communication port is chosen, the communications are turned off, the HMTS Next Console is not running, or the HMTS Next service is not installed and running.

If you need help with a communication adapter such as Humboldt's multi-device adapter (HM-000379) or need help connecting your equipment to your PC, please view the Communications page for more information.

Questions and Answers

Follow the questions below. If you can answer "yes" to all the questions, HMTS Next should be running properly.

1) QUESTION: Is the HMTS Next Console running?

ANSWER: The HMTS Next Console can be found in the notification area of Windows (bottom right). Windows 7 may have a portion of the notification area collapsed.
Open the HMTS Next Console to view a quick summary of the HMTS Next Service and Communications status.

2) QUESTION: Is the HMTS Next Service running?

ANSWER: Open the HMTS Next Console to see. The HMTS Next Console icon is in the notification area of Windows and will be gray if the service is not running. In the HMTS Next Console, select the "Help" tab. In the "Help" tab you will find the HMTS Service Manager button. Click this button to launch the HMTS Service Manager. From here you can manage the HMTS Next service. You may need elevated privileges to manage the service. Contact your IT

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department for help with this.

3) QUESTION: I'm using a USB adapter or the Humboldt HM-000377/HM-000379 adapters. Are the drivers installed correctly?

ANSWER: Install the manufacturer's drivers. If the drivers are not installed, you will not be able to find the communication port. Drivers for the HM-000377 and HM-000379 can be found in the HMTS Next installation folder. Please use the Windows Device Manager to install these drivers.

4) QUESTION: Do I have the correct communication port selected?

ANSWER: If you do not have the correct communication port, your loggers will not be found.

5) QUESTION: Are the communications turned on?

ANSWER: The HMTS Next Console notification icon will be yellow if the communications are turned off. The other HMTS Next applications will indicate if the communications are turned off. In the HMTS Next Console, make sure you have the correct communication port selected and turn the communication on.

10 HMTS Next Console

If your HMTS Next Console does not automatically start with Windows, contact your IT department for help. ***Note: If you do not see the Humboldt "H" symbol located in the Windows Notification Area, click on the Windows Start button to locate the HMTS Next Console application. Click to start the***

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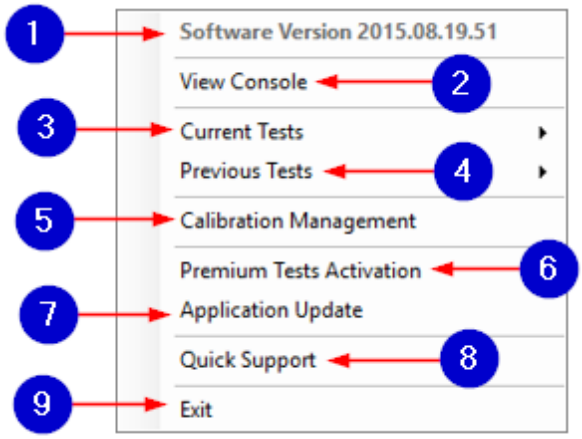
application.

If you right-click on the Humboldt "H" symbol, the following options will be displayed.



The following information corresponds to the image displayed above.

1. Software Version

This is a summary of the current software version.

2. View Console

Click this to open the HMTS Next Console window. This action is the same as double-clicking on the Humboldt icon in the Windows Notification Area.

3. Current Tests

Click this to view a list of tests that are currently in progress. Click on any listed test to open that test.

4. Previous Tests

Click this to view a list of any previously opened tests. Click on any listed test to open that test.

5. Calibration Management

Click this to open the Calibration Management window. See the Calibration Management section for details.

6. Premium Tests Activation

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Click this to open the Activation License.

7. Application Update

Click this to open the software update tool.

8. Quick Support

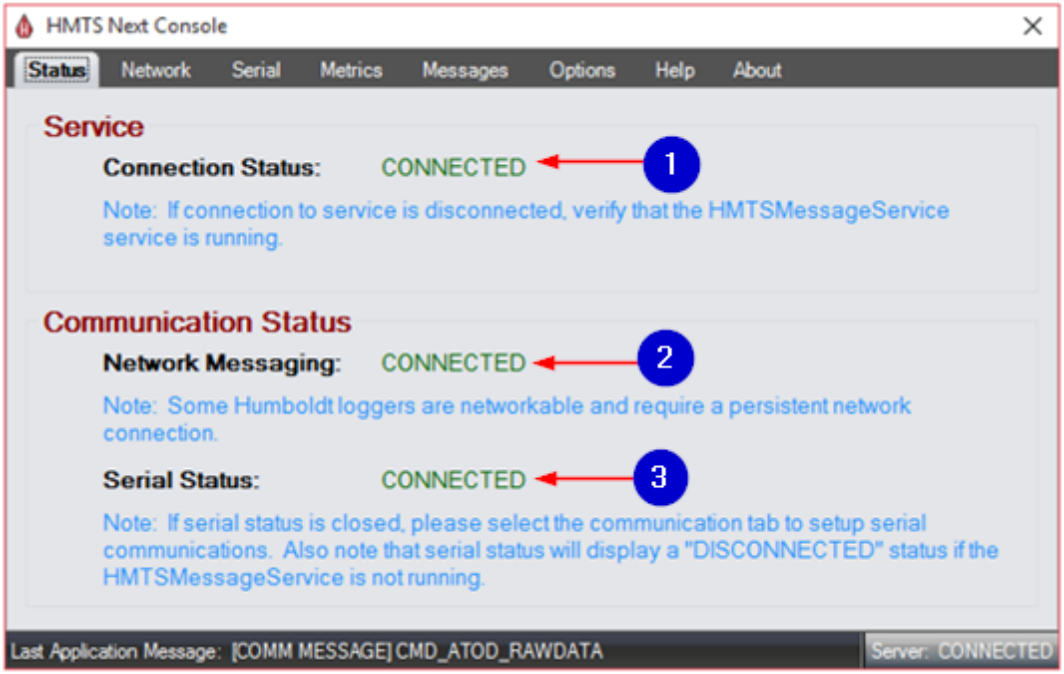
Click this to open the remote control option.

9. Exit

Click this to close the HMTS Next Message Console tool.

10.1 Status

This screen displays the connection and communication statuses.



The following information corresponds to the image displayed above.

1. Connection Status

If the connection to service is disconnected, verify that the HMTS Message Service is running. The service connection status should always be connected.

2. Network Messaging

This is for 5000 series messaging. Some Humboldt loggers are networkable and require a persistent network connection.

3. Communication Status

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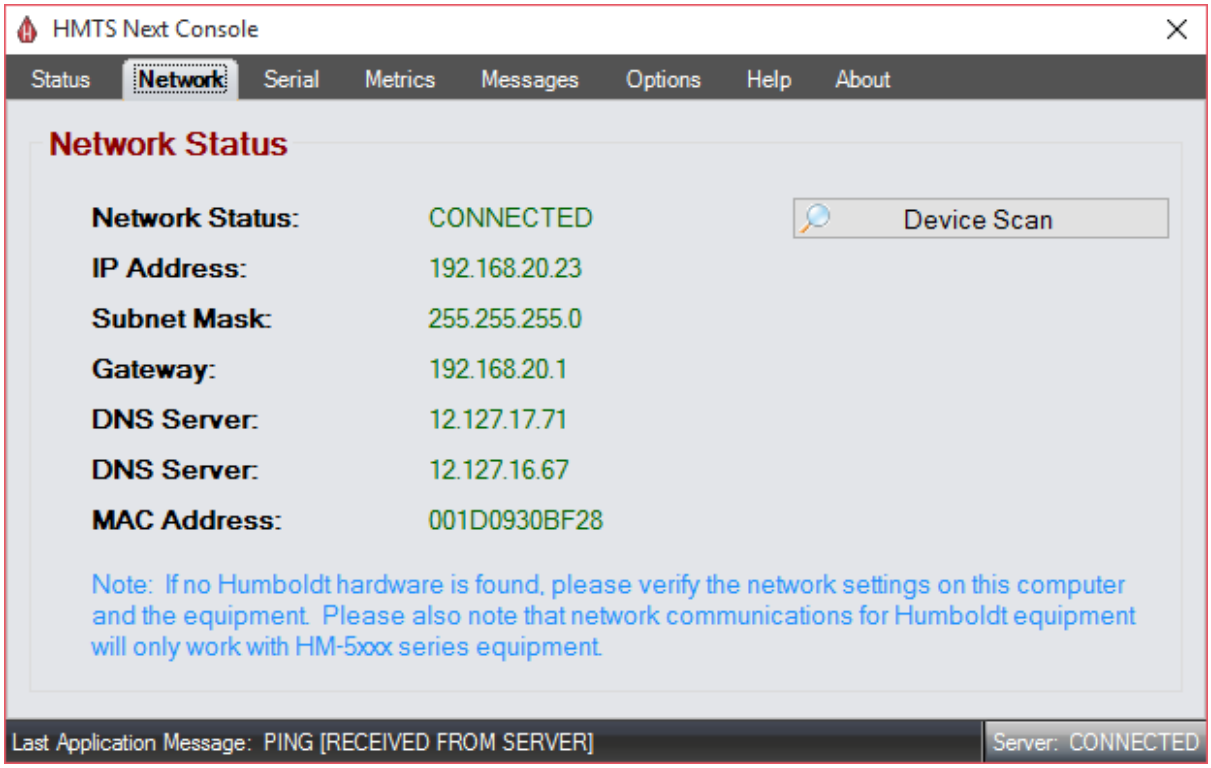
This is the serial port status for Legacy loggers. If the communication status is closed, please select the communication tab to setup communications. Also note that the communication status will display as "DISCONNECTED" if the HMTS Message Service is not running.

10.2 Network

This is a summary of your PC's network connection status and connection information. The "Device Scan" button can be used to scan for connected devices.

Note: If no Humboldt hardware is found, please verify the network settings on this computer and on the equipment. The network communications for Humboldt equipment will only work for HM-5xxx series equipment.



10.3 Serial

This is a summary of the communication port and its status. The "Device Scan" button can be used to scan for connected devices.

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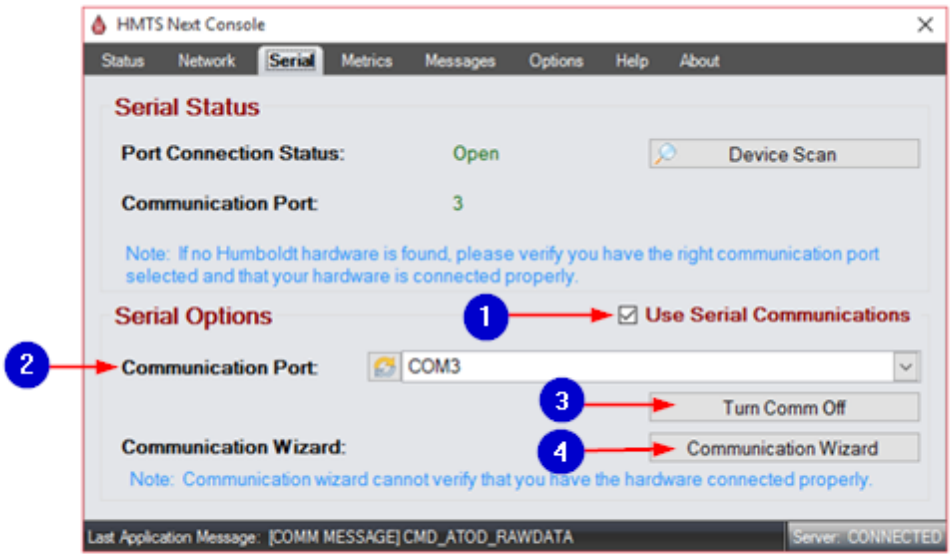

The following information corresponds to the image displayed above.

1. Use Serial Communications

Check/uncheck this box to enable/disable the use of serial communications. If you are using 5000 series equipment and not Legacy equipment, this box can be unchecked. If you are using Legacy equipment, this box needs to be checked.

2. Communication Port

This lists available communication ports on the PC. Humboldt adapters are listed in the available communication ports. The list can be refreshed by pressing the button to the left.

3. Turn Communications On/Off

This is used to open/close the selected communication port.

4. Communication Wizard

This opens the Communication Wizard. More information can be found about this wizard here.

10.4 Metrics

This is a summary of communications, queues, and service time.

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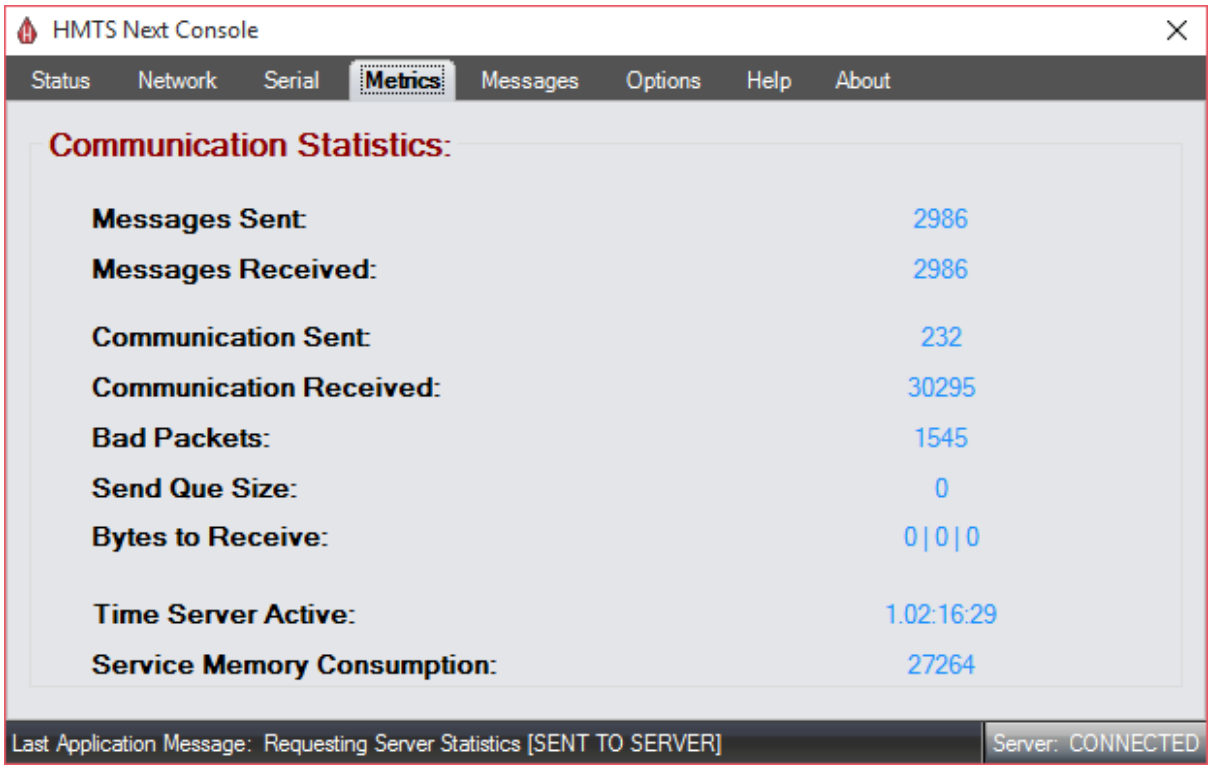

10.5 Messages

This is a summary of messages passing between service and other HMTS Next applications. Press the "Pause"/"Resume" button to enable/disable event updates in the current message window.

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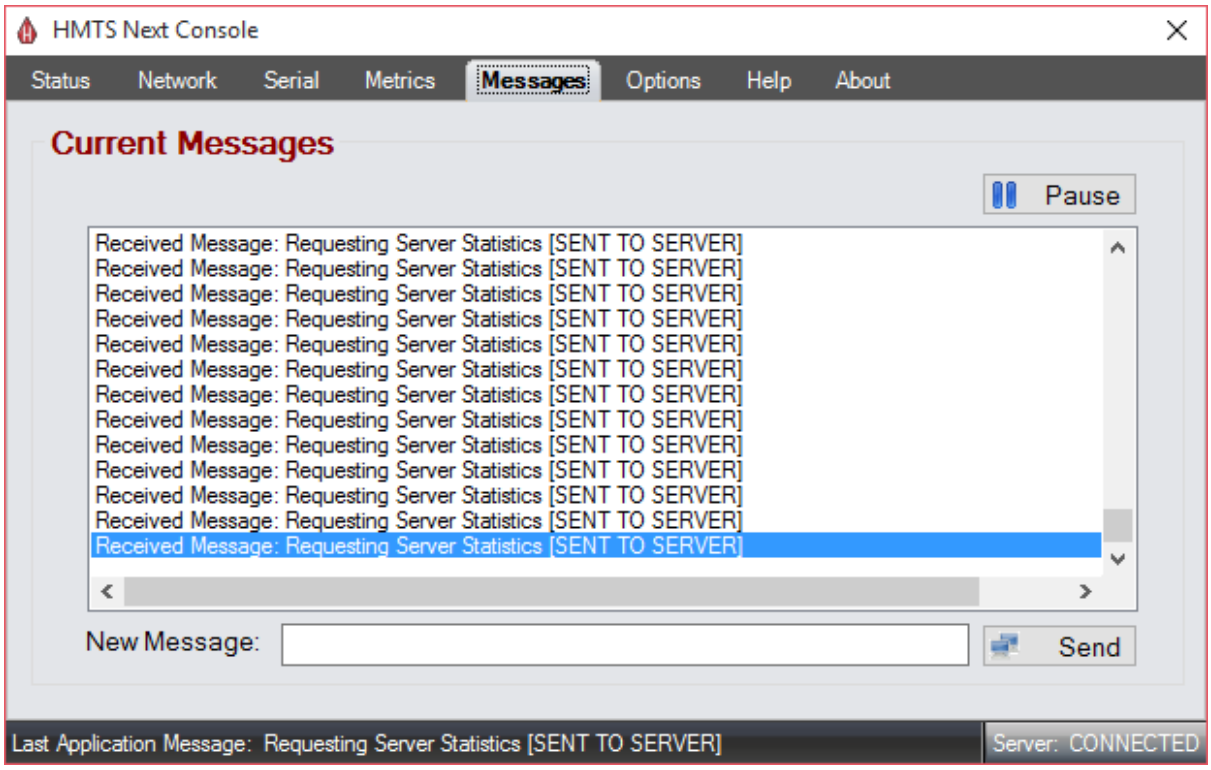
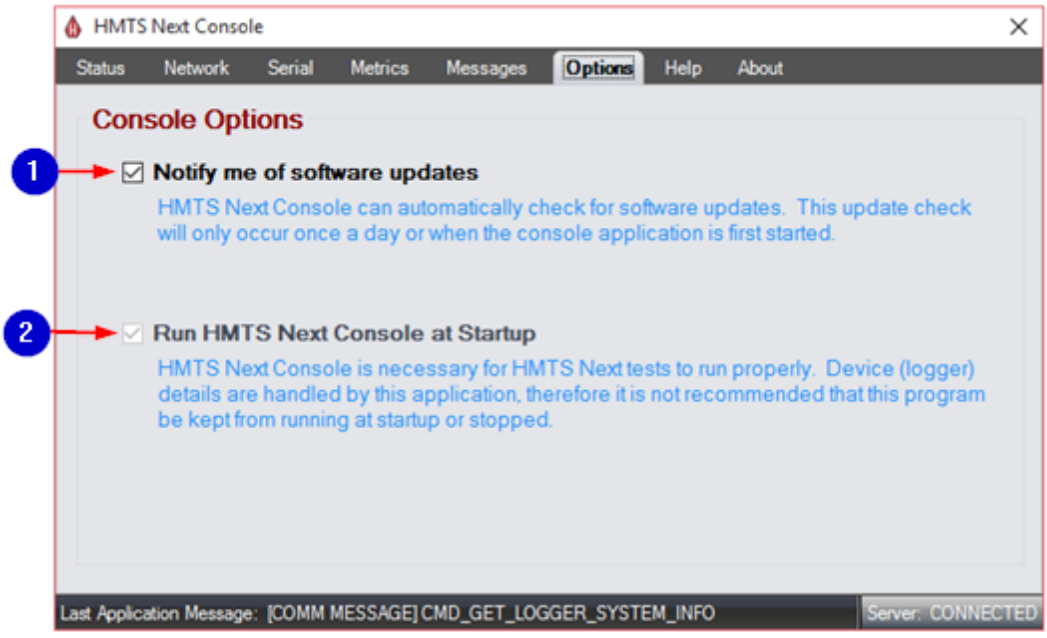


10.6 Options

This screen displays HMTS Next Console options.



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The following information corresponds to the image displayed above.

1. Notify Me of Software Updates

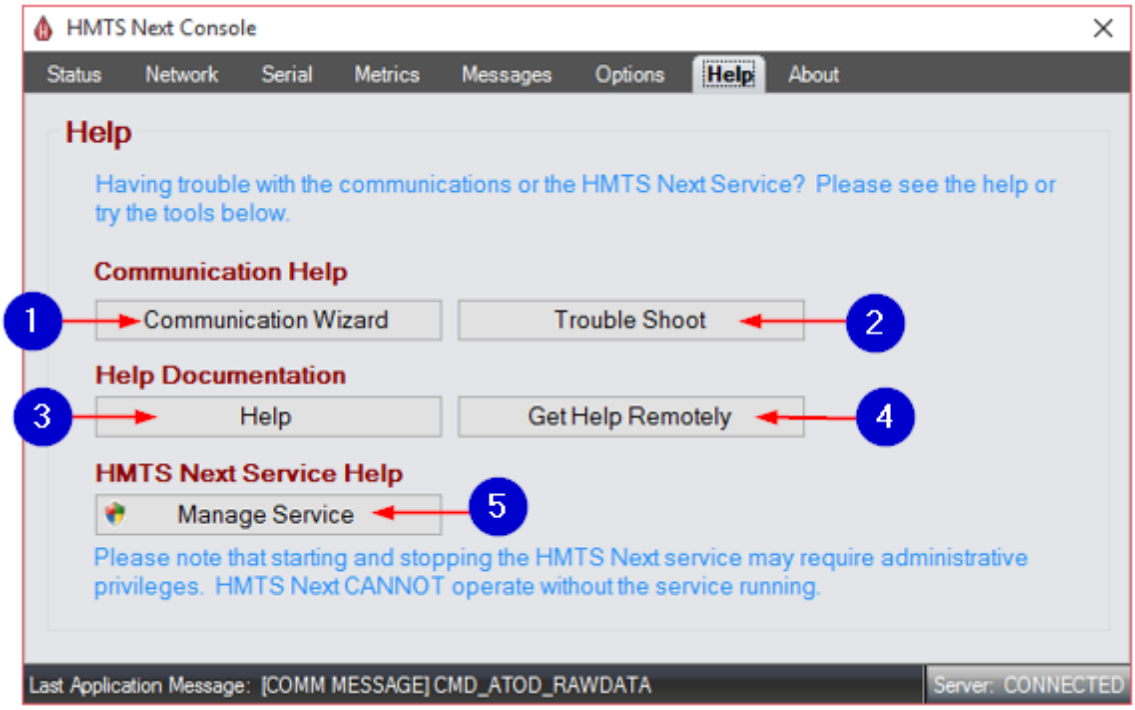
The HMTS Next Console can automatically check for software updates. This update check will only occur once a day or when the console application is first started.

2. Run HMTS Next Console at Startup

The HMTS Next Console is necessary for HMTS Next tests to run properly. Device (logger) details are handled by this application, therefore it is not recommended that this program be stopped or kept from running at startup.

10.7 Help

This screen displays HMTS Next help options in the event that you require help with HMTS Next Service communications.



The following information corresponds to the image displayed above.

1. Communication Wizard

Click this to open the Communication Wizard. More information about the Communication Wizard can be found in the "Communication Setup" section.

2. Troubleshoot

Click this to open the "Frequently Asked Questions for Communications" section of this HM500 Software manual.

3. Help

Click this to open the HM500 Software manual.

4. Get Help Remotely

Click this to request remote help from Humboldt. A picture of the screen is displayed below; you will need to enter your name, session code, and a description of your problem. At this point you are already connecting with Humboldt remote support and do not need to click anything further. ***Note: Humboldt cannot connect to your computer without your permission. You will be notified when Humboldt tries to connect and you must allow access for the connection to be made. Closing the support tool will terminate remote help.***

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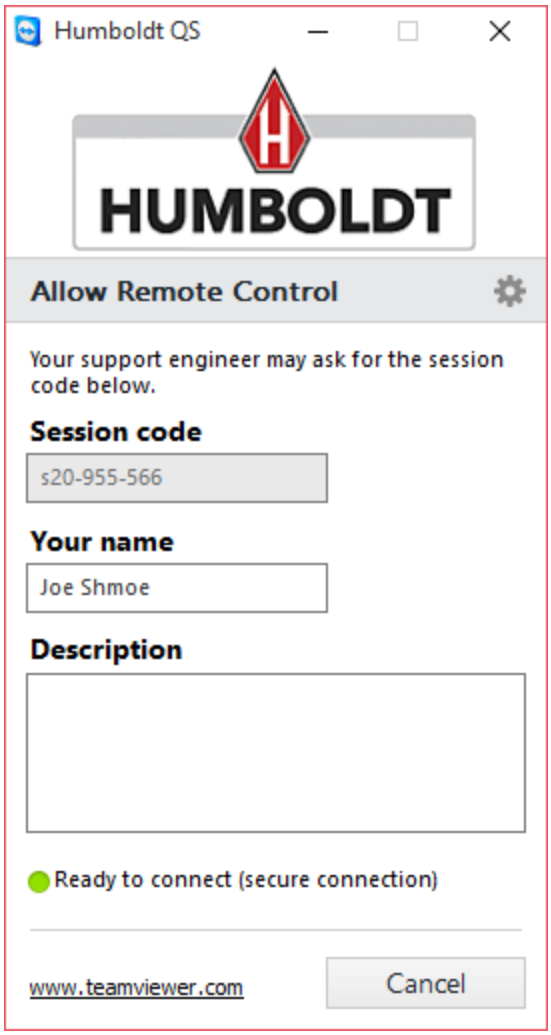

5. Manage Service

Click this to open the Message Service Wizard.

10.8 About

This screen displays the current version of the HMTS software and offers a summary of the operating system. Press "Update Check..." to check for updates.

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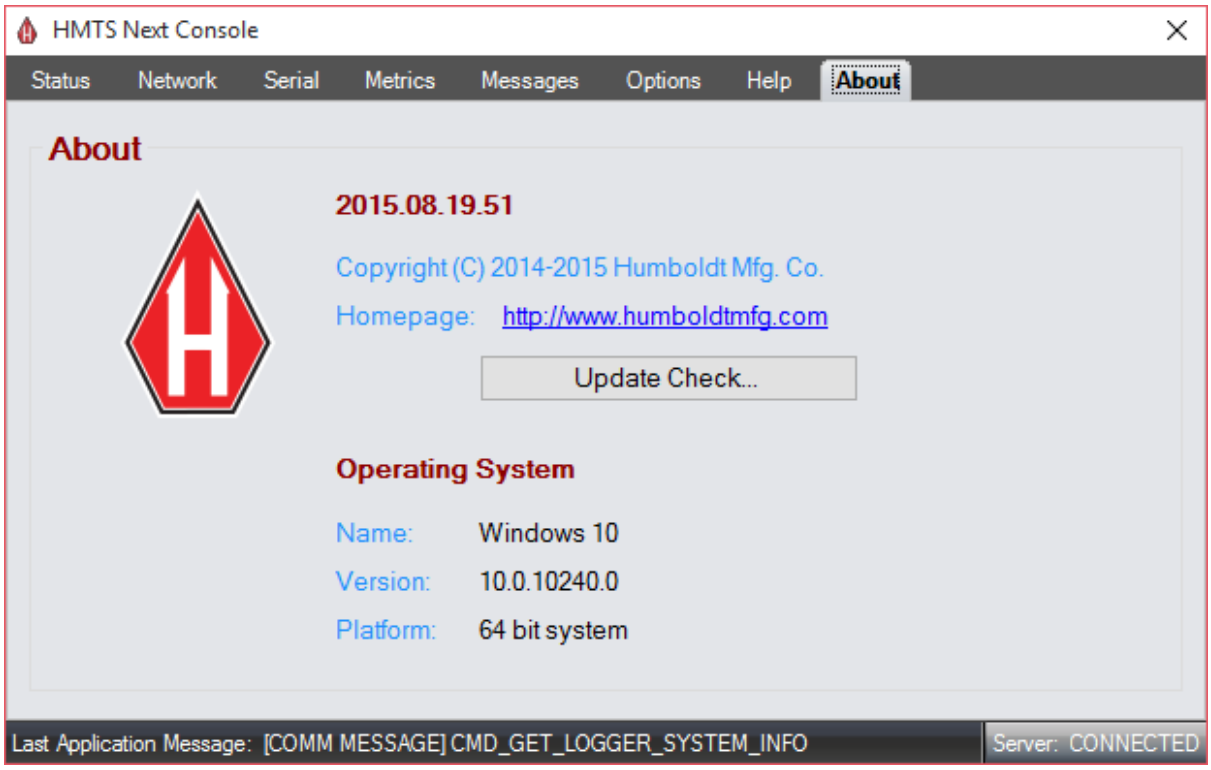

11 Consolidation Test

The purpose of the consolidation test, according to ASTM standards, is "to estimate the magnitude and rate of both differential and total settlement of a structure or earthfill."

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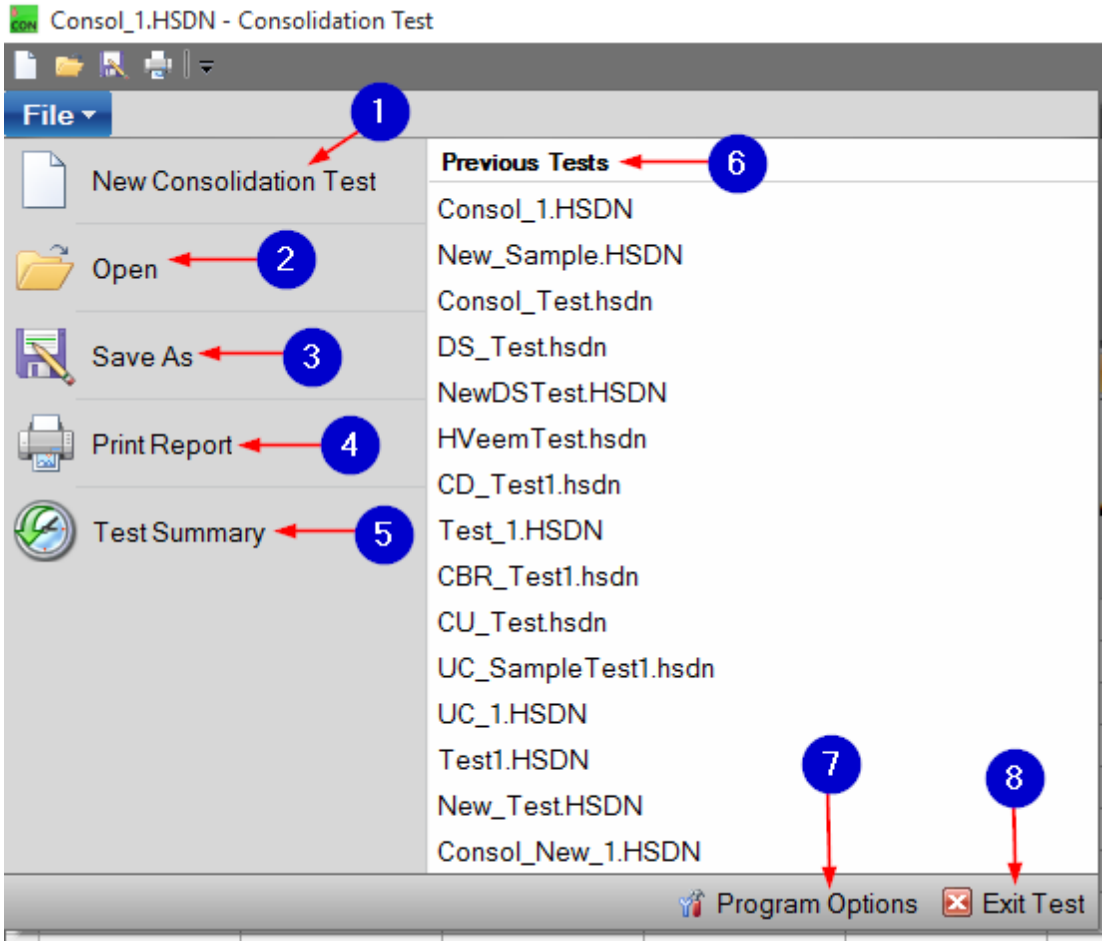
11.1 File



The following information corresponds to the image displayed above.

1. New Consolidation Test

Press this button to create a new Consolidation test in a new window.

2. Open

Press this button to open an existing test in a new window.

3. Save As

Press this button to save the current test with a different name.

4. Print Report

Press this button to print a test.

5. Test Summary

Press this button for a summary of sequence information.

6. Previous Tests

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This is a display of the last 15 tests opened. For easy access, click a previous test to open it. The selected test will open in a new window.

7. Program Options

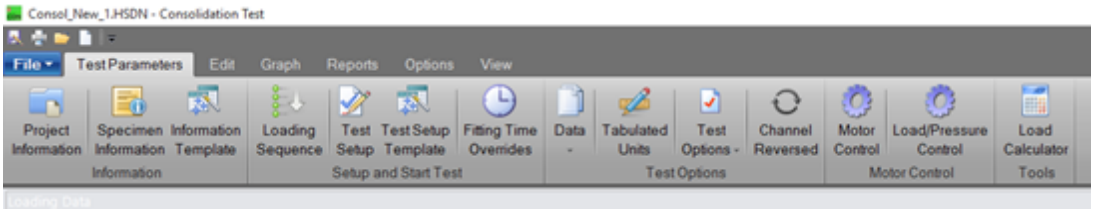
Press this button to open "Program Options." Program options can also be selected from the "Options" tab.

8. Exit Test

Press this button to exit the test and close this screen.

11.2 Test Parameters

When a Consolidation Test is opened, the "Test Parameters" tab will be the first display of options that you see. This screen will appear similar to the screens of other tests. For your convenience, details for most of these options can be found on the "Test Parameters" section of this manual. Individual links for each section can be found below.



11.2.1 Project Information

Information on this screen relates to what the specific properties of your test. Due to the length of this screen, two images are displayed below.

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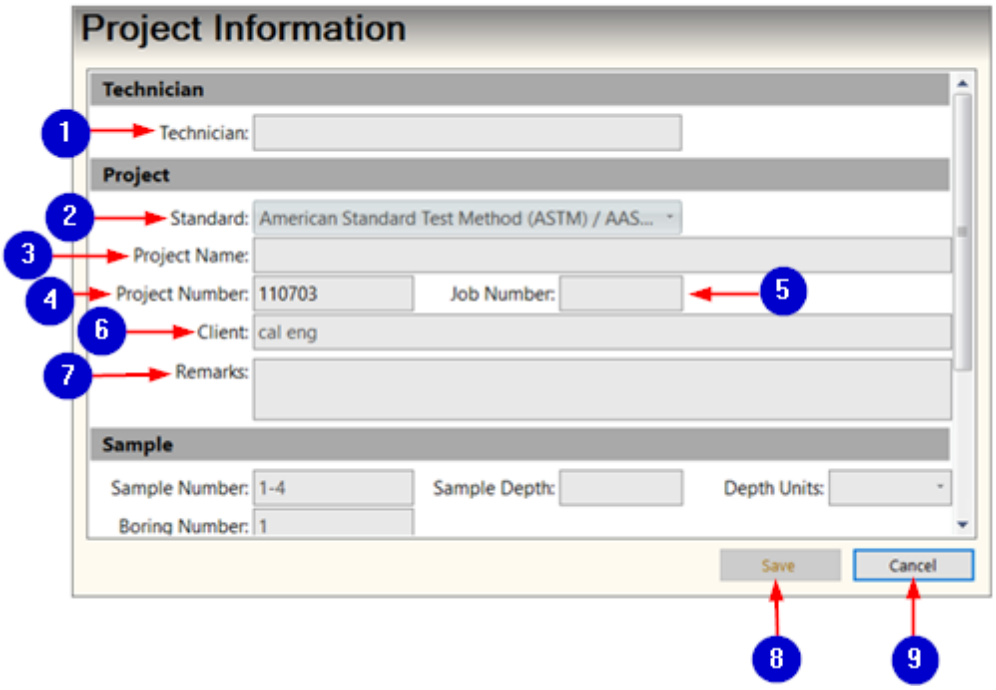

The following information corresponds to the image displayed above.

1. Technician

This is the name of the individual performing the test in the lab.

2. Standard

Enter the testing standard that will be utilized by this test. Choose between American Standard Test Method (ASTM/AASHTO) and British Standard (BS).

3. Project Name

Give your project a name.

4. Project Number

Enter the project number for this test.

5. Job Number

Enter the job number for this test.

6. Client

This is the client for which the test was performed.

7. Remarks

Enter any remarks you have about the test.

8. Save

This option will be unavailable until any changes requiring a save have been made.

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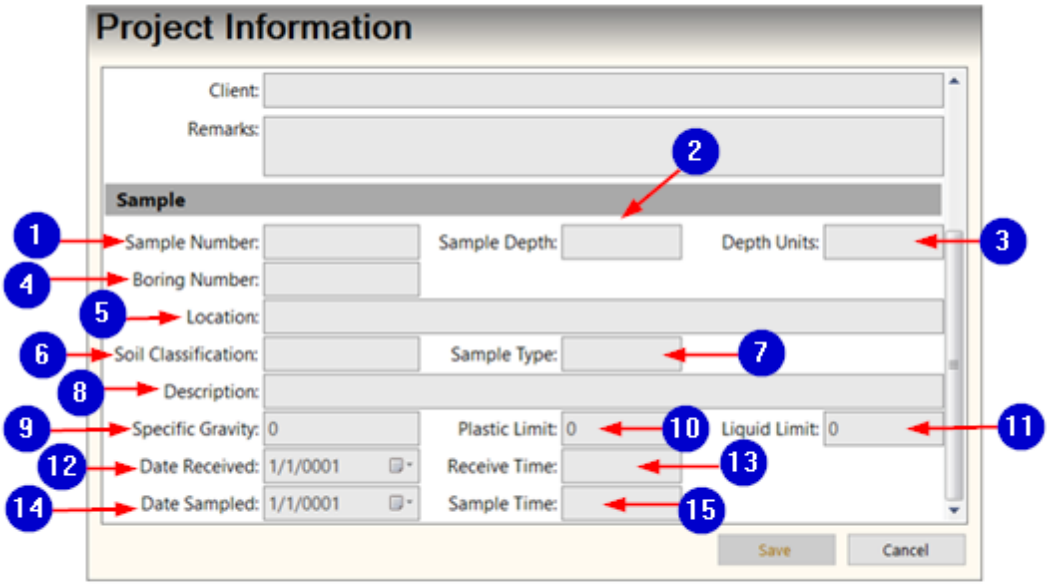
9. Cancel
Press this button to close the "Project Information" screen.



The following information corresponds to the image displayed above.

1. Sample Number
This is the sample identifier for this test.

2. Sample Depth
This is the depth at which the sample was taken.

3. Depth Units
Select the units of the sample depth value.

4. Boring Number
The identification number for the bored hole.

5. Location
The origin of the sample, or the location at which the hole was bored.

6. Soil Classification
This is the classification of the soil in reference to texture and grain size.

7. Sample Type
This is the type of sample used for testing (remolded, disturbed, undisturbed). For a consolidation test, the sample is typically "undisturbed."

8. Description

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Enter a general description of the sample.

9. Specific Gravity

This refers to the global specific gravity at the time of testing and is used to calculate soil properties. This value is equal to the ratio of soil solid weight to the weight of water.

10. Plastic Limit

This refer to the global plastic limit at the time of testing. This is the percentage of water in the state between between plastic and semi-solid states.

11. Liquid Limit

This refer to the global liquid limit at the time of testing. This is the percentage of water in the state between between semi-liquid and solid states.

12. Date Received

Click the button to select the date the sample was received.

13. Receive Time

Enter the time the sample was received.

14. Date Sampled

Click this button to select the actual date that the sample was taken.

15. Sample Time

Click this button to select the actual time the sample was taken.

11.2.2 Specimen Information

This is where specimen information can be entered. If like information is entered in the "Project Information" window, the information will carry over to this screen. Since there are many options on this screen, the options are displayed in multiple pictures below. A Consolidation test is typically a single specimen test.

Information

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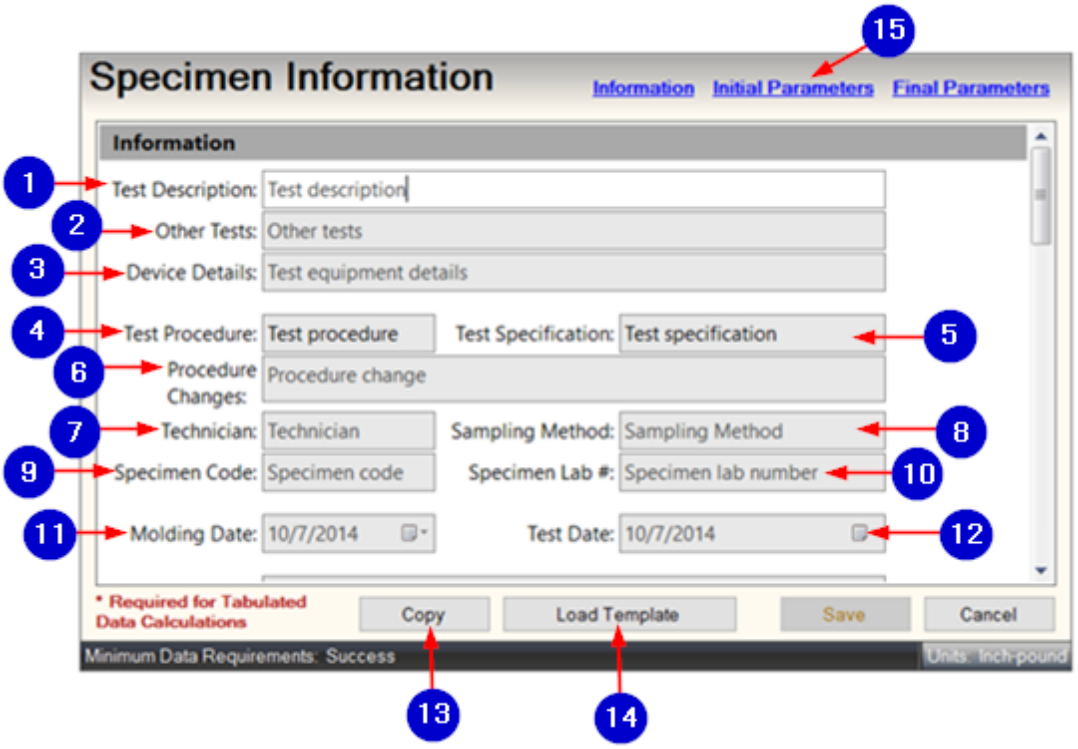

The following information corresponds to the image displayed above.

1. Test Description

Enter a description of the test.

2. Other Tests

Enter other tests used to complete the specimen information requirements.

3. Device Details

Enter a description of the equipment used in testing.

4. Test Procedure

This refers to the standard used for this test.

5. Test Specification

This refers to the sample type (remolded, undisturbed, disturbed).

6. Procedure Changes

Note any modifications or deviations from the standard.

7. Technician

This is the name of the individual who conducted the test in the lab.

8. Sampling Method

Select the sampling method. Choose between undisturbed, compacted, and remolded.

9. Specimen Code

Enter the specimen code in this box.

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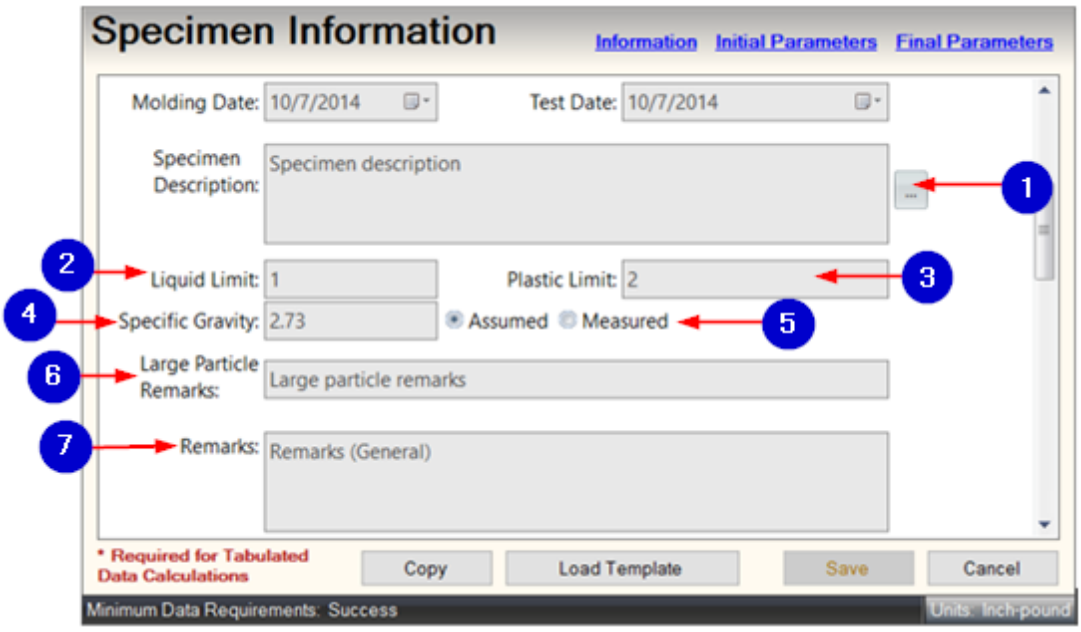
10. Specimen Lab Number
Enter the specimen lab number in this box.
11. Molding Date
Select the date that the specimen was molded.
12. Test Date
Select the date that the specimen was tested.
13. Copy
Press this button to copy specimen information from a current test or another test.
14. Load Template
Press this button to load a template created with the "Test Setup Template" and load a template that has already been made.
15. Section Headers
These three headers are links that will jump your screen to specific areas of this information window.



The following information corresponds to the image displayed above.
1. Specimen Description
Enter a description of the specimen. Press the "..." button to open a list of generic specimen remarks. This is optional and there is no limit to how many you can select. Click the remark(s), if any, that describe your specimen and

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press "Ok."

2. Liquid Limit

This refer to the global liquid limit at the time of testing. This is the percentage of water in the state between between semi-liquid and solid states.

3. Plastic Limit

This refer to the global plastic limit at the time of testing. This is the percentage of water in the state between between plastic and semi-solid states.

4. Specific Gravity

This refers to the global specific gravity at the time of testing and is used to calculate soil properties. This value is equal to the ratio of soil solid weight to the weight of water.

5. Assumed vs. Measured

Choose between assumed or measured. Assumed may mean that the value is standard or is an estimate that is used across tests. Measured means that the value was specifically measured.

6. Large Particle Remarks

Enter any remarks about the large particle.

7. Remarks

Enter any remarks about the test.

Initial Parameters

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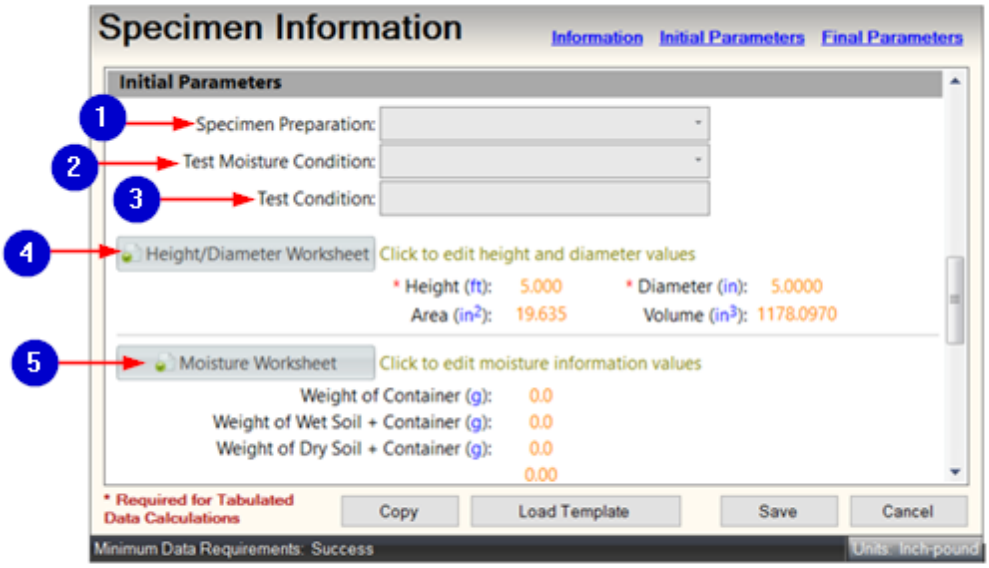

The following information corresponds to the image displayed above.

1. Specimen Preparation

Click the drop-down menu and select the specimen preparation. Options include "Trimming Turntable," "Cutting Shoe," and "Ring-lined Sampler." You can also enter your own text.

2. Test Moisture Condition

Click the drop-down menu and select the test moisture condition. Options include "Natural Moisture" and "Inundated." You can also enter your own text.

3. Test Condition

Enter the test condition.

4. Height/Diameter Worksheet

Click this button to edit the height and diameter values. At least one height and one diameter must be entered. The average of non-zero heights and diameters will be the height and diameter for this specimen. The area and volume will be calculated based on the information you have entered. Calculations will happen in real time as adjustable values. All units in blue are adjustable--click them for a list of available unit options.

5. Moisture Worksheet

A worksheet prompt will pop up with the option to measure moisture in three

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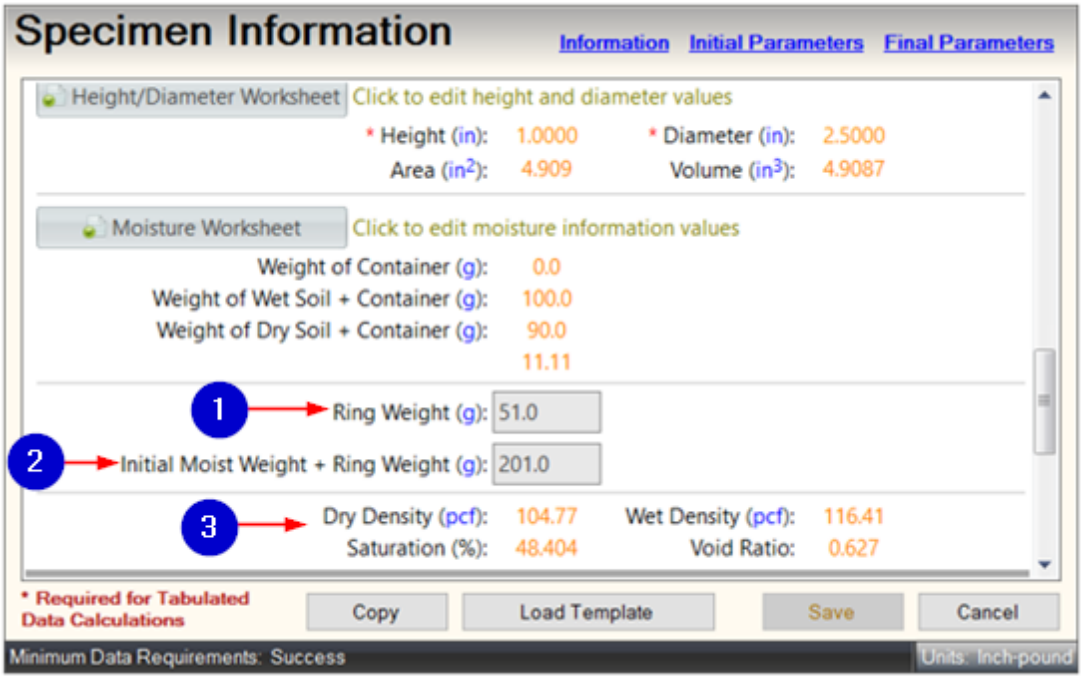
different places, but only one place is necessary. Zero values will not be averaged with non-zero values and will not be part of any final calculations. Calculations will be done automatically once moisture information values have been entered.

WC = Weight of container
WW = Weight of wet soil
WD = Weight of dry soil

Top = WW - WD
Bottom = WD - WC

Moisture Content [MC]

MC= Top/Bottom * 100



The following information corresponds to the image displayed above.

1. Ring Weight

Enter the weight of the sample ring.

2. Initial Moist Weight + Ring Weight

Enter the weight of the sample including the weight of the ring.

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3. Dry Density, Wet Density, Saturation, Void Ratio

These values will be calculated automatically after the "Ring Weight" and "Initial Moist Weight + Ring Weight" are entered.

Wet Density [WD] = MW / Volume
Dry Density [DD] = WS / Volume
S = Saturation = Initial Volume / VV
Voids Volume = [VV] = Volume - (SW / SPG)
[VR] = Void Ratio --> DD in PCF
VV = (62.428 * SPG) / DD - 1

Diameter [D]
Radius [R] = D / 2
Area [A] = $\pi * R^2$
H = Height
Volume = (A * H)
MW = (Initial Moist Weight + Ring Weight) - (Ring Weight)
WS = Weight of Solids = (MW)/(Ring Weight + MC / 100)

Final Parameters

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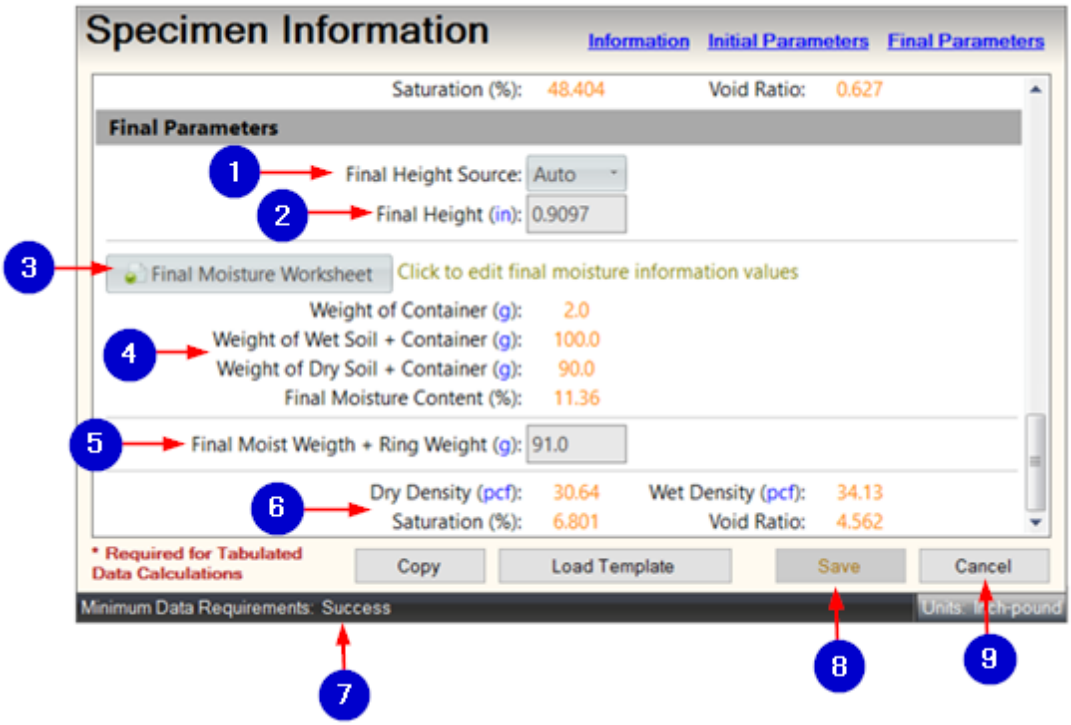

The following information corresponds to the image displayed above.

1. Final Height Source

Available height source options include "Auto" and "Manual." Select "Auto" if you would like the program to automatically view the testing information and retrieve the final height.

2. Final Height

This is where the final height calculation can be manually entered or automatically taken from the last load sequence.

3. Final Moisture Worksheet

A worksheet prompt will pop up with the option to measure moisture in three different places, but only one place is necessary. Zero values will not be averaged with non-zero values and will not be part of any final calculations.

4. Weight Values

These values will be calculated automatically after the "Final Moisture Worksheet" is completed.

5. Final Moist Weight + Ring Weight

Enter the weight of the sample including the weight of the ring.

6. Dry Density, Wet Density, Saturation, Void Ratio

These values will be calculated automatically after the "Ring Weight" and "Initial Moist Weight + Ring Weight" are entered.

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Dry Density = DDF = WSF/Volume F
WSF = Final Weight of Solids = MWF / (1 + MCF / 100)
MWF = Moisture Weight Final = Final Moist Weight (FMW) - Ring Weight (RW)
MCF = (Top F/Bottom F) * 100

WCF = Weight of Container Final
WWF = Wet Weight Final
DWF = Dry Weight Final
Top F = WWF - DWF
Bottom F = DWF - WCF
Final Saturation (FS) = Final Volume / Voids Volume Final (VVF)

Wet Density = WDF = MDF = MWF
Volume F = π * R^{2} * Final Height (FH)
Voids Volume Final = Volume F - (WSF /SPG)
Void Ratio Final = VRF = (62.428 * SPG) / DDF -1
SPG = Specific Gravity

7. Minimum Data Requirements
The "Height" and "Diameter" are required for tabulated data calculations.
8. Save
The option to save the specimen information will be unavailable until any changes requiring a save have been made.
9. Cancel
Press this button to clear all specimen information and return to the "Consolidation Test" screen.

11.2.3 Information Template

This is where you can setup an information template so that information parameters can be more quickly created. You can modify existing templates. If you would like to create a new information template, select that option and click "Next." If you would like to modify an existing template, select that option and click "Browse." See the "Specimen Information" page for more details on information templates.

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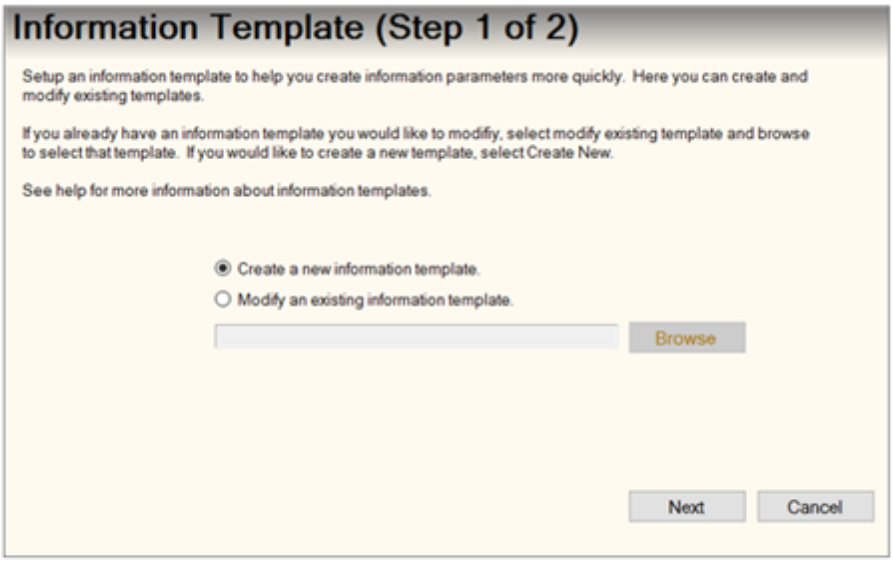

11.2.4 Loading Sequence

A consolidation test is made up of multiple sequences, and it needs at least one sequence to run. To begin, create or choose a sequence. The "Consolidation Sequence" tab shows the sequences chosen for this test.; the "Load Sequences Editor" allows you to create/edit sequences that are available for all tests.

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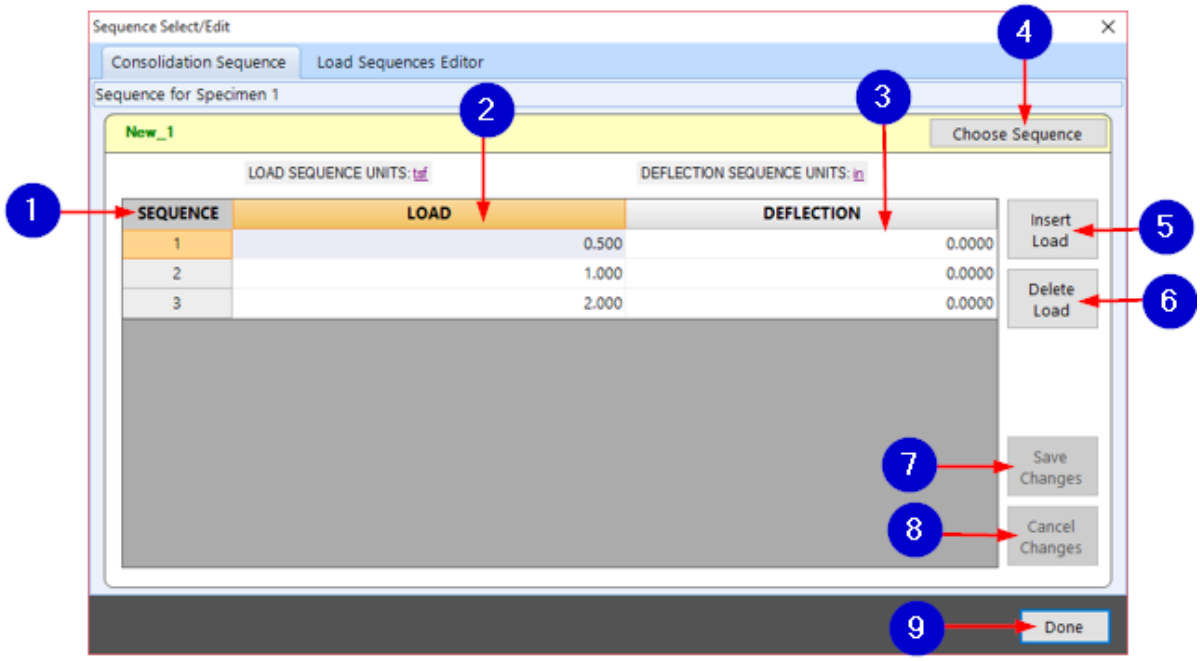

The following information corresponds to the image displayed above.

1. Sequence

This is an index of sequences.

2. Load

This refers to the pressure that will be applied to the sample. The loading increments can be changed by clicking the links above "Load" and "Deflection" (links will appear as "tsf" or "in"). Testing units can be changed at any time.

3. Deflection

This refers to the correction factor for the crossbar of the machine. Deflection is not required for testing but should be entered for more accurate results. Deflection values can be entered at any time.

4. Choose Sequence

Press this button to choose a sequence. A prompt will open with available sequences.

5. Insert Load

Press this button to insert a load, which is displayed as a row on this screen. The new load will be inserted directly after the load that is highlighted. A new load can only be inserted after the sequence has been chosen. A sequence

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contains multiple loadings. If a test is completed or partially completed, a sequence can only be inserted after a completed sequence.

6. Delete Load

Press this button to delete a load, which is displayed as a row on this screen. The highlighted row will be deleted. A new load can only be deleted after the sequence has been chosen.

7. Save Changes

Press this button to save any changes that have been made. This option will be unavailable until any changes that requiring a save have been made. Saving changes will commit the sequence(s) to the test.

8. Cancel Changes

Click this button to revert all values back to their original settings.

9. Done

Click this button to close the "Loading Sequence" window and return to the "Consolidation Test" screen.

11.2.4.1 Load Sequence Editor

Use this feature to create new sequences or edit existing sequence templates. This is available for all new and existing tests.

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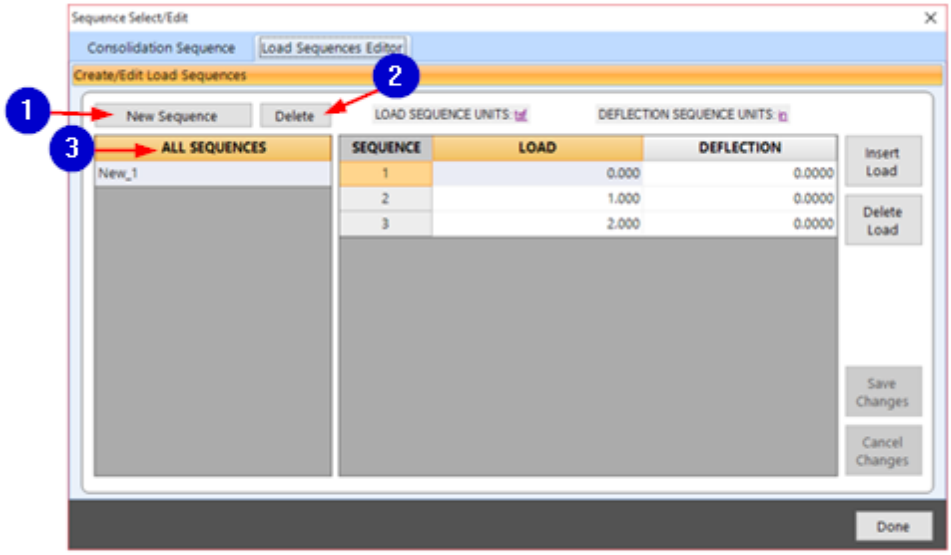

The following information corresponds to the image displayed above.

1. New Sequence

Press this button to create a new sequence to be edited. The screen will prompt for a sequence table name and number of sequences.

2. Delete

Press this button to delete the highlighted sequence. Deleting a sequence cannot be reversed.

3. All Sequences

This is a list of all available sequences. Right-click a sequence to rename or create a copy. If you create a copy, the name of the identical sequence will be that of the sequence you copied, followed by "_1."

11.2.5 Test Setup

Please view the "Test Setup" section of this manual for more information regarding this screen. Features that may be unique to a Consolidation test will be explained below. All options may not be available for the Consolidation module.

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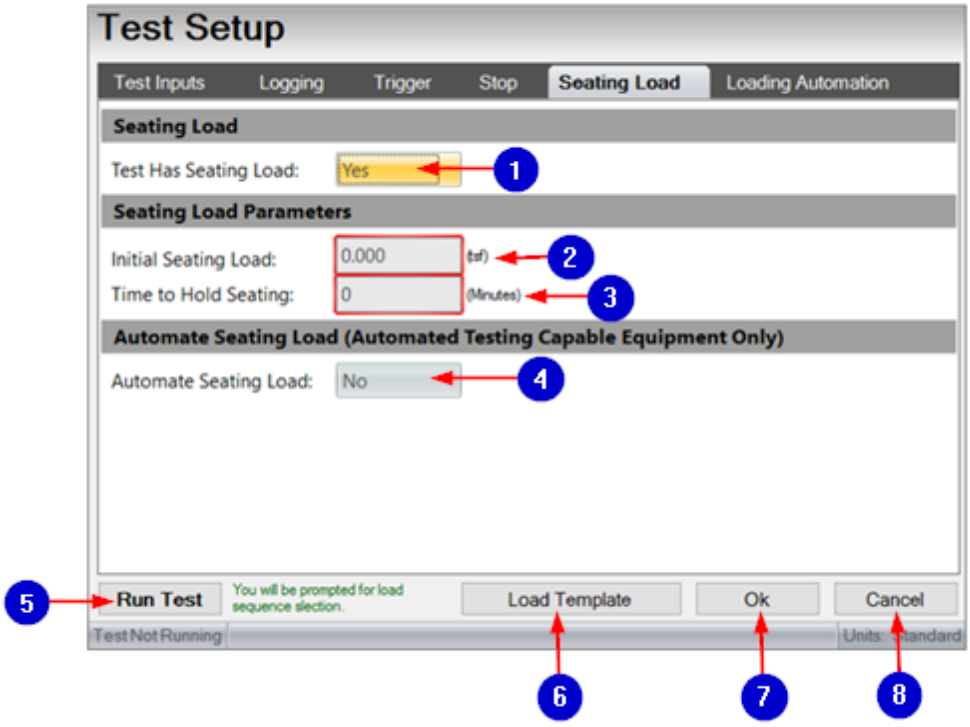

The following information corresponds to the image displayed above.

1. Seating Load

A seating load is an initial load prior to testing. If the test does not have a seating load, select "No." If the test does have a seating load, select "Yes." Selecting "Yes" will cause more options to appear below.

2. Initial Seating Load

This refers to the amount of pressure of the load.

3. Time to Hold Seating

This refers to the amount of time that the load is applied.

4. Automatic Seating Load

Select whether or not the seating load should be automatic for automated pressure control equipment. An example of this equipment is HM-2470A.

5. Run Test

Press this button to apply all settings and run the test. The screen will prompt for load sequence selection. Select a sequence and press "Begin Sequence # Test." If you press the "Begin Sequence # Test" button by mistake, you can cancel the test by pressing the "Abort" button that will prompt.

6. Load Template

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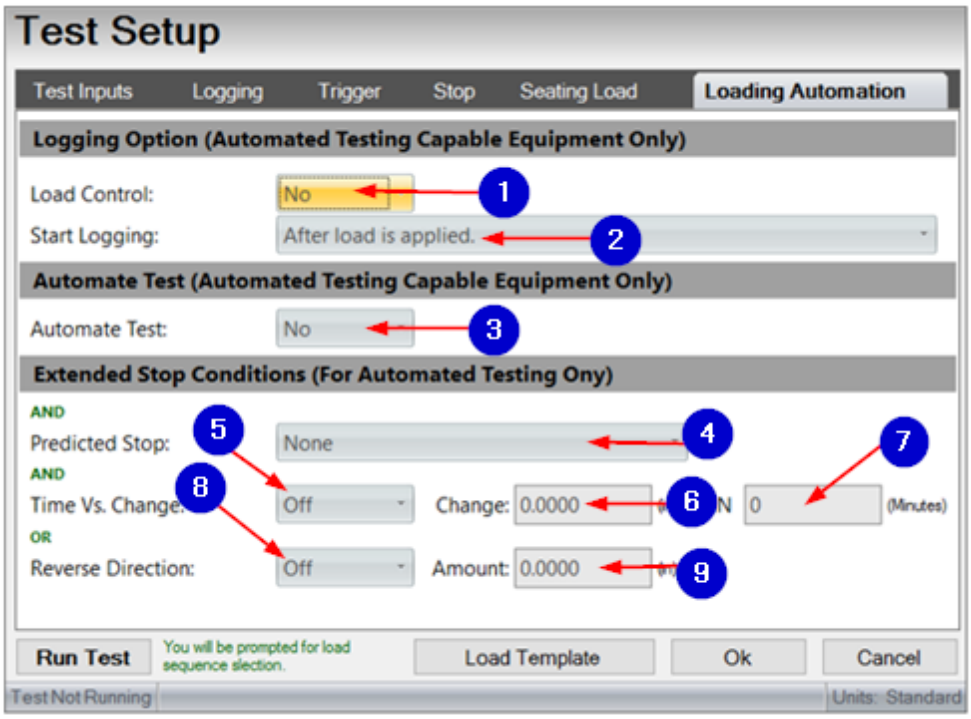
Press this button to load a template that has been previously created.

7. Ok

Press this button to save these settings and return to the "Consolidation Test" window.

8. Cancel

Press this button to disregard any changes and return to the "Consolidation Test" window.



The following information corresponds to the image displayed above. These options are for automated testing capable equipment only.

1. Load Control

Select "Yes" or "No" to enable/disable load control. If "Yes" is chosen and load control option is enabled, the target load will be constantly adjusted to maintain the load that you have entered. If "No" is selected and the load control is not used, then the pressure will not be adjusted when the target load is reached. For example, if .05TSF is applied to the sample and the sample starts to swell, the applied load will not be adjusted to compensate for this

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pressure change unless "Yes" was selected. This is the only way that the applied load will be automatically adjusted for any pressure changes.

2. Start Logging

Select whether you want the test to start logging after the load is applied or after the displacement trigger condition is met.

3. Automate Test

Select "Yes" or "No" to enable/disable the option to start handle moving to load sequences automatically.

4. Predicted Stop

A typical Consolidation test will run for 24 hours or until adequately consolidated. This option can be used to try to speed up or decrease the duration required for running a Consolidation Test. Select "None," "Theoretical T100 + 1 Log," or "Theoretical T100 + Time." Choose "None" if you would not like the software to predict any stopping--this will use the designated stop condition from the "Stop" tab under "Test Setup." Select "Theoretical T100 + 1 Log" if you would like the software to calculate or predict the T100 value and add 1 log cycle to the predicted time. After the calculated time parameter is met, the software will end this sequence and move on to the next sequence. Select "Theoretical T100 + Time" if you would like the software to calculate or predict the T100 value and add the time value that you entered as the designated stop condition in the "Stop" tab under "Test Setup."

5. Time Vs. Change

If enabled, this will automatically move to the next load sequence if the entered change amount is not achieved in the entered time, which is entered in "IN."

6. Change

Enter the desired change amount for the load sequence.

7. IN

Enter the desired amount of time in which you would like the change amount to be achieved.

8. Reverse Direction

If enabled, the software will automatically move to the next load sequence if the displacement reverses in the direction by more than the desired amount. This option is used to help avoid sample swelling.

9. Amount

Enter the desired amount by which you would like the displacement reverse to exceed before automatically moving to the next load sequence.

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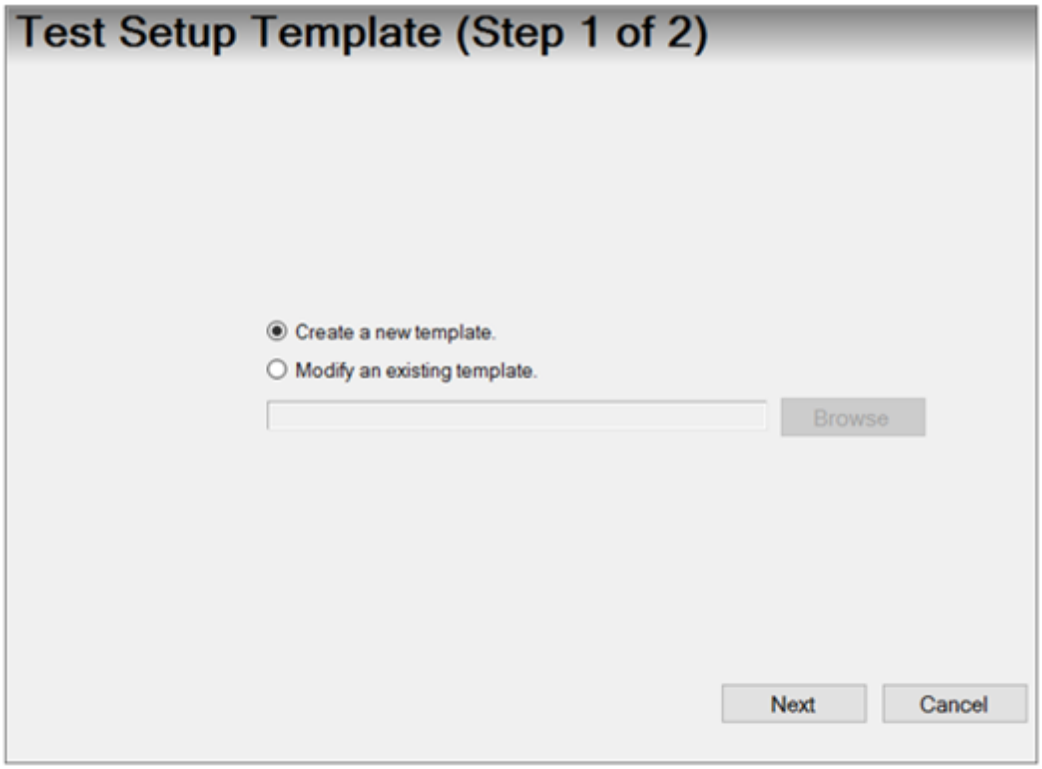
11.2.6 Test Setup Template

In this screen you can create a new template or modify an existing one. If you would like to create a new template, select that option and click "Next." If you would like to modify an existing template, select that option and click "Browse" to locate your desired template.



11.2.7 Fitting Time Overrides

This is for you want to manually determine the T90 or T50 (T) fitting times from an external source. Any manually entered values will disable the Square Root T90 and/or Logarithmic T50 tools for any sequence using an override fitting time. The T Override values will need to be set back to zero to allow the graphing tools to compute the T values. The units are reflected from the "Loading Sequence" or "Tabulated Data" tabs. Click "Reset All" to revert all values and return to the "Consolidated Tests" screen.

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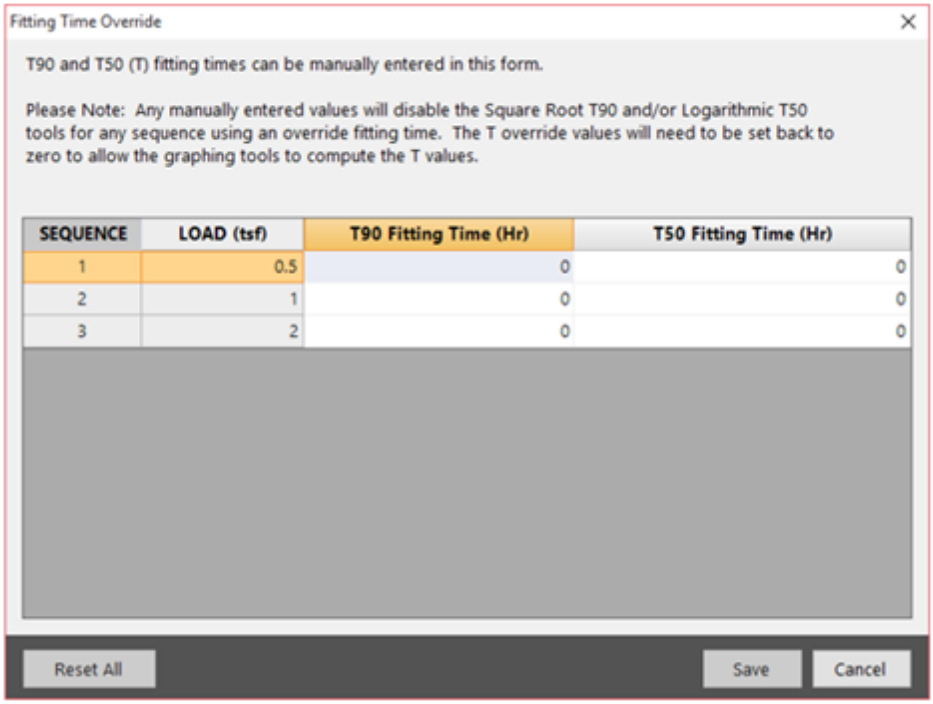

11.2.8 Data

Please see the "Data" section of this manual for more information.

11.2.9 Tabulated Units

Use this screen to adjust the units used in testing. This applies to the units located under the "Summary" tab as well as the "Loading Data" tab.

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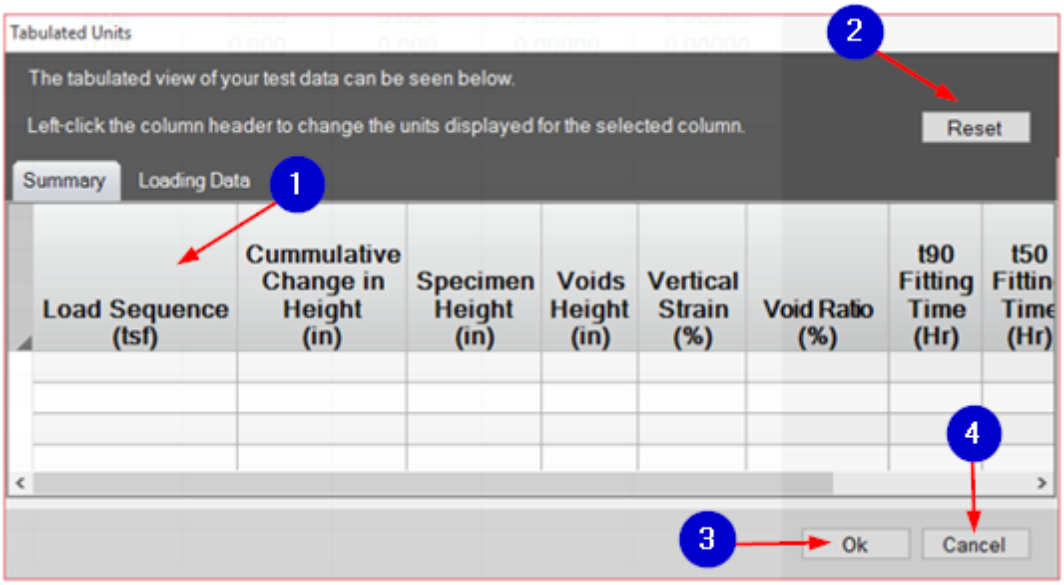

The following information corresponds to the image displayed above.

1. Change Units

Left-click the column header to change the units displayed in that column. A list of unit options will be displayed. There will also be a box labeled "Precision"; this allows you to include significant digits in your data. Significant digits are the numbers to the right of the decimal. For example, in the number "2.015," there are three significant digits.

2. Reset

Press this button to reset all units back to their original settings.

3. Ok

Press this button to save these settings and return to the "Consolidation Test" window.

4. Cancel

Press this button to disregard any changes and return to the "Consolidation Test" window.

11.2.10 Test Options

Please see the "Test Options" section of this manual for more information.

11.2.11 Channel Reversed

Press this button to decrease the displacement value when load is applied or if the displacement transducer is an analog transducer and is calibrated opposite from normal. The default is "No."

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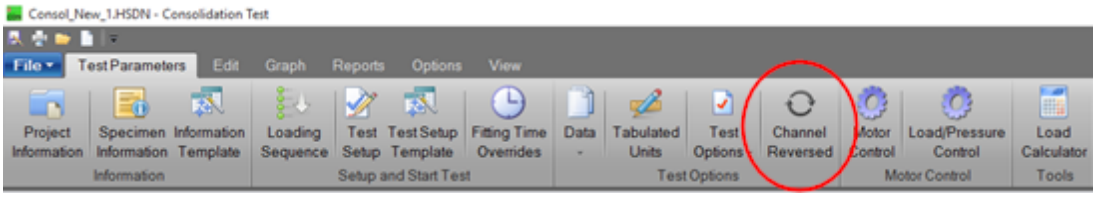

11.2.12 Motor Control

This allows the option to manually control an attached devices motor. For more information, please visit the "Manual Motor Control" section of this manual.

11.2.13 Load/Pressure Control

Please see the "Load/Pressure Control" section of this manual for details.

11.2.14 Load Calculator

Use this tool to enter the height and diameters so that the normal stress and vertical load can be calculated from each other. The stress value will calculate the load; the load value will calculate the stress value. Height and diameter/ width are both needed to calculate the load parameters. The units in blue are adjustable--click the units if you would like to make any alterations.

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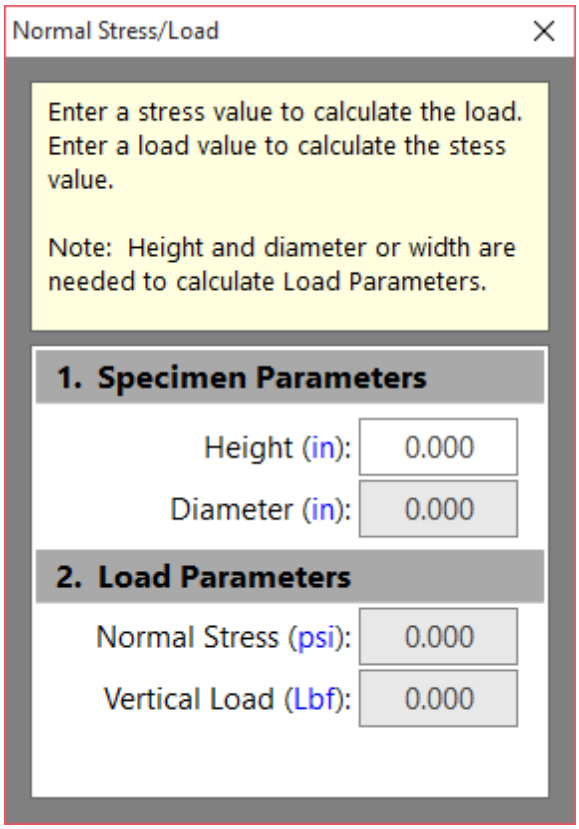

11.3 Tabulated Data

11.3.1 Summary

1 Sequence	2 Load Sequence (ksf)	Cummulative Change in Height (in) 3	4 Specimen Height (in)	5 Voids Height (in)	6 Vertical Strain (%)	7 Void Ratio (%)	8 t90 Fitting Time (Min)	9 t50 Fitting Time (Min)	10 t90 Cv (ft²/Yr)	11 t50 Cv (ft²/Yr)
0	0.000	0.0000	1.0030	0.0000	0.00	0.95	0.000	0.000	0.00000	0.00000
1	0.050	-0.0012	1.0042	0.4878	-0.12	0.94	0.000	0.000	0.00000	0.00000
2	0.150	0.0005	1.0025	0.4862	0.05	0.94	0.330	0.183	2359.05200	0.00002
3	0.300	0.0049	0.9981	0.4817	0.49	0.93	1.060	0.486	734.82970	372.37400
4	0.550	0.0129	0.9901	0.4737	1.29	0.92	0.563	0.591	1382.62900	306.29320
5	1.100	0.0523	0.9507	0.4344	5.22	0.84	1.196	0.665	651.06160	0.00001
6	2.200	0.1531	0.8499	0.3336	15.27	0.65	21.056	4.078	36.99458	44.37422
7	4.400	0.2491	0.7539	0.2375	24.84	0.46	9.230	5.128	84.39863	0.00000
8	8.800	0.3160	0.6870	0.1707	31.51	0.33	6.929	3.850	112.41720	0.00000
9	17.600	0.3948	0.6082	0.0919	39.36	0.18	12.291	2.835	63.37566	63.82465
10	35.200	0.4613	0.5417	0.0253	46.00	0.05	4.427	2.571	175.94650	70.37878
11	17.600	0.4626	0.5404	0.0241	46.12	0.05	0.000	0.000	0.00000	0.00000
12	4.400	0.4439	0.5591	0.0428	44.25	0.08	0.000	0.000	0.00000	0.00000
13	1.100	0.4142	0.5888	0.0725	41.29	0.14	0.000	0.000	0.00000	0.00000
14	0.300	0.3971	0.6059	0.0896	39.59	0.17	0.000	0.000	0.00000	0.00000
15	0.050	0.3782	0.6248	0.1084	37.71	0.21	0.000	0.000	0.00000	0.00000

The following information corresponds to the image displayed above.

1. Sequence

The index value of the load sequence.

2. Load Sequence

The Consolidation test is a single-phase test with multiple load sequences. This

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is the sequence number.

3. Cumulative Change in Height

This is the height change after each load sequence.

4. Specimen Height

This is the final height after each load sequence.

5. Voids Height

[hv] Height of Voids = (Initial height - height of solids) - settlement

6. Vertical Strain (Axial Strain)

This is the cumulative change in height / initial height * 100.

7. Void Ratio

[hs] Height of Solids = (dm [g] / (Initial area [in^2] * Specific gravity * 0.99821)) * 0.06102376

This is calculated by height of voids / height of solids, then calculated back to the your desired units.

8. t90 Fitting Time

This can be manually entered and is obtained from the t90 tangent line.

9. t50 Fitting Time

This can be manually entered and is obtained from the t50 tangent line.

$$t50\ SQR = t90 * (5 / 9)$$

10. t90 Cv

This is calculated by $(0.848 * (\text{cumulative height} / 2)^2) / t90\ SQR$.

Note: Value is converted to ft2/year in English and mm2 /sec in metric.

$$t90\ Log = t50 * (9/5)$$

11. t50 Cv

This is calculated by $(0.197 * (\text{cumulative change in height} / 2)^2) / t50$.

Note: Value is converted to ft2/year in English and mm2 /sec in metric.

If t90 is calculated from the construction line and t50 is not, t50 is back-calculated from the t50 SQR calculation. If t50 is calculated from the construction line and t90 is not, t90 is back-calculated from the t90 log calculation.

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11.3.2 Load Sequence

1 Reading	2 Elapsed Time (hh:mm:ss)	3 Displacement (in)	4 Settlement (in)	5 Axial Strain (%)	6 Void Ratio
0	00:00:00	0.9358	0.0000	0.00	0.9460
1	00:00:01	0.9358	0.0000	0.00	0.9426
2	00:00:02	0.9358	0.0001	0.01	0.9424
3	00:00:03	0.9358	0.0001	0.01	0.9424
4	00:00:04	0.9358	0.0001	0.01	0.9424
5	00:00:05	0.9358	0.0001	0.01	0.9424
6	00:00:06	0.9358	0.0001	0.01	0.9424
7	00:00:10	0.9356	0.0002	0.02	0.9421
8	00:00:15	0.9355	0.0003	0.03	0.9420
9	00:00:30	0.9356	0.0002	0.02	0.9421
10	00:01:00	0.9363	-0.0005	-0.05	0.9435
11	00:02:00	0.9364	-0.0005	-0.05	0.9436
12	00:04:00	0.9370	-0.0012	-0.12	0.9448

The following information corresponds to the image displayed above.

1. Reading

This refers to the test number.

2. Elapsed Time

How much time has passed since the start of the test.

3. Displacement

This is the data entry received from the machine.

4. Settlement

The displacement at reading zero minus the current displacement.

5. Axial Strain

The settlement multiplied by 100.

6. Void Ratio

This is calculated by height of voids / height of solids.

Wet Density [WD] = MW / Volume
Dry Density [DD] = WS / Volume
S = Saturation = Initial Volume / VV
Voids Volume = [VV] = Volume - (SW / SPG)
[VR] = Void Ratio --> DD in PCF

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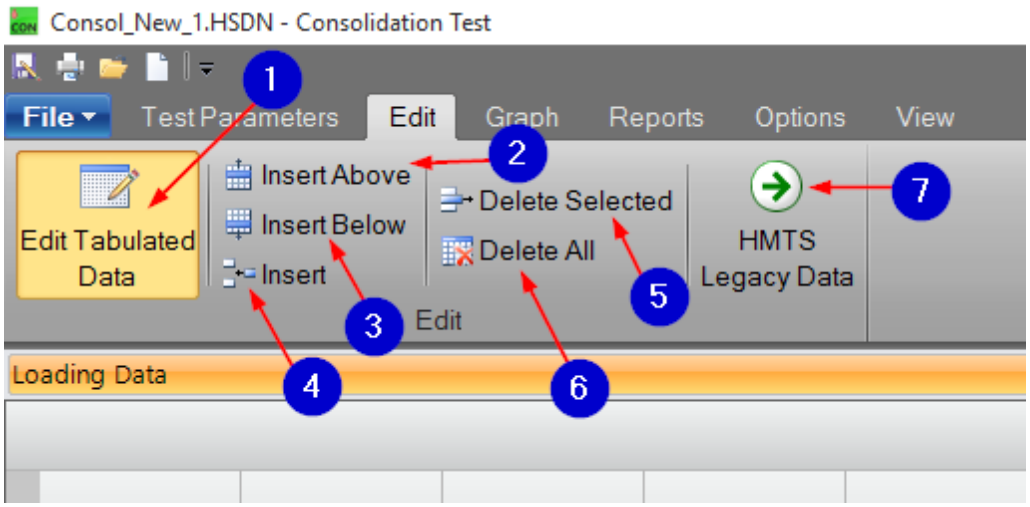
VV = (62.428 * SPG) / DD - 1

Diameter [D]
Radius [R] = D / 2
Area [A] = π * R^2
H = Height
Volume = (A * H)
MW = (Initial Moist Weight + Ring Weight) - (Ring Weight)
WS = Weight of Solids = (MW)/(Ring Weight + MC / 100)

11.4 Edit

This is where you can add/delete tabulated rows of data, as well as import any tests performed in original HMTS software. These options will be appear unavailable if you are under the "Summary" tab at the bottom of the page or if a load sequence is not chosen.



The following information corresponds to the image displayed above.

1. Edit Tabulated Data

If you are not under the "Summary" tab, click this button to make the other editing options available.

2. Insert Above

Press this button to insert a new row of tabulated data above the selected row.

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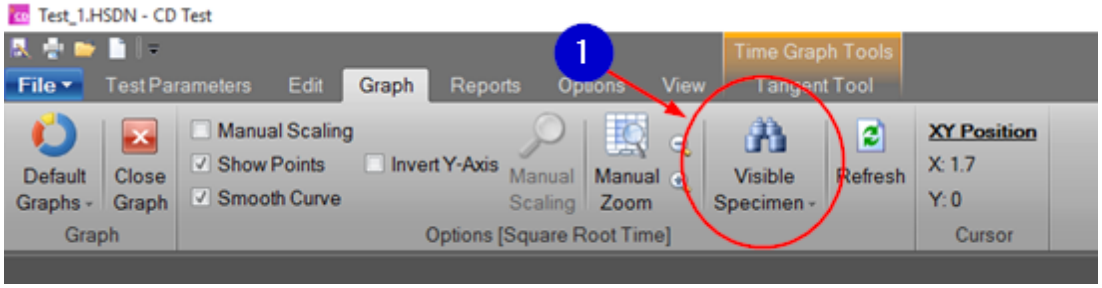
3. Insert Below
Press this button to insert a new row of tabulated data below the selected row.
4. Insert
Press this button to enter more than one row of tabulated data. The number of rows that you add will be inserted below the selected row.
5. Delete Selected
Press this button to delete the selected row and all rows below.
6. Delete All
Press this button to delete all data from this table.
7. HMTS Legacy Data
Pres this button to import any tests performed in the original HMTS software.

11.5 Graph

The options under the "Graph" tab will appear unavailable until "Default Graphs" is clicked. Once this button is clicked, a list of available graphs will be displayed. All graphs are part of the ASTM standard. If you would like to know more about custom graph options, please see the "Custom Graph" section of this manual. Any features that may be unique to this test will be explained below.

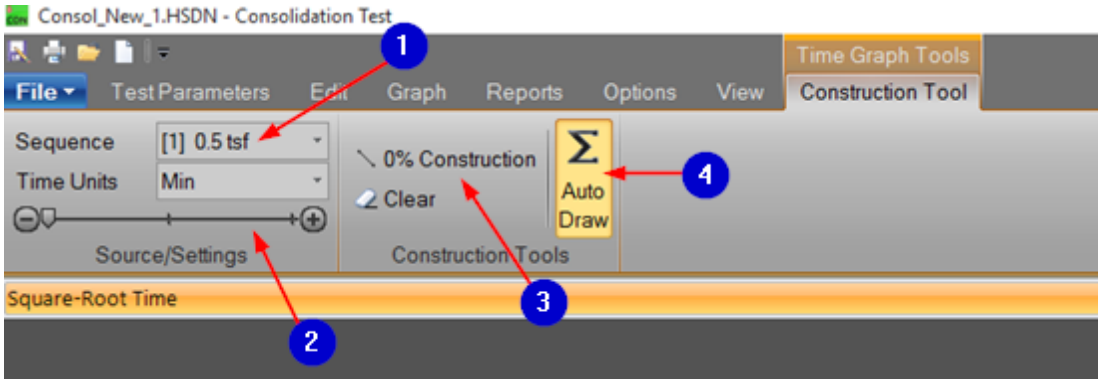
The following information corresponds to the image displayed below. These features are available for all graphs. Refer to the "Custom Graph" section for other graph information.

1. Visible Specimen
Press this button to navigate between sequences. Select your preference.



Graph Construction Tools

Square Root of Time Graph



The following information corresponds to the image displayed above. Some options are specific to the "Square-Root Time" graph.

1. Sequence

Press this button to navigate between sequences. Select your preference.

2. Source/Settings

Press this button to navigate between sequences. Slide the tool left or right to navigate.

3. 0% Construction and Clear

For a "Square-Root Time" graph, one of the options until "Tools" is to draw a T90 construct. To draw a T90 construct, click the "0% Construction" button, left-click, and hold to start drawing the line in the plot area. Release the left mouse button to finish drawing. An example of this construction line is displayed on the graph below.

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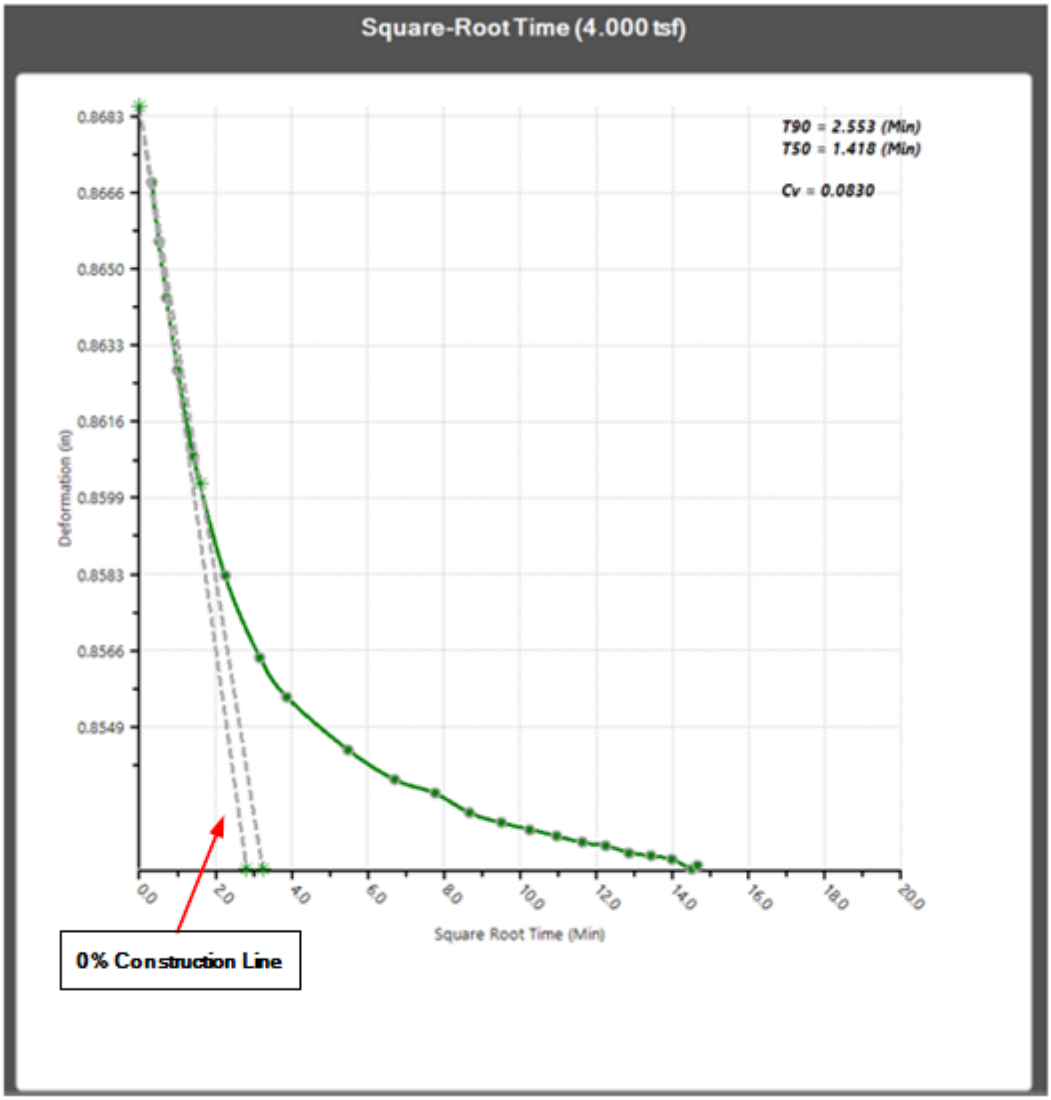

4. Auto Draw

The software will automatically attempt to determine the T90 (square-root time) and T50 (logarithmic time) values for "Square-Root Time" and "Logarithmic Time" graphs. If you do not want the software to do this, click "Auto Draw" or "Clear," then "Construction" to begin drawing your own construction lines. This button will automatically draw construction lines.

This tool adheres to ASTM D2435 Section 12.5.2.

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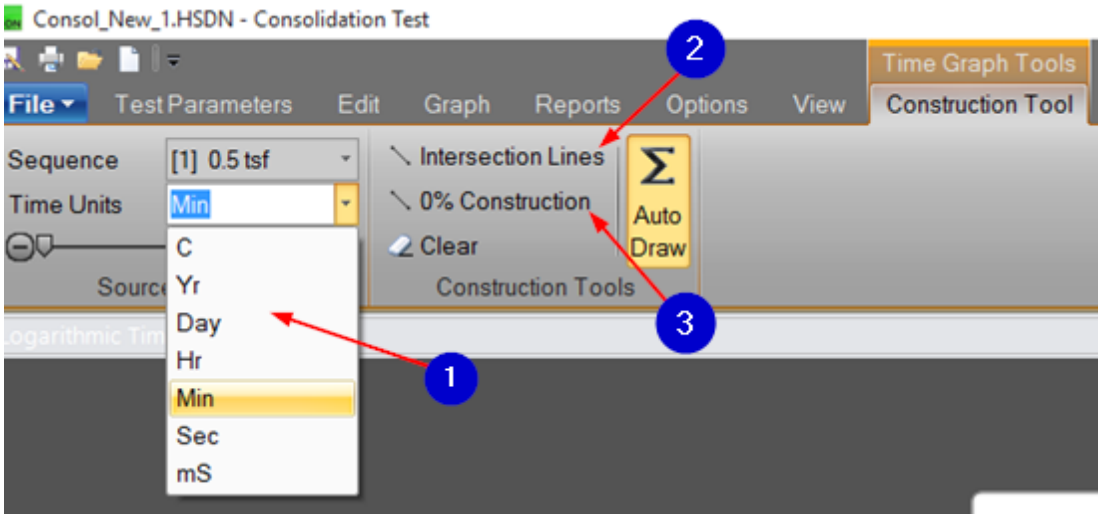
Logarithmic Time Graph



The following information corresponds to the image displayed above. Some options are specific to a "Logarithmic Time" graph.

1. Time Units

Click this button to change the X axis. Select your desired units from the options displayed.

2. Intersection Lines

This tool is used to draw construction lines. Please see your ASTM standard for definitions. The placement of the 0% Construction Lines and Intersection Lines is displayed below.

3. 0% Construction and Clear

This is a tool used to draw a T90 construct. Click the "0% Construction" button, left-click, and hold to start drawing the line in the plot area. Release the left mouse button to finish drawing. An example of this construction line is displayed on the graph below.

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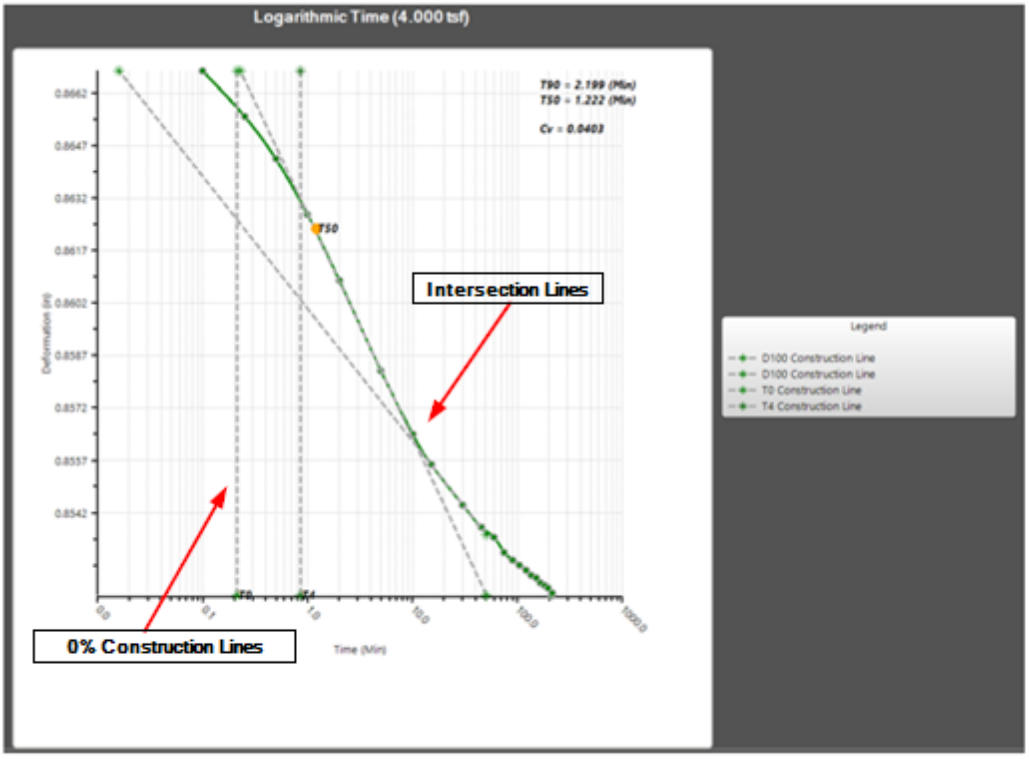
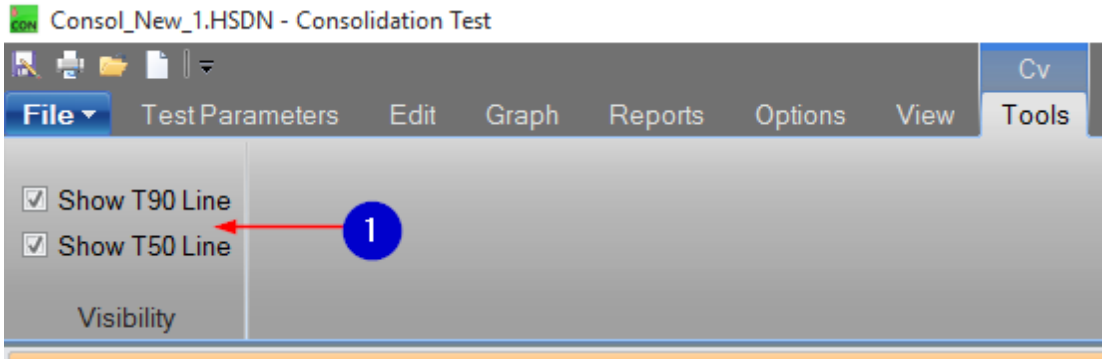


This tool adheres to ASTM D2435 Section 12.5.1.

Coefficients of Consolidation Graph



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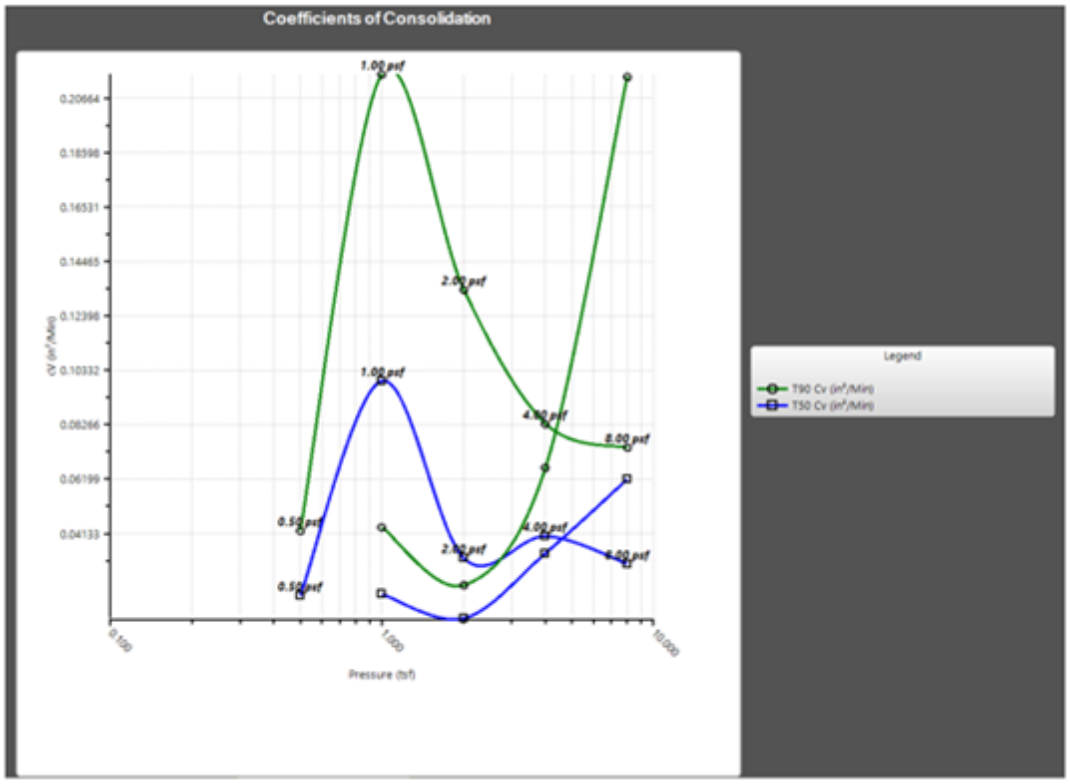

The following information corresponds to the image displayed above. This option is specific to the "Coefficients of Consolidation" graph.

1. CV

This tool allows you to show or hide the T90 and T50 lines. Check if you would like the lines to be shown or uncheck if you would not like the lines to be shown.

Axial Strain Tools

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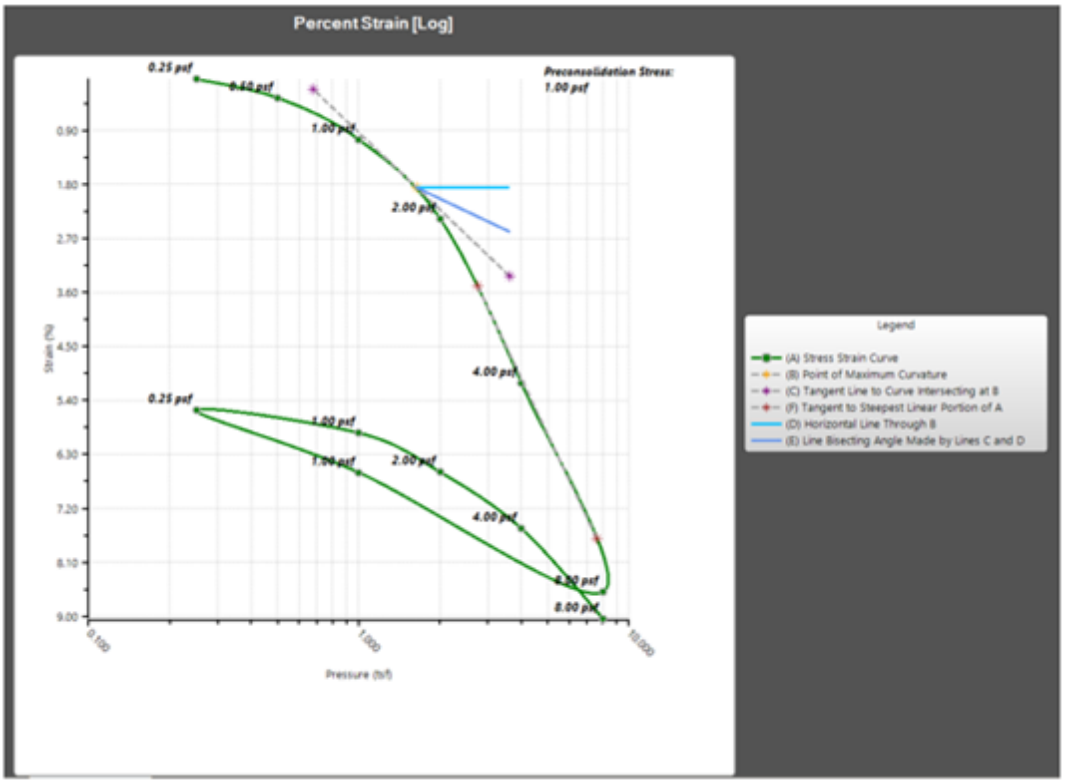

Casagrande Method

This is a method for estimating/determining pre-consolidation stress for Percent Strain Log or Final Voids.

This tool adheres to ASTM D2435 Section 12.6.2.

11.6 Reports

See below for details about the "Custom Report" option. For information about the other options, please see the "Reports" section of this manual.

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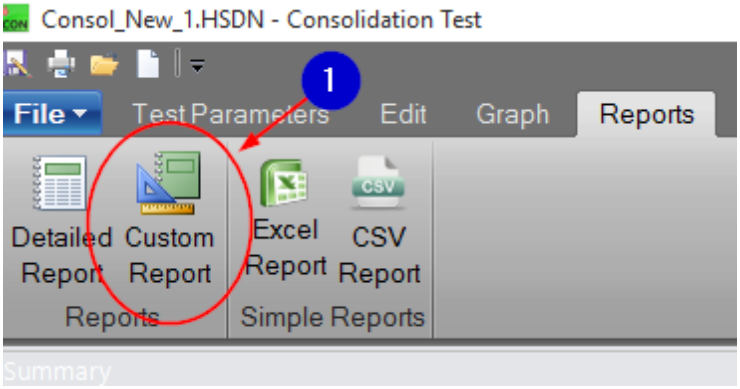

The following information corresponds to the image displayed above.

1. Custom Report

Press this button to open the "Custom Report" window. This window is displayed in the image below. You can select the box[es] of the specimen you would like to report, as well as the report contents that you would like to report. For your convenience, click "Select All" and "Unselect All" to check or uncheck all boxes in the designated column. Click "Report" when you have checked the desired boxes or click "Cancel" to close this screen and disregard this custom report.

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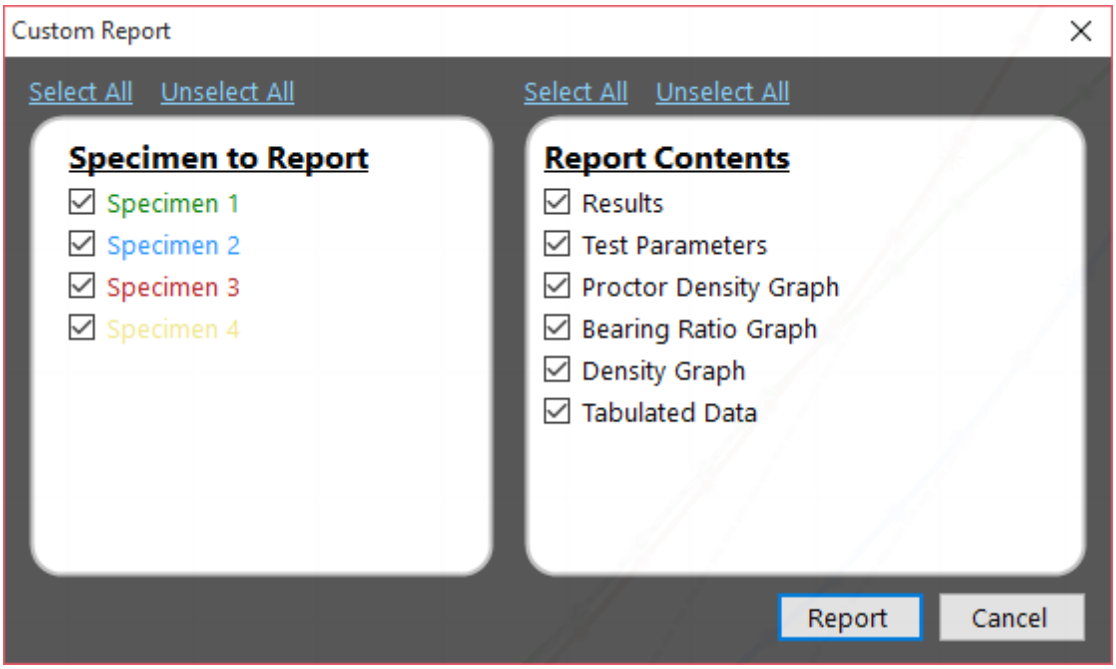
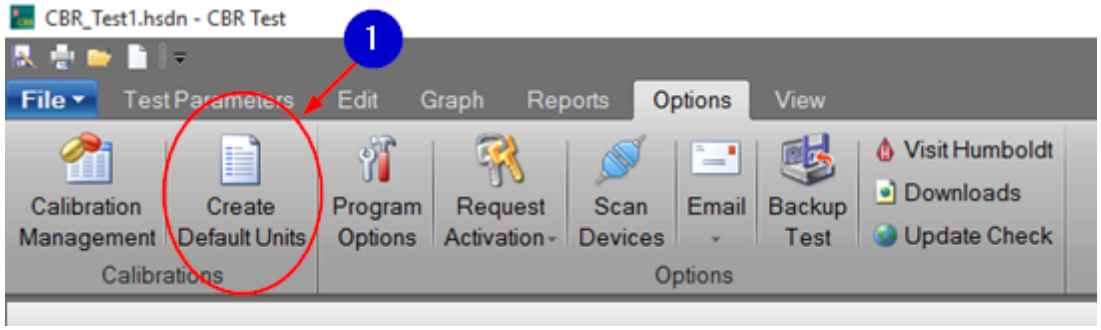


11.7 Options

For information about other available features, please see the "Options" section of this manual.



The following information corresponds to the image displayed above.

1. Create Default Units

The "Create Default Units" feature allows you to set the current test as the unit and format template for future tests of this type. The specimen information and tabulation units are stored.

11.8 View

Most of these options are explained in the the "View" section of this manual. Other options are explained below.

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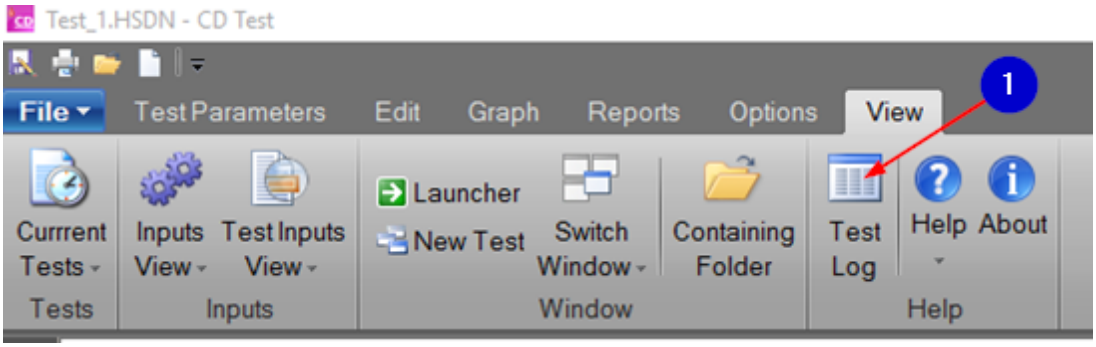
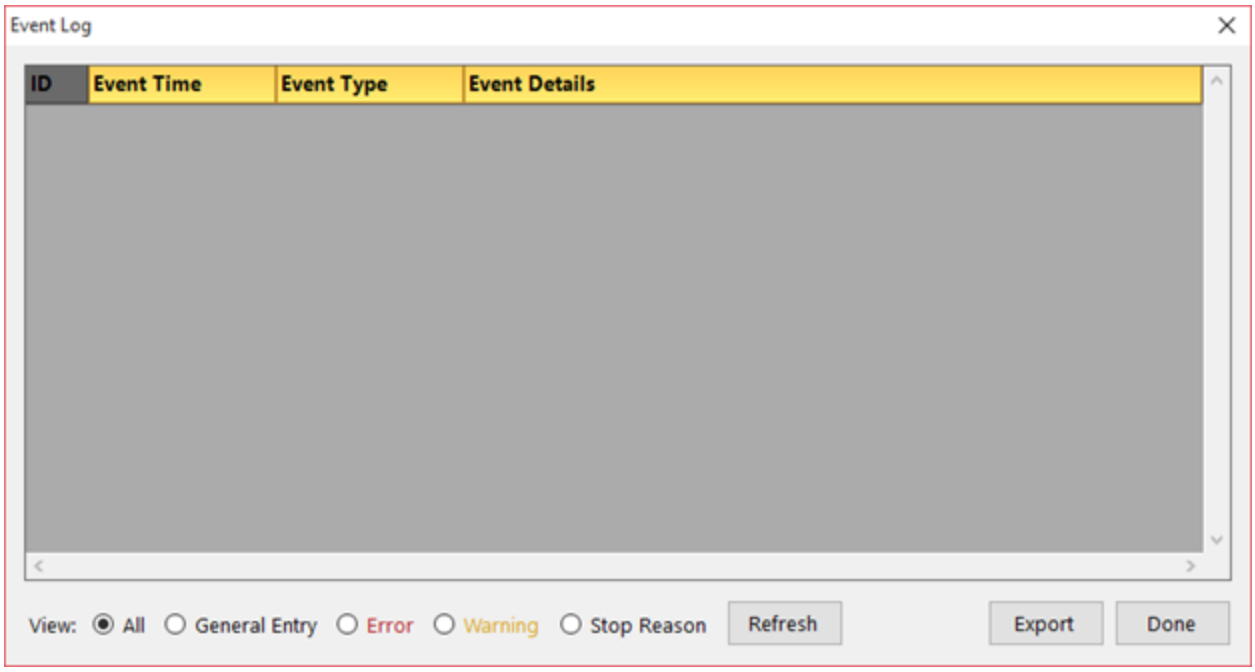


Press the "Test Log" button to display the events that occurred within this test.



The following information corresponds to the image displayed above.

1. Test Log

You may be asked to send this test to hmts@humboldtmfg.com if you are experiencing technical difficulties. You can select which type of information you would like to view (all, general entry, error, warning, or stop reason). Click

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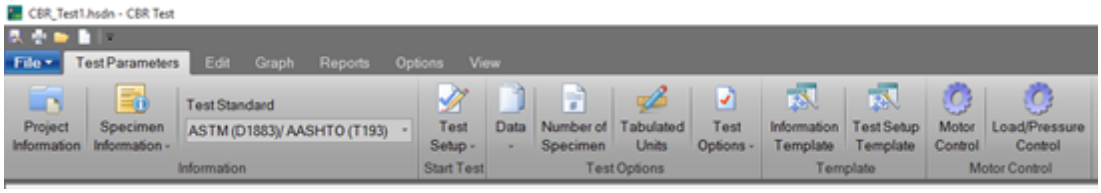
"Refresh" to refresh the list of events, "Export" to export this information for further use, or "Done" to exit this screen.

12 CBR Test

12.1 Test Parameters

When a CBR Test is opened, the "Test Parameters" tab will be the first display of options that you see. This screen will appear similar to the screens of other tests. For your convenience, details for most of these options can be found on the "Test Parameters" section of this manual. Individual links for each section can be found below.



12.1.1 Project Information

More information about this screen can be found in the "Project Information" section of this manual.

12.1.2 Specimen Information

More information about this screen can be found in the "Specimen Information" section of this manual.

12.1.3 Test Standard

The tests in this program are set to run per test standards. Select which standard you would like to use from a list that includes ASTM, BS, and LBR.

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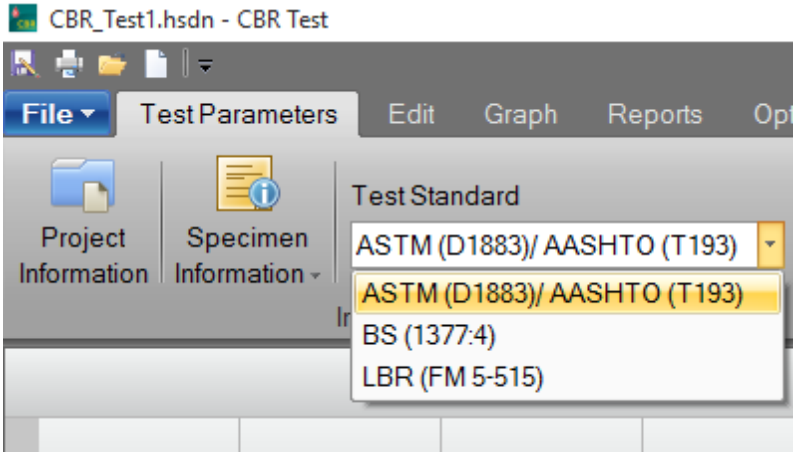
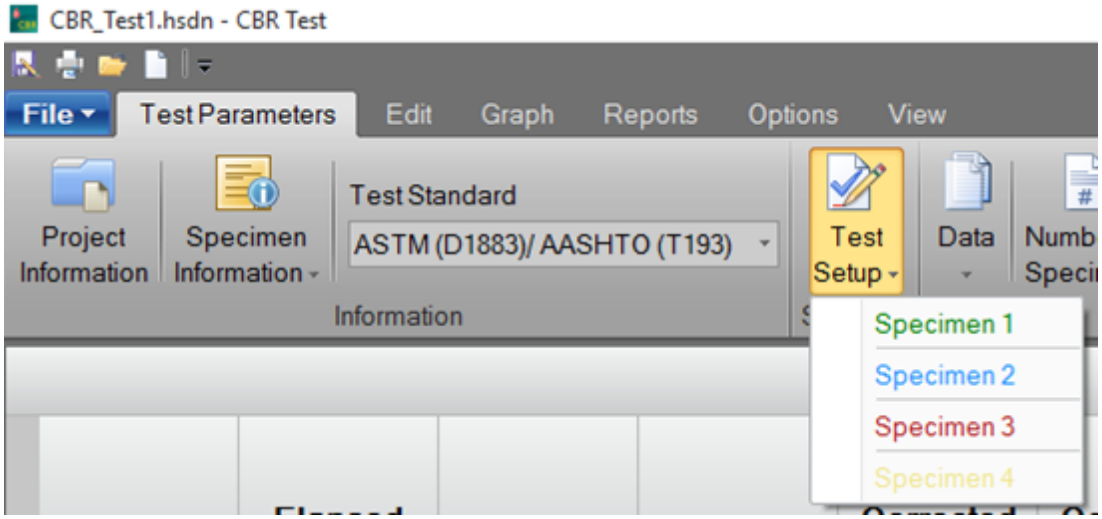


12.1.4 Loading Sequence

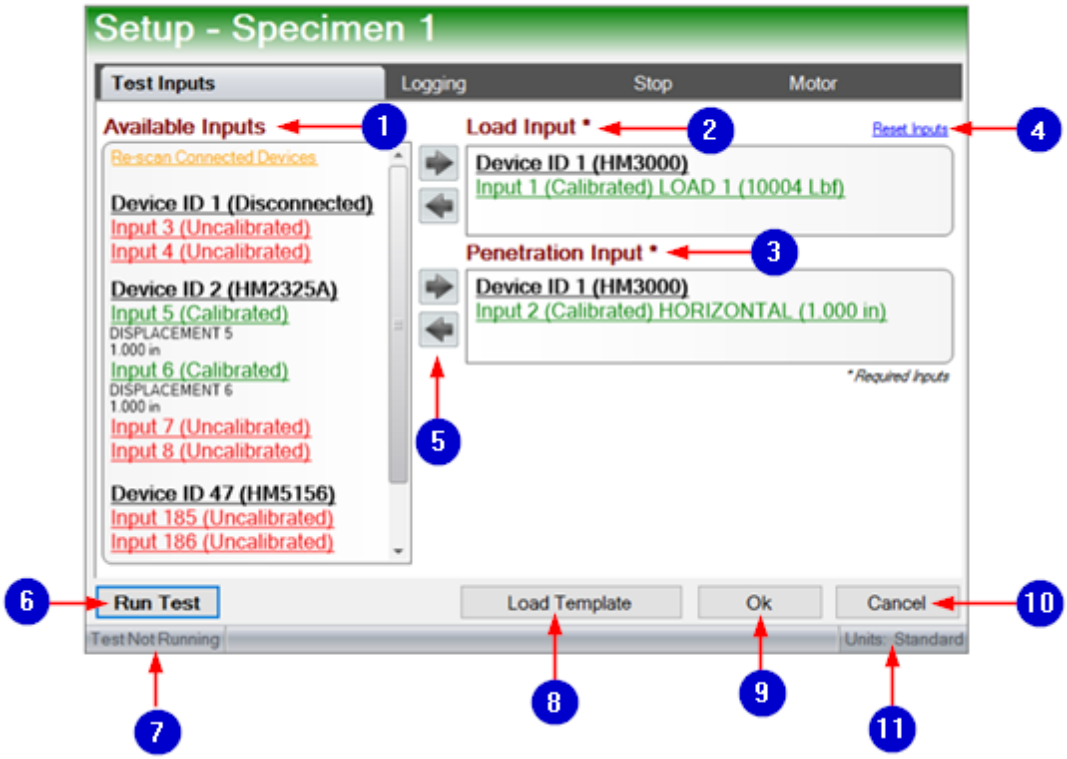
More information about this screen can be found in the "Loading Sequence" section of this manual.

12.1.5 Test Setup

This screen is accessed through selection of the "Test Setup" button. Click the name of the specimen that you would like to access.



After you have selected an input, the "Test Setup" screen will open.



The following information corresponds to the image displayed above.

1. Available Inputs

This is a display of inputs that are available for testing to any logger connected to a network. If an input is clicked, all calibrations from this device will be registered.

2. Load Input

These are the required inputs for the test.

3. Penetration Input

These are the specifications for data collection channels.

4. Reset Inputs

This moves all data under "Load Input" and "Penetration Input" to "Available inputs" so that it will not be used in testing.

5. Move Inputs

Click the right arrow to move an input so that it will be used for testing. Click the left arrow to remove it from testing. Tests can also either be double clicked or dragged and dropped between "Available Inputs" and "Load Input" or

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"Available Inputs" and "Penetration Input."

6. Run Test

This saves settings and runs the test.

7. Test Not Running

This indicates if a test is currently running.

8. Load Template

This loads a set of saved parameters. These saved parameters can be created in this program.

9. Ok

Press this button to save settings and return to the "CBR Test" screen.

10. Cancel

Press this button to close the window and return to the "CBR Test" home screen.

11. Units

This indicates if units are displayed in Standard or Metric.

To continue with test setup, click on the "Logging" tab.

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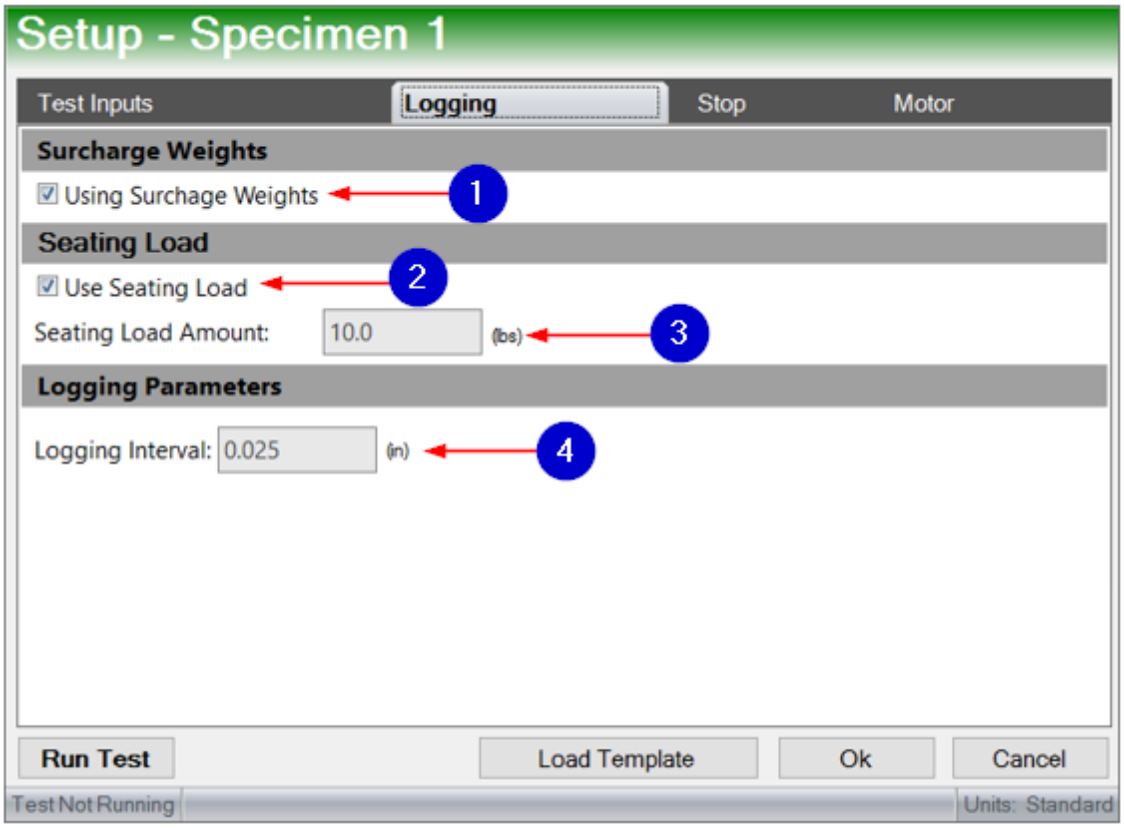

The following information corresponds to the image displayed above.

1. Surcharge Weights

Check this box if you are using surcharge weights. Uncheck this box if you are not using surcharge weights.

2. Seating Load

Check this box if you would like to use the seating load. Uncheck this box if you would not like to use the seating load.

3. Seating Load Amount

Enter your desired weight for the seating load, if applicable.

4. Logging Interval

Enter the value of the interval at which you would like test values to be recorded.

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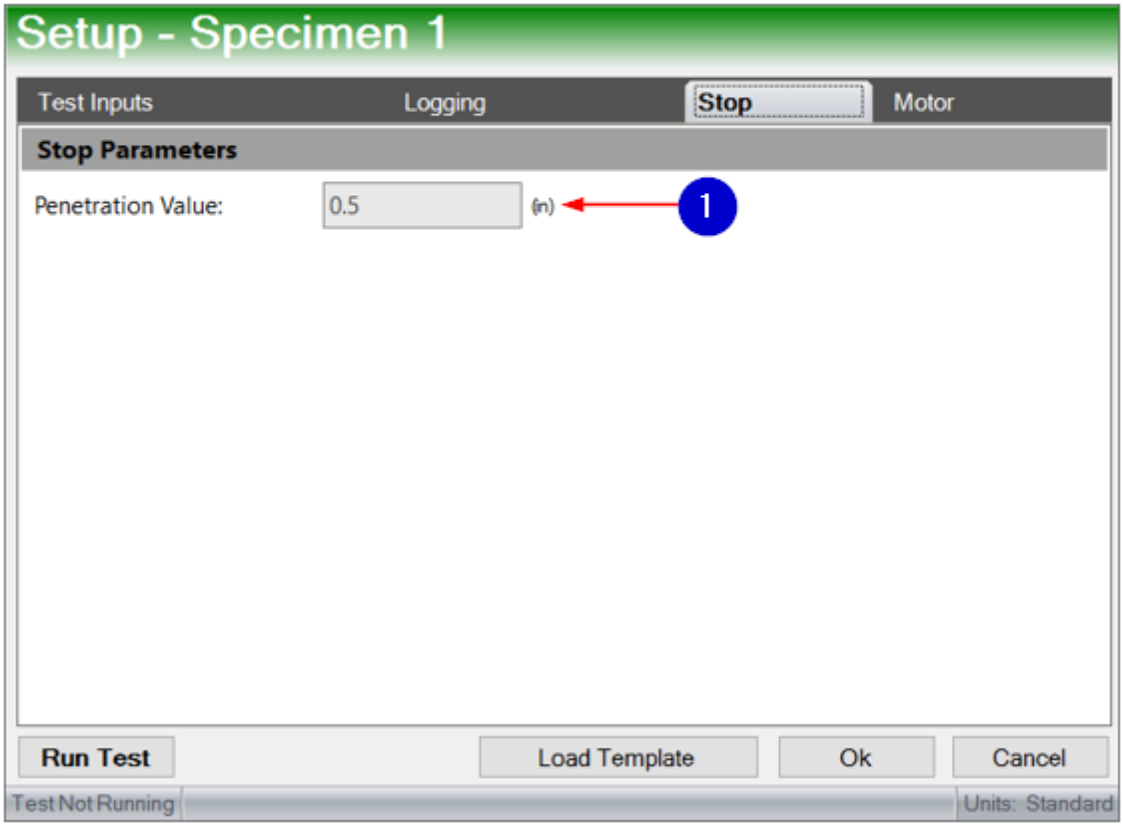
To continue with test setup, click on the "Stop" tab.



The following information corresponds to the image displayed above.

1. Penetration Value

Enter the value that will be used to determine if the stop condition has occurred.

To continue with test setup, click on the "Motor" tab.

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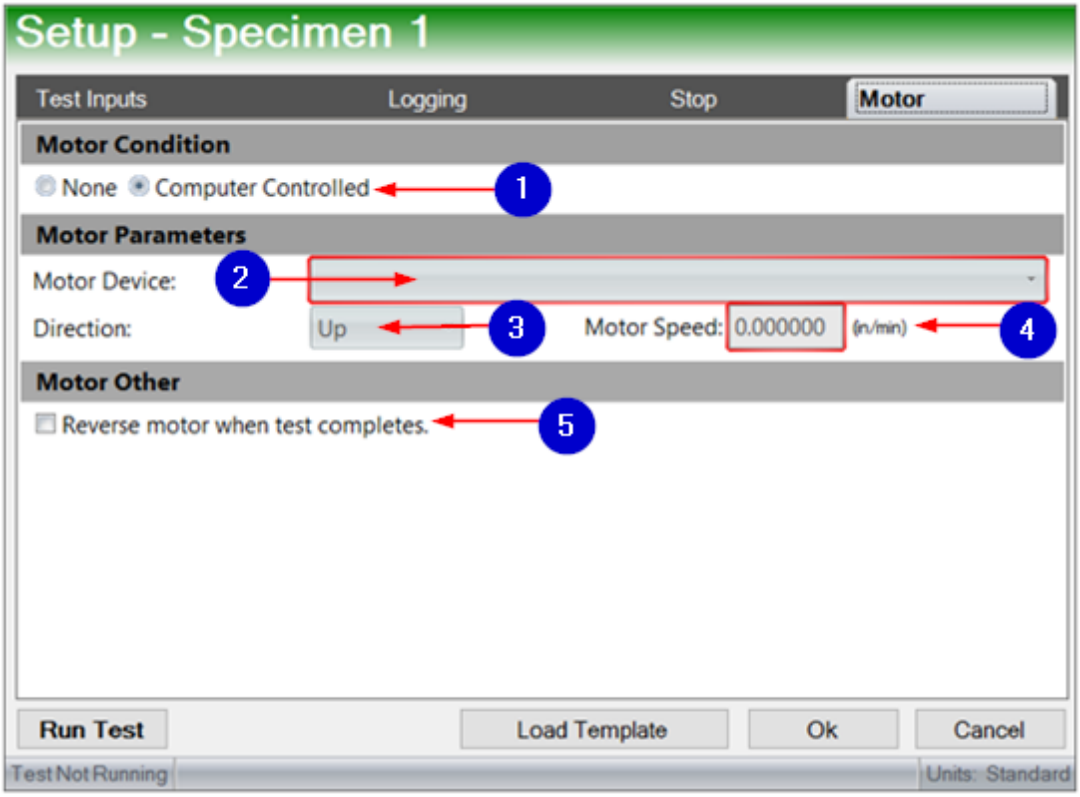

The following information corresponds to the image displayed above.

1. Motor Condition

Select whether your device has no motor or is computer controlled.

2. Motor Device

If your motor device is computer controlled, select the motor device by its ID number.

3. Direction

Pick the direction of the motor (up or down).

4. Motor Speed

Enter a speed between 0-2 in/min.

5. Motor Other

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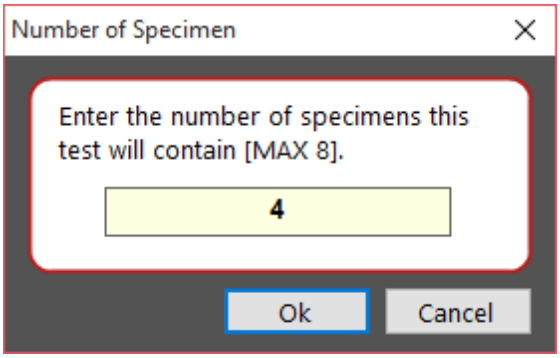
12.1.6 Data

More information about this screen can be found in the "Data" section of this manual.

12.1.7 Number of Specimen

Press this button to enter the number of specimen this test will contain. There is a maximum of eight specimen.



12.1.8 Tabulated Units

More information about this screen can be found in the "Tabulated Units" section of this manual.

12.1.9 Test Options

More information about this screen can be found in the "Test Options" section of this manual.

12.1.10 Information Template

This is where you can set up specimen information for testing. The "Information Template" functions the same way as the "Test Setup Template." Refer to this section of the manual for more information.

12.1.11 Test Setup Template

More information about this screen can be found in the "Test Setup Template" section of this manual.

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12.1.12 Motor Control

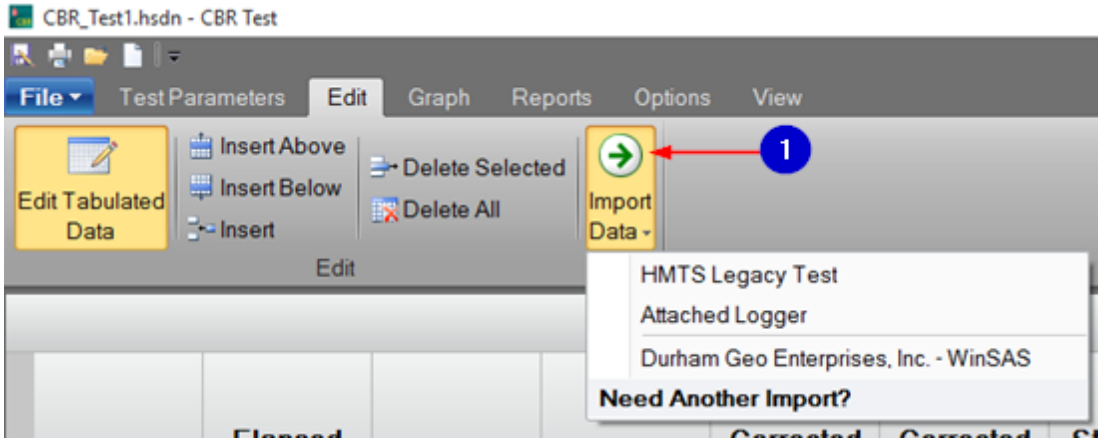
More information about this screen can be found in the "Manual Motor Control" section of this manual.

12.1.13 Load/Pressure Control

More information about this screen can be found in the "Load/Pressure Control" section of this manual.

12.2 Edit

The majority of these features are explained in the "Edit" section of this manual. Other options are explained below.



The following information corresponds to the image displayed above.

1. Import Data

Press this button to import from a HMTS Legacy Test, or a previous HMTS software product.

12.3 Graph

More information about this screen can be found in the "Graph" section of this manual.

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12.4 Reports

For details about the "Custom Report" option, see the "Consolidation Test" chapter. Information about the other "Report" screen options can be found in the "Reports" section of this manual.

12.5 Options

For information about the "Create Default Units" feature, please see the appropriate section of this manual. View the "Options" section of this manual for information on all "Options" features.

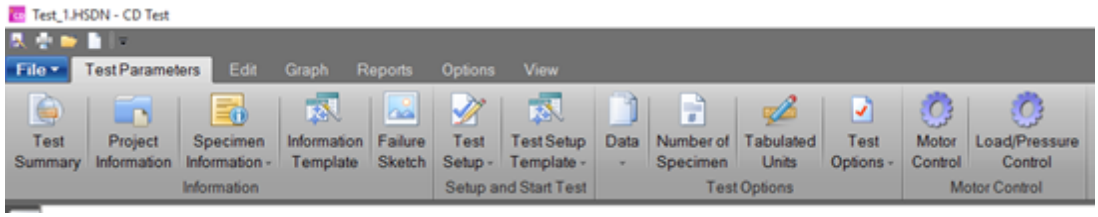
12.6 View

More information about this screen can be found in the "View" section of this manual. An explanation of the "Test Log" option can be found in the " Consolidated Tests" section of this manual.

13 Consolidated Drained Test

13.1 Test Parameters

When a Consolidated Drained Test is opened, the "Test Parameters" tab will be the first display of options that you see. This screen will appear similar to the screens of other tests. For your convenience, details for most of these options can be found on the "Test Parameters" section of this manual. Individual links for each section can be found below.



13.1.1 Project Information

Information about this screen can be found in the "Project Information" section of this manual.

13.1.2 Specimen Information

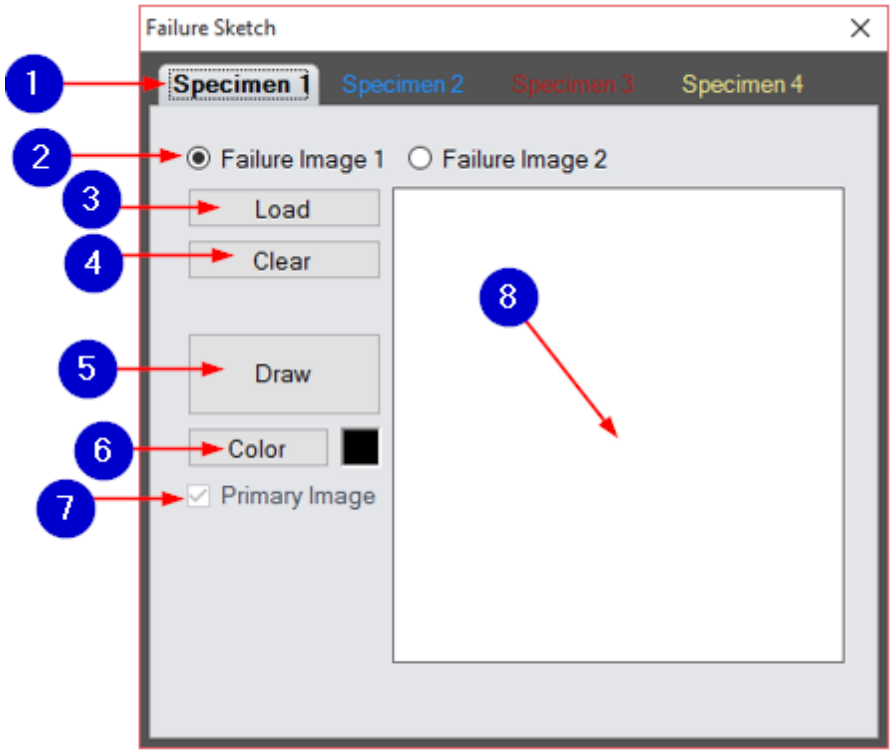
Information about this screen can be found in the "Specimen Information" section of this manual.

13.1.3 Information Template

This is where you can set up information parameters for testing. The "Information Template" functions the same way as the "Test Setup Template." Refer to this section of the manual for more information.

13.1.4 Failure Sketch

This is where you can open or draw failure sketches for each specimen.



The following information corresponds to the image displayed above.

1. Specimen Number

Select the specimen number for your failure sketch. There are up to four specimen options.

2. Failure Image Number

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Select the failure image. You can create two failure images per specimen.

3. Load

Upload an existing picture to use in your failure sketch.

4. Clear

Clear the image that you have created or uploaded and start over.

5. Draw

Create your own failure sketch image.

6. Color

Choose a color with which to draw. The colored box next to this option displays the current drawing color.

7. Primary Image

Check this box if you would like to use this image as your primary image.

8. Failure Sketch

Draw your failure sketch in this space.

13.1.5 Test Setup

More information about this screen can be found in the "Test Setup " section of this manual. Features that may be unique to a Consolidated Drained Test are explained below.

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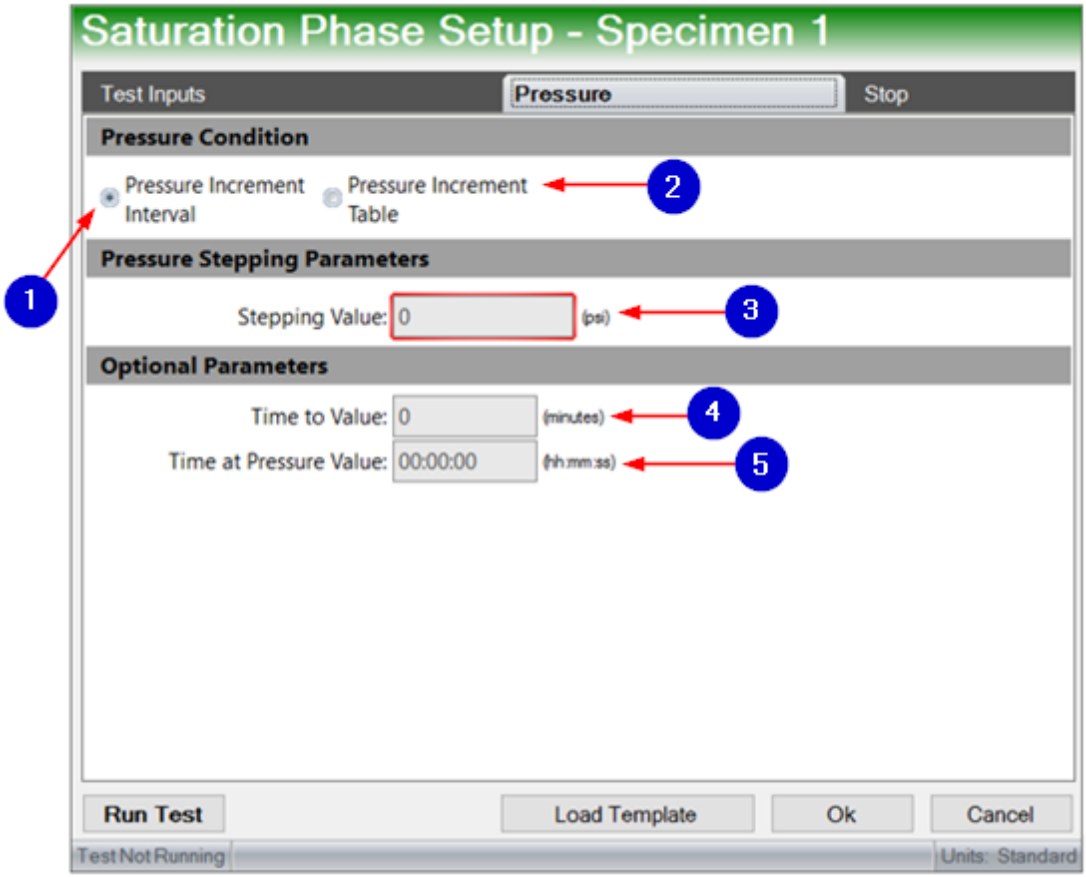

The following information corresponds to the image displayed above.

1. Pressure Increment Interval

This is the fixed amount by which pressure will be applied during this test. This number must be greater than zero.

2. Pressure Increment Table

Select this option to create a table of fixed values by which pressure will be applied during this test. The table values worksheet will appear for your convenience. The table does not have to be filled, but at least two values must be entered. Pressure increments will still occur using the last non-zero temperature value.

3. Stepping Value

This refers to the increment of pressure for each B-value calculation.This value must be bigger than zero. Pressure stepping will follow the entered table values until the stop condition is met.

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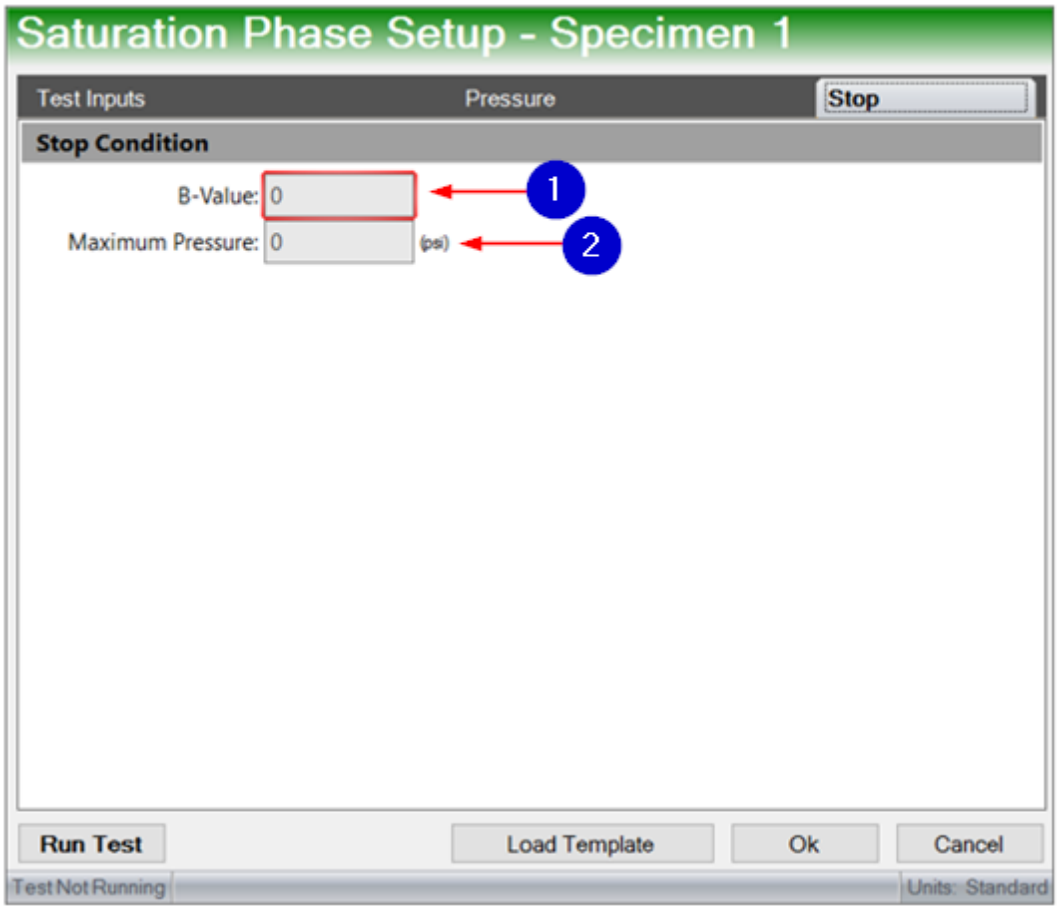
4. Time to Value

This refers to how much time you would like to be spent traveling to the next pressure step. This value should be in minutes. A zero value can be used.

5. Time at Pressure Value

This refers to how much time should be spent at the pressure step. This time should be entered in the (hh:mm:ss) format, or (hours, minutes, seconds). A zero value can be used.



The following information corresponds to the image displayed above.

1. B-Value

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This is the required minimum value for the test to stop. This number must be larger than zero.

2. Maximum Pressure

The test will stop after this pressure value has been met. It will stop even if the B-Value stop condition has not been met. It must be a non-zero value.

13.1.6 Test Setup Template

More information about this screen can be found in the "Test Setup Template" section of this manual.

13.1.7 Data

More information about this screen can be found in the "Data" section of this manual.

13.1.8 Number of Specimen

More information about this screen can be found in the "Number of Specimen " section of this manual.

13.1.9 Tabulated Units

More information about this screen can be found in the "Tabulated Units" section of this manual.

13.1.10 Test Options

More information about this screen can be found in the "Test Options" section of this manual.

13.1.11 Motor Control

More information about this screen can be found in the "Manual Motor Control" section of this manual.

13.1.12 Load/Pressure Control

More information about this screen can be found in the "Load/Pressure Control" section of this manual.

13.2 Edit

Information about this screen can be found in the "Edit" section of this manual.

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13.3 Graph

More information about this screen can be found in the "Graph" section of this manual.

13.4 Reports

For details about the "Custom Report" option, see the "Consolidation Test" chapter. Information about the other "Report" screen options can be found in the "Reports" section of this manual.

13.5 Options

For information about the "Create Default Units" feature, please see the appropriate section of this manual. View the "Options" section of this manual for information on all "Options" features.

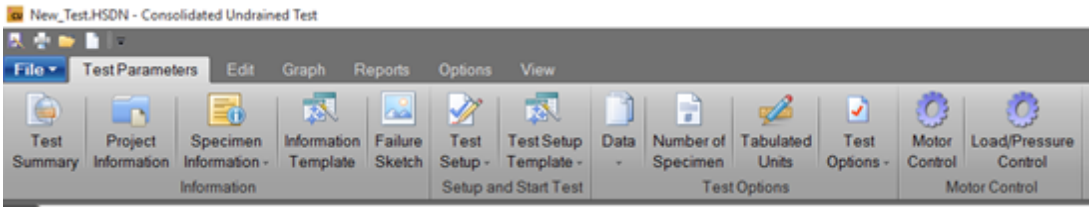
13.6 View

Information about this screen can be found in the "View" section of this manual. An explanation of the "Test Log" option can be found in the " Consolidated Tests" section of this manual.

14 Consolidated Undrained Test

14.1 Test Parameters

When a Consolidation Undrained Test is opened, the "Test Parameters" tab will be the first display of options that you see. This screen will appear similar to the screens of other tests. For your convenience, details for most of these options can be found on the "Test Parameters" section of this manual. Individual links for each section can be found below.



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14.1.1 Project Information

Information about this screen can be found in the "Project Information" section of this manual.

14.1.2 Specimen Information

Information about this screen can be found in the "Specimen Information" section of this manual.

14.1.3 Information Template

This is where you can set up information parameters for testing. The "Information Template" functions the same way as the "Test Setup Template." Refer to this section of the manual for more information.

14.1.4 Failure Sketch

Information about this screen can be found in the "Failure Sketch" section of this manual.

14.1.5 Test Setup

Information about the "Test Inputs" screen can be found in the "Test Setup " section of this manual. The options under the "Pressure" and "Stop" tabs can be explained in the "Consolidated Drained Test" section of this manual.

14.1.6 Test Setup Template

Information about this screen can be found in the "Test Setup Template" section of this manual.

14.1.7 Data

Information about this screen can be found in the "Data" section of this manual.

14.1.8 Number of Specimen

Information about this screen can be found in the "Number of Specimen" section of this manual.

14.1.9 Tabulated Units

Information about this screen can be found in the "Tabulated Units" section of this manual.

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14.1.10 Test Options

Information about this screen can be found in the "Test Options" section of this manual.

14.1.11 Motor Control

Information about this screen can be found in the "Manual Motor Control" section of this manual.

14.1.12 Load/Pressure Control

Information about this screen can be found in the "Load/Pressure Control" section of this manual.

14.2 Edit

More information about this screen can be found in the "Edit" section of this manual.

14.3 Graph

More information about this screen can be found in the "Graph" section of this manual.

14.4 Reports

For details about the "Custom Report" option, see the "Consolidation Test" chapter. Information about the other "Report" screen options can be found in the "Reports" section of this manual.

14.5 Options

For information about the "Create Default Units" feature, please see the appropriate section of this manual. View the "Options" section of this manual for information on all "Options" features.

14.6 View

More information about this screen can be found in the "View" section of this manual. An explanation of the "Test Log" option can be found in the " Consolidated Tests" section of this manual.

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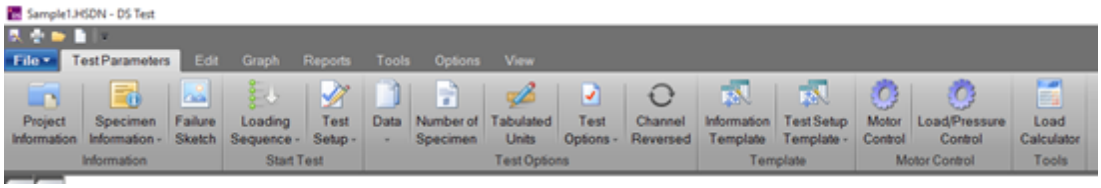
15 Direct Shear Test

15.1 Test Parameters

When a Direct Shear Test is opened, the "Test Parameters" tab will be the first display of options that you see. This screen will appear similar to the screens of other tests. For your convenience, details for most of these options can be found on the "Test Parameters" section of this manual. Individual links for each section can be found below.



15.1.1 Project Information

For "Project Information" details, please refer to the corresponding section of this manual.

15.1.2 Specimen Information

For "Specimen Information" details, please refer to the corresponding section of this manual.

15.1.3 Failure Sketch

For "Failure Sketch" details, please refer to the corresponding section of this manual.

15.1.4 Loading Sequence

More information about this screen can be found in the "Loading Sequence" section of this manual.

15.1.5 Test Setup

15.1.6 Data

More information about this screen can be found in the "Data" section of this manual.

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15.1.7 Number of Specimen

Information about this screen can be found in the "Number of Specimen" section of this manual.

15.1.8 Tabulated Units

Information about this screen can be found in the "Tabulated Units" section of this manual.

15.1.9 Test Options

More information about this screen can be found in the "Test Options" section of this manual.

15.1.10 Channel Reversed

Information about this option can be found in the "Channel Reversed" section of this manual.

15.1.11 Information Template

This is where you can set up information parameters for testing. The "Information Template" functions the same way as the "Test Setup Template." Refer to this section of the manual for more information.

15.1.12 Test Setup Template

Information about this screen can be found in the "Test Setup Template" section of this manual.

15.1.13 Motor Control

Information about this screen can be found in the "Manual Motor Control" section of this manual.

15.1.14 Load/Pressure Control

Information about this screen can be found in the "Load/Pressure Control" section of this manual.

15.1.15 Load Calculator

Information about the "Normal Stress/Load Calculator" can be found in the " Load Calculator Tool" section of this manual.

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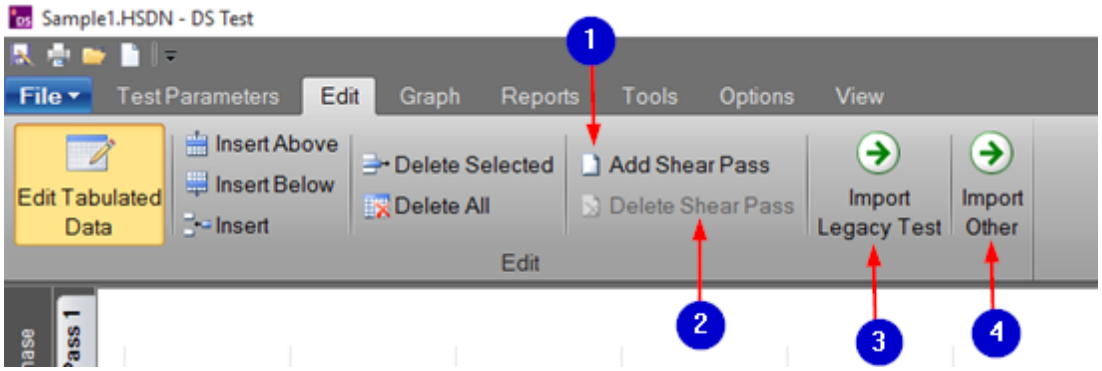
15.2 Edit

Most of these features are explained in the "Edit" section of this manual. Options that may be unique to this test are explained below.



The following information corresponds to the image displayed above.

1. Add Shear Pass

A Direct Shear Test will have one or more passes; there might be multiple passes per specimen. Click this button if you would like to add a Shear Pass.

2. Delete Shear Pass

A Direct Shear Test will have one or more passes; there might be multiple passes per specimen. Click this button if you would like to delete a Shear Pass.

3. Import Legacy Test

Press this button to import a previous test.

4. Import Other

15.3 Graph

Certain graphs have extended edit/review options. In the event that your test has extended options, a contextual tab will pop up with these options. More information about this graph options can be found in the "Graph" section of this manual.

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15.4 Reports

For details about the "Custom Report" option, see the "Consolidation Test" chapter. Information about the other "Report" screen options can be found in the "Reports" section of this manual.

15.5 Tools

Information about the "Normal Stress/Load Calculator" can be found in the " Load Calculator Tool" section of this manual.

15.6 Options

For information about the "Create Default Units" feature, please see the appropriate section of this manual. View the "Options" section of this manual for information on all "Options" features.

15.7 View

More information about this screen can be found in the "View" section of this manual. An explanation of the "Test Log" option can be found in the " Consolidated Tests" section of this manual.

16 HVeem Test

16.1 Test Parameters

When a HVeem Test is opened, the "Test Parameters" tab will be the first display of options that you see. This screen will appear similar to the screens of other tests. For your convenience, details for most of these options can be found on the "Test Parameters" section of this manual. Individual links for each section can be found below.

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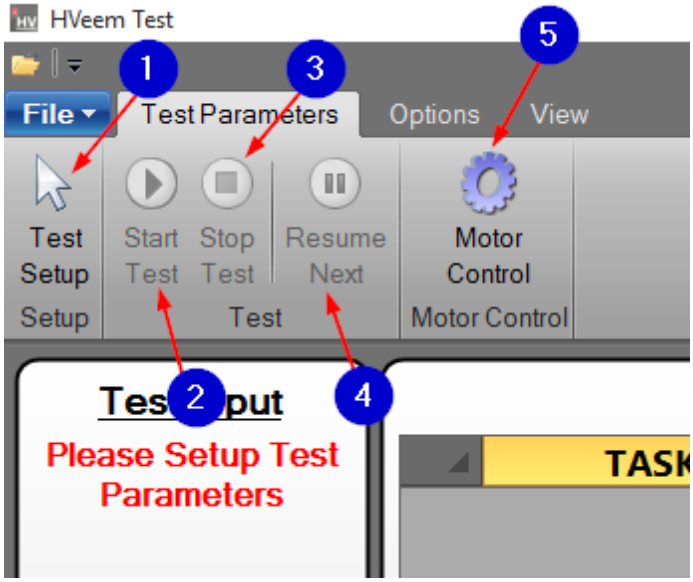

The following information corresponds to the image displayed above.

1. Test Setup

Please proceed to the "Test Setup" screen for information regarding this option.

2. Start Test

Press this button to start the test.

3. Stop Test

Press this button to stop the test.

4. Resume Next

5. Motor Control

Information about this feature can be found in the "Manual Motor Control" section of this manual.

16.1.1 Test Setup

Information regarding "Available Inputs," "Load Input," "Reset Inputs," "Select," "Cancel," "Units," and switching between inputs can be found in the "Test Parameters" section of this manual. Information pertaining to this specific test can be found below.

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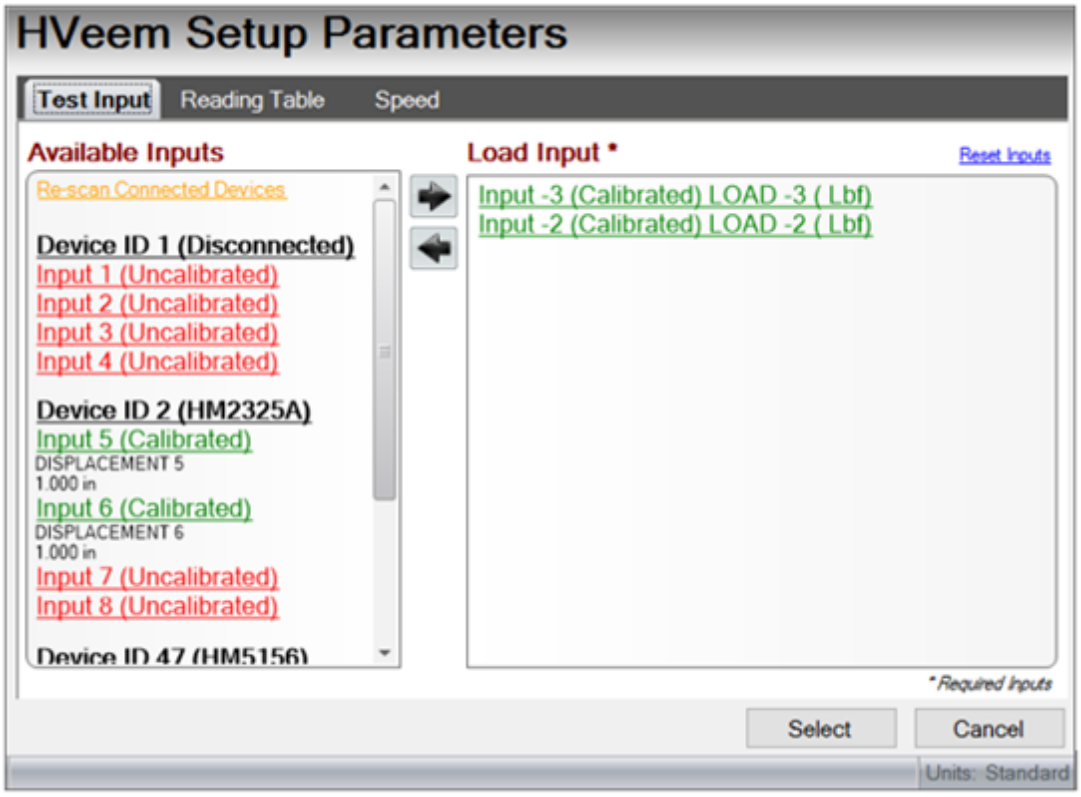

16.2 Options

View the "Options" section of this manual for information on all "Options" features.

16.3 View

Information about this screen can be found in the "View" section of this manual.

17 Marshall Test

17.1 Test Parameters

When a Marshall Test is opened, the "Test Parameters" tab will be the first display of options that you see. This screen will appear similar to the screens of other tests. For your convenience, details for most of these options can be

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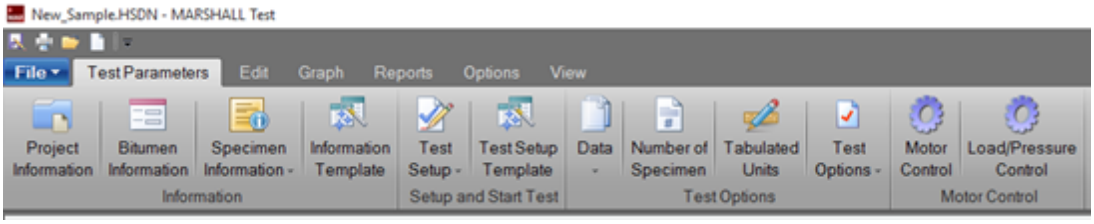
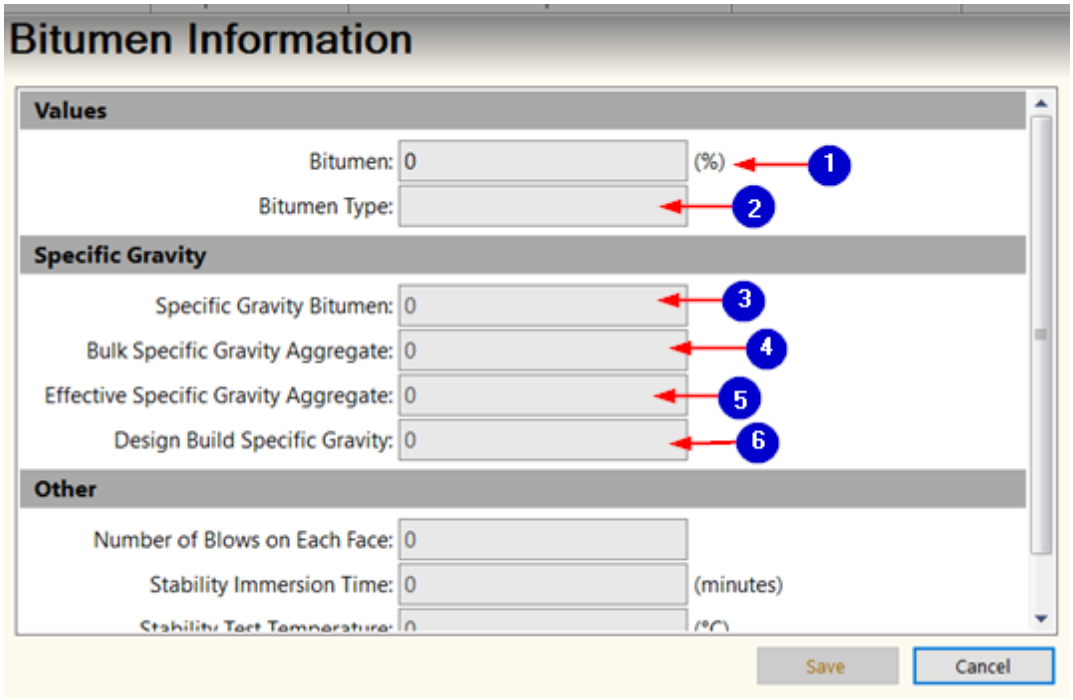
found on the "Test Parameters" section of this manual. Individual links for each section can be found below.



17.1.1 Project Information

Information about this screen can be found in the "Project Information" section of this manual.

17.1.2 Bitumen Information



The following information corresponds to the image displayed above.

1. Bitumen

2. Bitumen Type

3. Specific Gravity Bitumen

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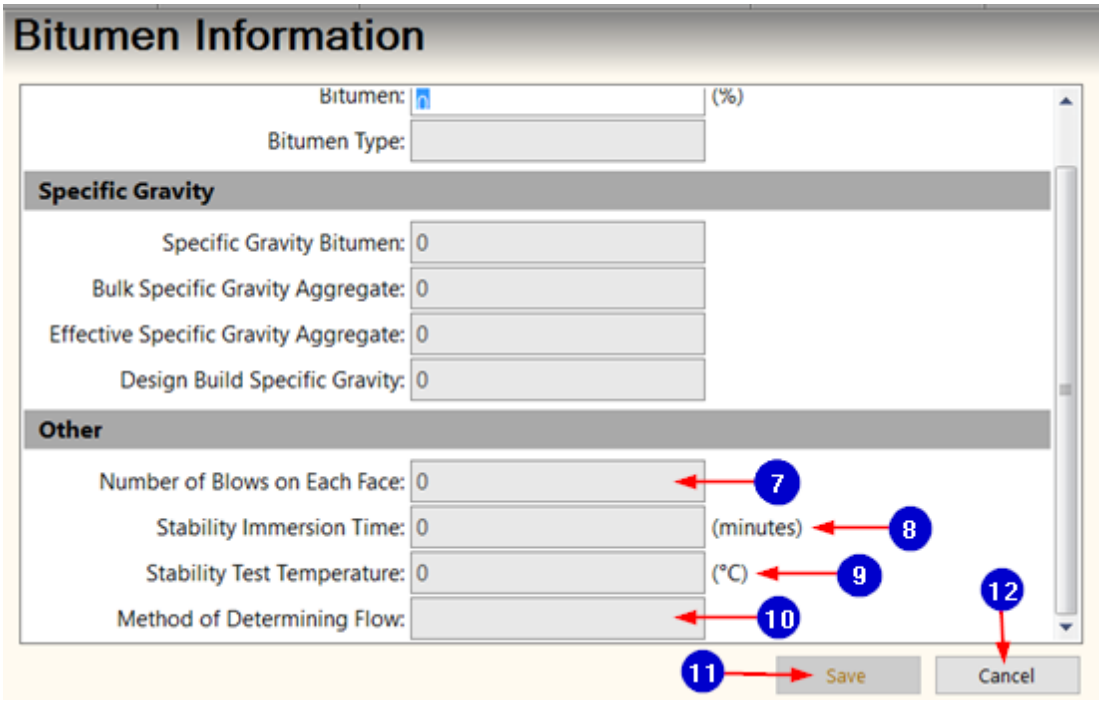
4. Bulk Specific Gravity Aggregate

5. Effective Specific Gravity Aggregate

6. Design Build Specific Gravity



The following information corresponds to the image displayed above.

7. Number of Blows on Each Face

8. Stability Immersion Time

9. Stability Test Temperature

10. Method of Determining Flow

11. Save

Press this button to save the information you have entered and return to the "Marshall Test" screen.

12. Cancel

Press this button to clear all specimen information and return to the "Marshall

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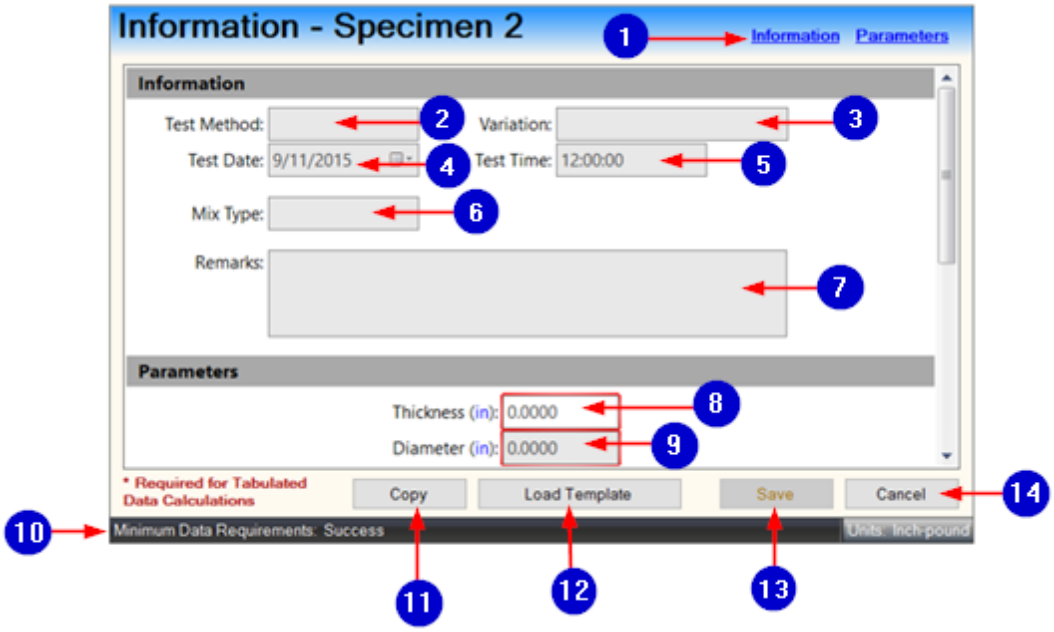
Test" screen.

17.1.3 Specimen Information



The following information corresponds to the image displayed above.

1. Section Headers

These three headers are links that will jump your screen to specific areas of this information window.

2. Test Method

Enter the standard used for this test.

3. Variation

Enter the sample type (undisturbed, remolded, etc.).

4. Test Date

Enter the date that the test happened.

5. Test Time

Enter the time that the test happened.

6. Mix Type

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Enter the liquid limit of this specimen.

7. Remarks

Enter any comments about this test.

8. Thickness

A non-zero value is required for test calculations. This value is measured in inches.

9. Diameter

A non-zero value is required for test calculations. This value is measured in inches.

10. Minimum Data Requirements

To calculate all test tabulated data, minimum specimen information must be filled in. If minimum specimen information is missing, there will be incomplete tabulated data. If you choose to run a test without filling in all test data, the data can be filled in at a later date and the data will be recalculated accordingly. This status will appear red and say "Incomplete" if the minimum specimen information is not filled in. The required boxes will be outlined in red until values are entered.

11. Copy

Press this button to copy specimen information from a current test or another test.

12. Load Template

Press this button to open the "Template Information Specimen Wizard" and create a template or load a template that has already been made.

13. Save

The option to save the specimen information will be unavailable until any changes requiring a save have been made.

14. Cancel

Press this button to clear all specimen information and return to the "Marshall Test" screen.

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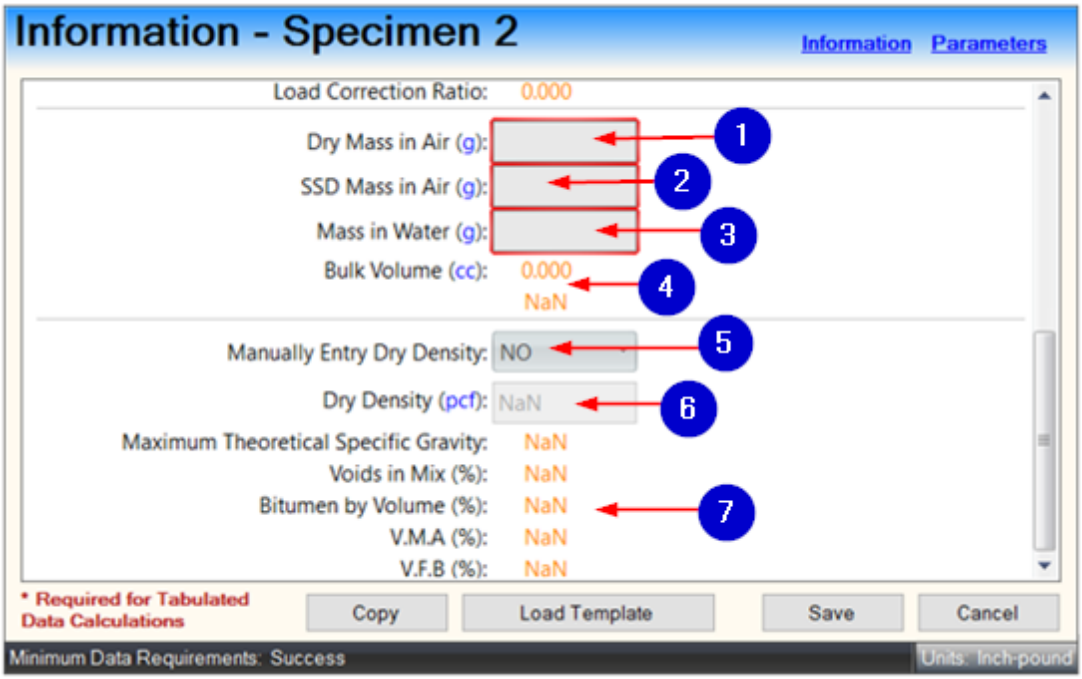

The following information corresponds to the image displayed above.

1. Dry Mass in Air

A non-zero value is required for test calculations.

2. SSD Mass in Air

A non-zero value is required for test calculations.

3. Mass in Water

A non-zero value is required for test calculations.

4. Bulk Volume

This information will be calculated based on the values entered above.

5. Manually Entry Dry Density

Select whether or not you would like to manually enter the dry density.

6. Dry Density

If you select "YES" for the above option, enter the dry density.

7. Tabulated Data Calculations

This information will be automatically calculated.

17.1.4 Information Template

This is where you can set up information parameters for testing. The "Information Template" functions the same way as the "Test Setup Template."

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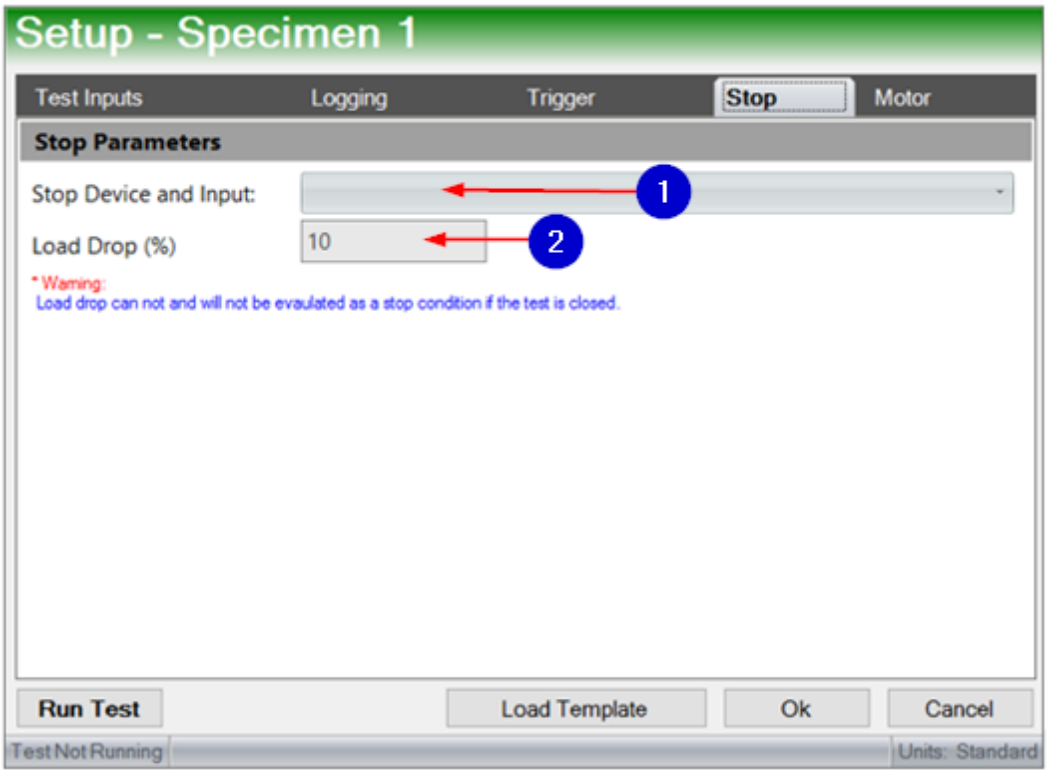
Refer to this section of the manual for more information.

17.1.5 Test Setup

For information on the "Test Inputs, "Logging," and "Trigger" screens, go to the "User Defined Test" section of this manual. Information on the majority of motor details can be found in the "Motor" section of this manual, but information on the "Stop" and screen can be found below.



The following information corresponds to the image displayed above.

1. Stop Device and Input

Select the input that you would like to use to determine if the requested stop condition has occurred.

2. Load Drop

WARNING: The load drop cannot and will not be evaluated as a stop

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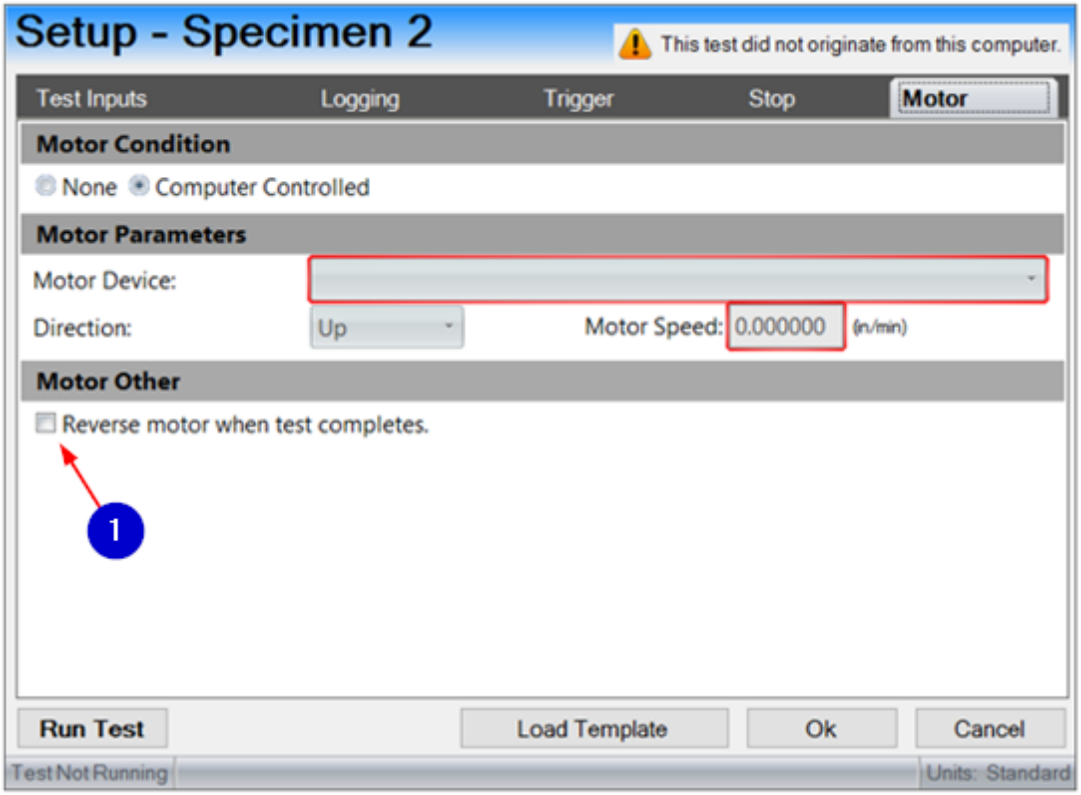
condition if the test is closed.



The following information corresponds to the image displayed above.

1. Reverse Motor when Test Completes

Check or uncheck this box to enable or disable this feature.

17.1.6 Test Setup Template

Information about this screen can be found in the "Test Setup Template" section of this manual.

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17.1.7 Data

Information about this screen can be found in the "Data" section of this manual.

17.1.8 Number of Specimen

Information about this screen can be found in the "Number of Specimen" section of this manual.

17.1.9 Tabulated Units

Information about this screen can be found in the "Tabulated Units" section of this manual.

17.1.10 Test Options

Information about this screen can be found in the "Test Options" section of this manual.

17.1.11 Motor Control

Information about this screen can be found in the "Manual Motor Control" section of this manual.

17.1.12 Load/Pressure Control

Information about this screen can be found in the "Load/Pressure Control" section of this manual.

17.2 Edit

For information on the other "Edit" options, go to the "Consolidation Test" section of this manual.

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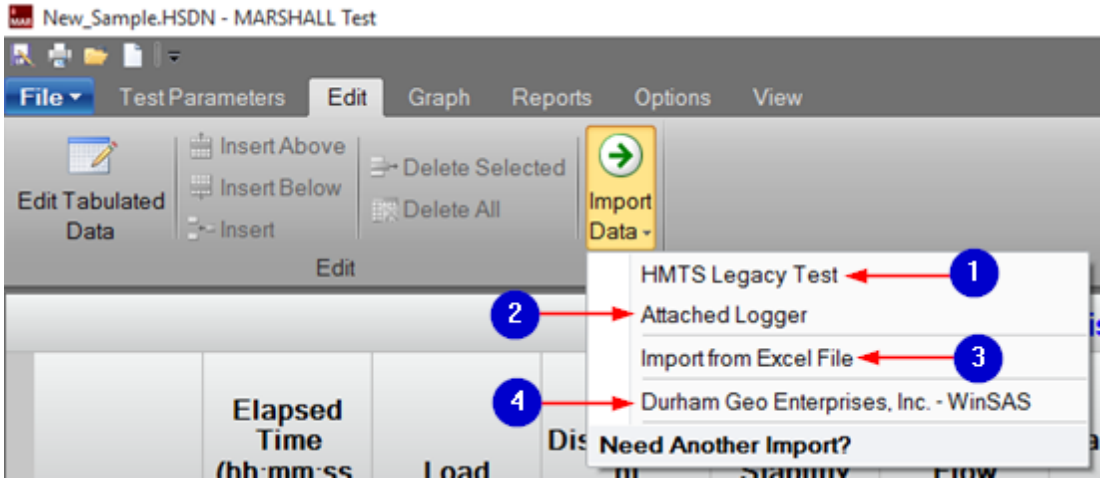

The following information corresponds to the image displayed above.

1. HMTS Legacy Test

Press this button to import test data from a test file that was created using the original HMTS software.

2. Attached Logger

Press this button to import data from a connected logger. This is test data run directly from the front panel of the logger.

3. Import from Excel File

Press this button to import data from an Excel file. You will be prompted for data mapping.

4. Durham Geo Enterprises, Inc. -WinSAS

Press this button to import data from WinSAS.

17.3 Graph

If graph options appear unavailable, click "Default Graphs," then "Stability Flow" to make them available. An explanation of these options can be found in the "Custom Graph" section of this manual. The "Visible Specimen" option is explored in the "Consolidation Test" section of this manual.

17.4 Reports

See the "Consolidation Test" section of this manual for information about the "Custom Report" option. Information about the other "Report" screen options

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can be found in the "Reports" section of this manual.

17.5 Options

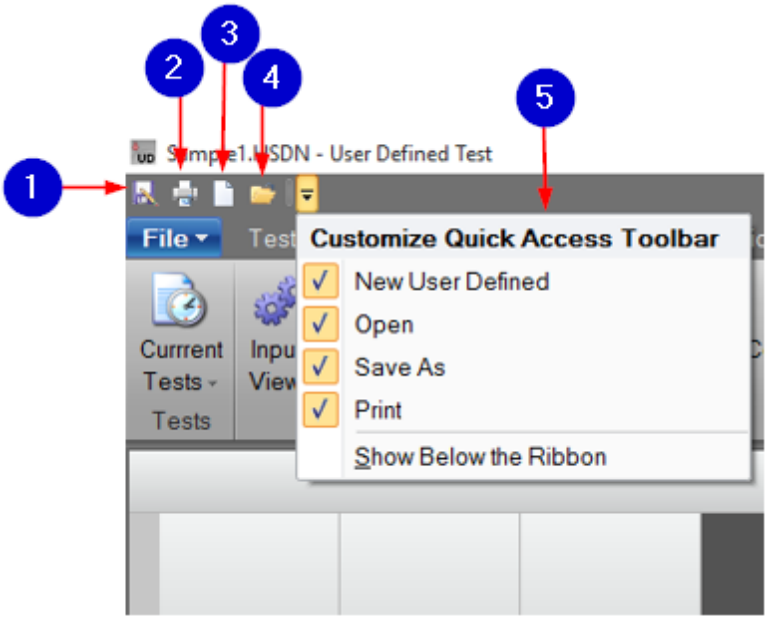
For information about the "Create Default Units" feature, please see the appropriate section of this manual. View the "Options" section of this manual for information on all "Options" features.

17.6 View

Information about this screen can be found in the "View" section of this manual. An explanation of the "Test Log" option can be found in the " Consolidated Tests" section of this manual.

18 User Defined Test

The User Defined Test module is available as a free 30-day trial. Displayed below are some options in the Quick Access Toolbar. The User Defined test does not allow you to edit any test data after a test is completed.



The following information corresponds to the image displayed above.

1. Save As

Press this button to save the test.

2. Print

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Press this button to print a test report.

3. New Test

Press this button to create a new User Defined Test.

4. Open Test

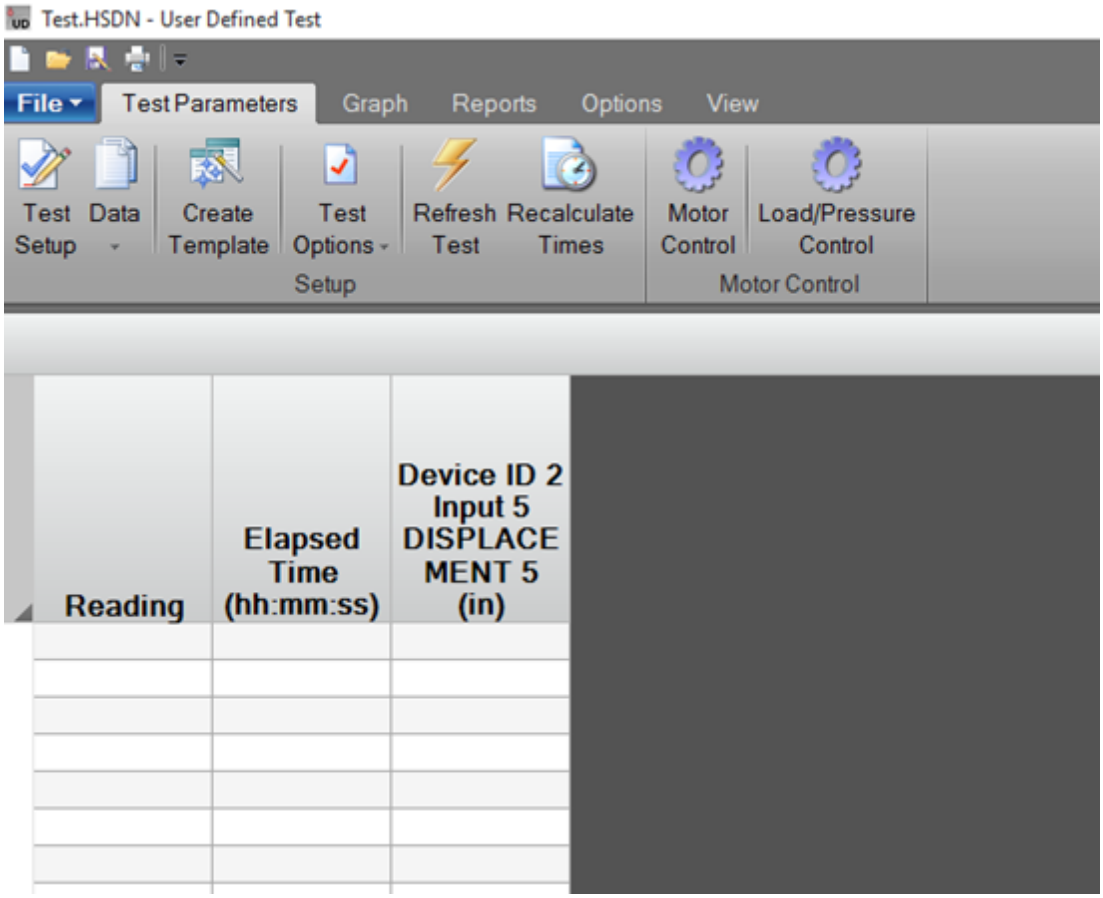
Press this button to open a previous test.

5. Customize

Press this button to customize the toolbar. Check each option that you would like to to be shown in the toolbar or check to have these options displayed below the ribbon. The ribbon includes the "File," "Test Parameters," "Graph," "Report," "Options," and "View" tabs.

18.1 Test Parameters

This tab displays available program features that pertain to test parameters. These tabs include "Test Setup," "Data," "Create Template," "Test Options," "Refresh Test," "Recalculate Times," "Motor Control," and "Load/Pressure Control."



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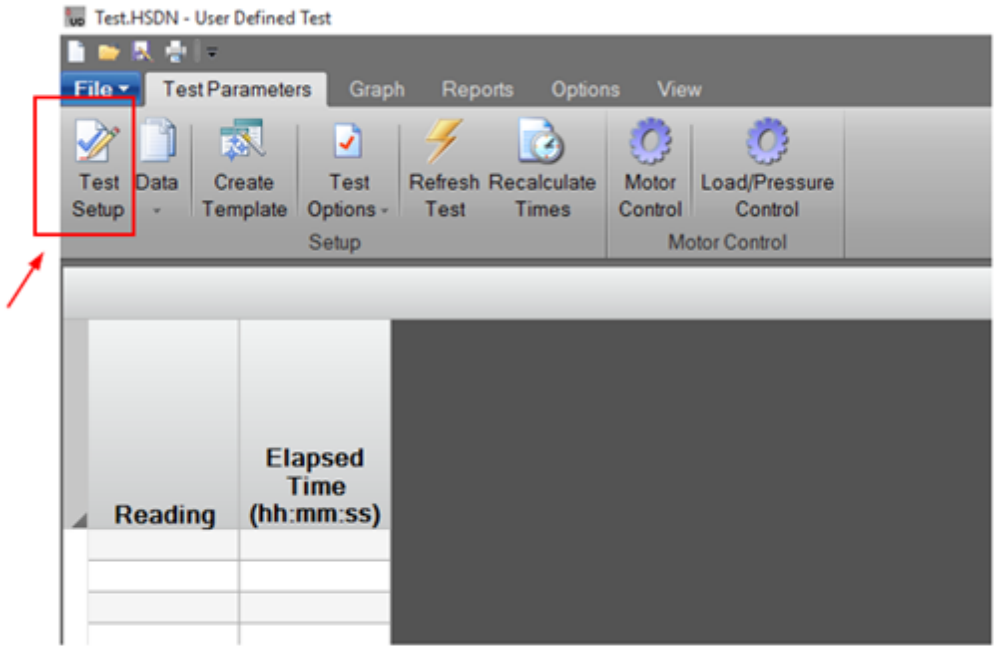
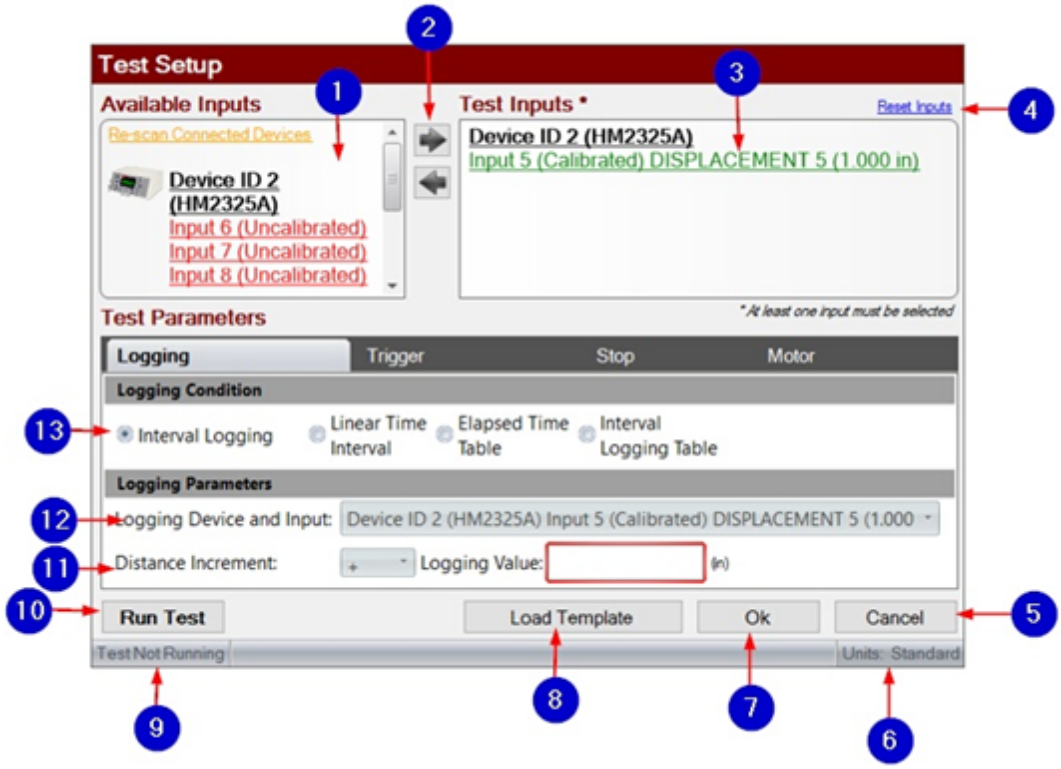
18.1.1 Test Setup

Upon opening a User Defined test, the "Test Parameters" tab offers the option to begin test setup. To take advantage of this feature, click "Test Setup," which is located in the top left area of your screen.



18.1.1.1 Input and Parameters

This screen is accessed through selection of the "Test Setup" button.



The following information corresponds to the image displayed above.

1. Available Inputs

This is a display of inputs that are available for testing to any logger connected to a network. If an input is clicked, all calibrations from this device will be registered.

2. Move Inputs

Click the right arrow to move an input so that it will be used for testing. Click the left arrow to remove it from testing. Tests can also either be double clicked or dragged and dropped between "Available Inputs" and "Test Inputs."

3. Test Inputs

This is a display of inputs that will be used for testing. At least one input must be selected.

4. Reset Inputs

This moves all data under "Test Inputs" to "Available Inputs" so that they will not be used in testing.

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5. Cancel
Press this button to close the window and return to the "User Defined Test" home screen.
6. Units
This indicates if units are displayed in Standard or Metric.
7. Ok
Press this button to save settings and return to the "User Defined Test" screen.
8. Load Template
This loads a set of saved parameters. These saved parameters can be created in this program.
9. Test Running Display
This indicates if a test is currently running.
10. Run Test
This saves settings and runs the test.
11. Distance Increment
Choose between plus and minus, then the desired logging value.
12. Logging Device and Input
Select the desired logging device and input for testing.
13. Logging Condition
Choose a logging condition: "Interval Logging," "Linear Time Interval," " Elapsed Time Table," or "Interval Logging Table."

For specific information regarding test setup for each test, please refer to the corresponding sections of the manual listed below. Please note that many of these screens will appear identical or similar to the test setup of a User Defined Test; therefore, the differences will be explored in the explanations below.

CBR Test
Consolidation Test
Consolidated Drained Test
Consolidated Undrained Test
HVeem Test

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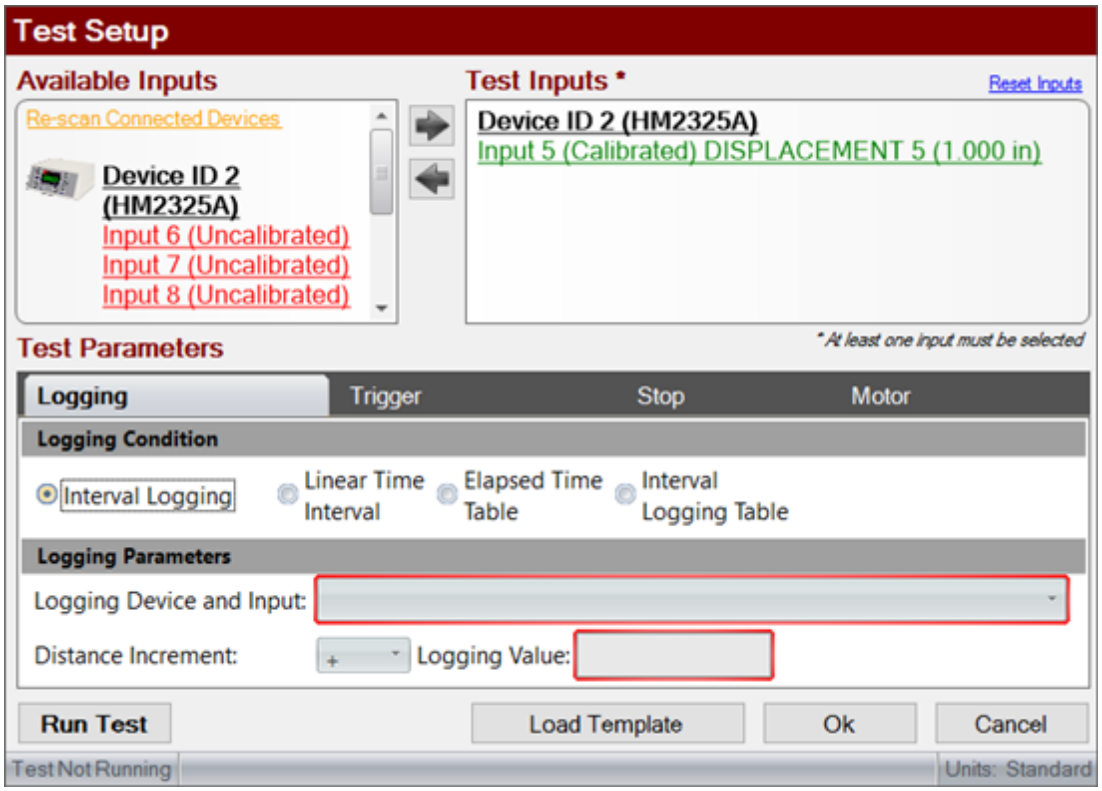
Marshall Test
Unconsolidated Compression Test
Unconsolidated Undrained Test

18.1.1.1.1 Logging

This screen is accessed through selection of the "Test Setup" button, then "Logging" under "Test Parameters."



18.1.1.1.1.1 Interval Logging

"Interval Logging" provides the option to log data points at one specified interval. The picture shown above is an example of this option.

18.1.1.1.1.2 Linear Time Interval

"Linear Time Interval" provides the option to record data points at a regular time interval until the stop condition is met. Enter the logging value, or the time at which you would like the test to stop.

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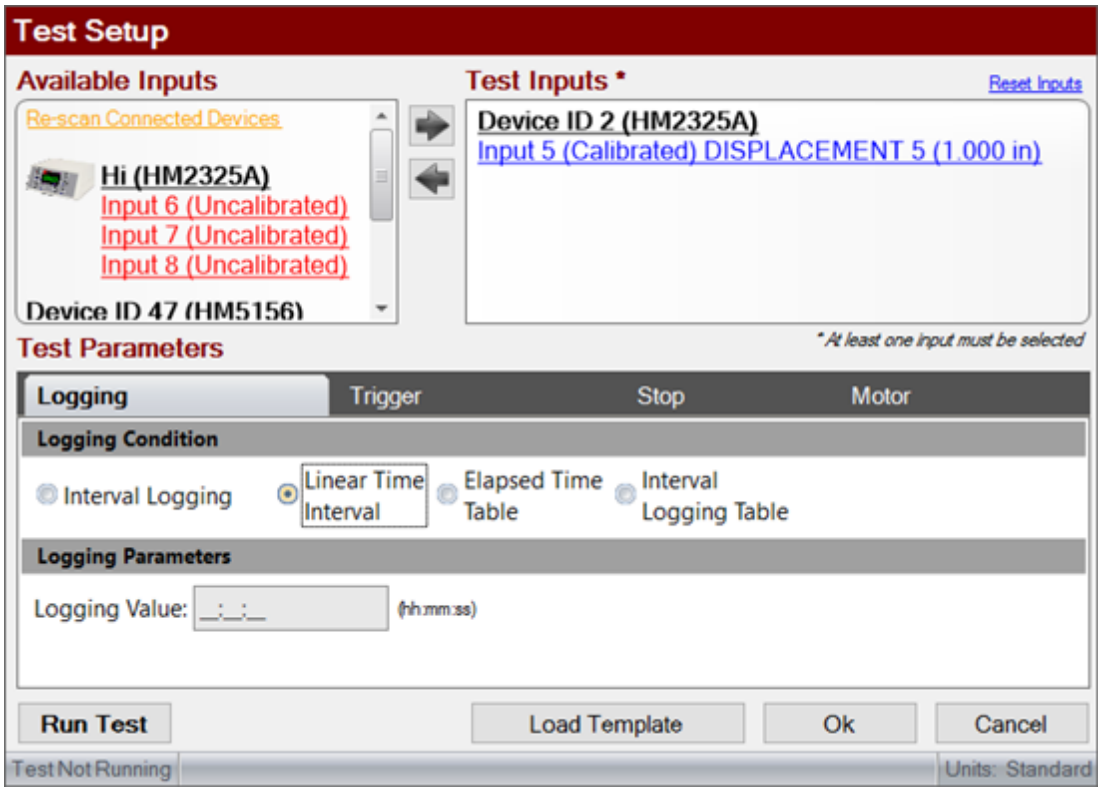

18.1.1.1.1.3 Elapsed Time Table

"Elapsed Time Table" provides the option to create a table of time intervals from which data points will be recorded.

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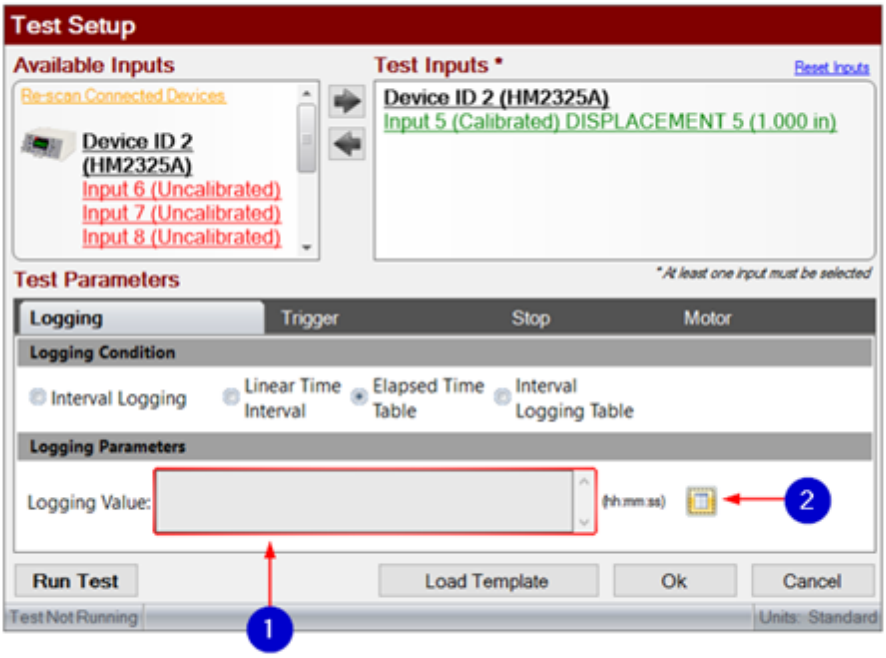

The following information corresponds to the image displayed above.

1. Logging Value

Enter a minimum of two values in the (hh:mm:ss) format. This stands for (hours, minutes, seconds).

2. Table Values Worksheet

Press this button to open the table values worksheet and select the time values that will be used in testing.

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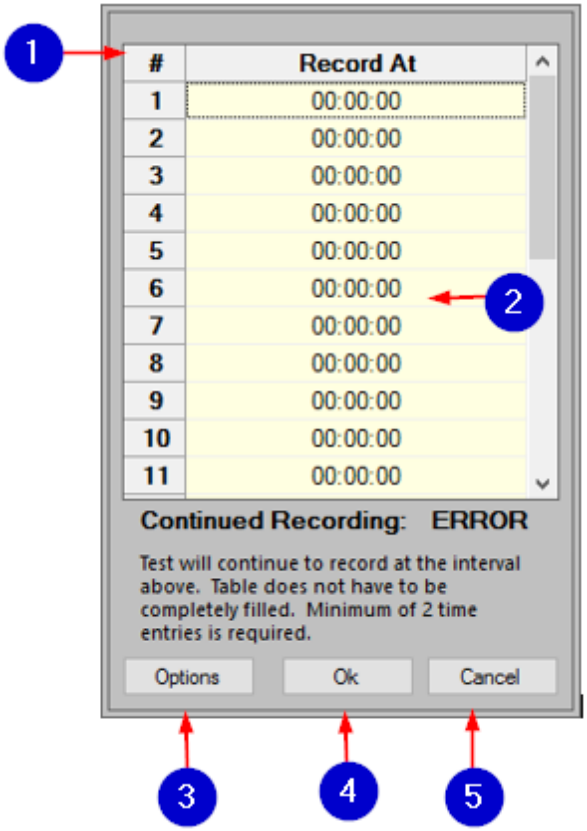

The following information corresponds to the image displayed above.

1. Index

This displays an index of intervals.

2. Elapsed Time Intervals

This displays the values of the time intervals based on the times of previously recorded points. The table automatically formats the input; type your desired time intervals in each row. A minimum of two time entries is required, but not all rows must be filled.

3. Options

This opens a list of options, including "Load and Use Default," "Reset," "Restore Defaults," and "Set Current as Default." These options will be further explained below.

4. Ok

Press this button to save settings and return to the "Test Setup" screen.

5. Cancel

Press this button to disregard any changes and return to the "Test Setup" screen.

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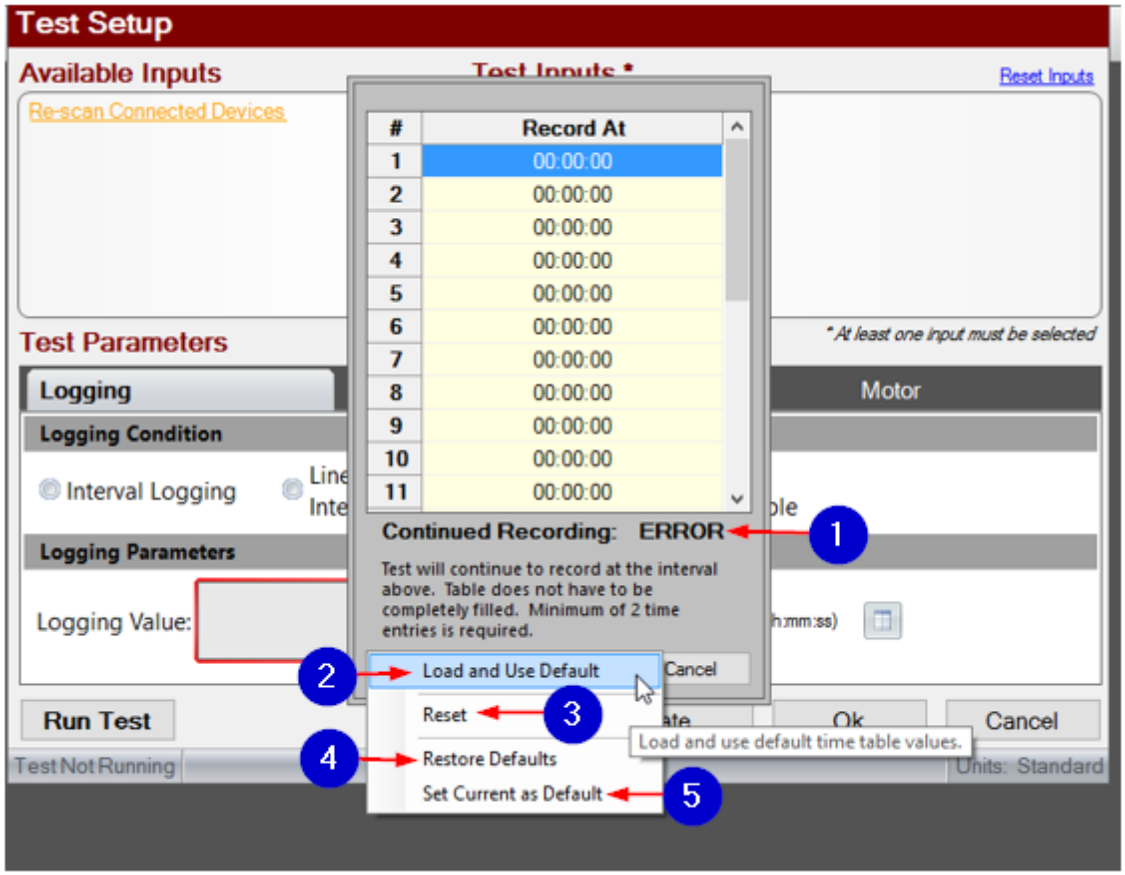

The following information corresponds to the image displayed above.

1. Load and Use Default

This sets the default set of times as the current set of times. These default settings can be user-set or factory default.

2. Reset

Reset all entries to 0. This will cause an "ERROR" message to appear because a test cannot be run with times that are all at 0.

3. Restore Defaults

This restores the default table from factory settings.

4. Set Current as Default

This sets the current visible time table as default, which saves it for subsequent test use.

5. Continued Reading

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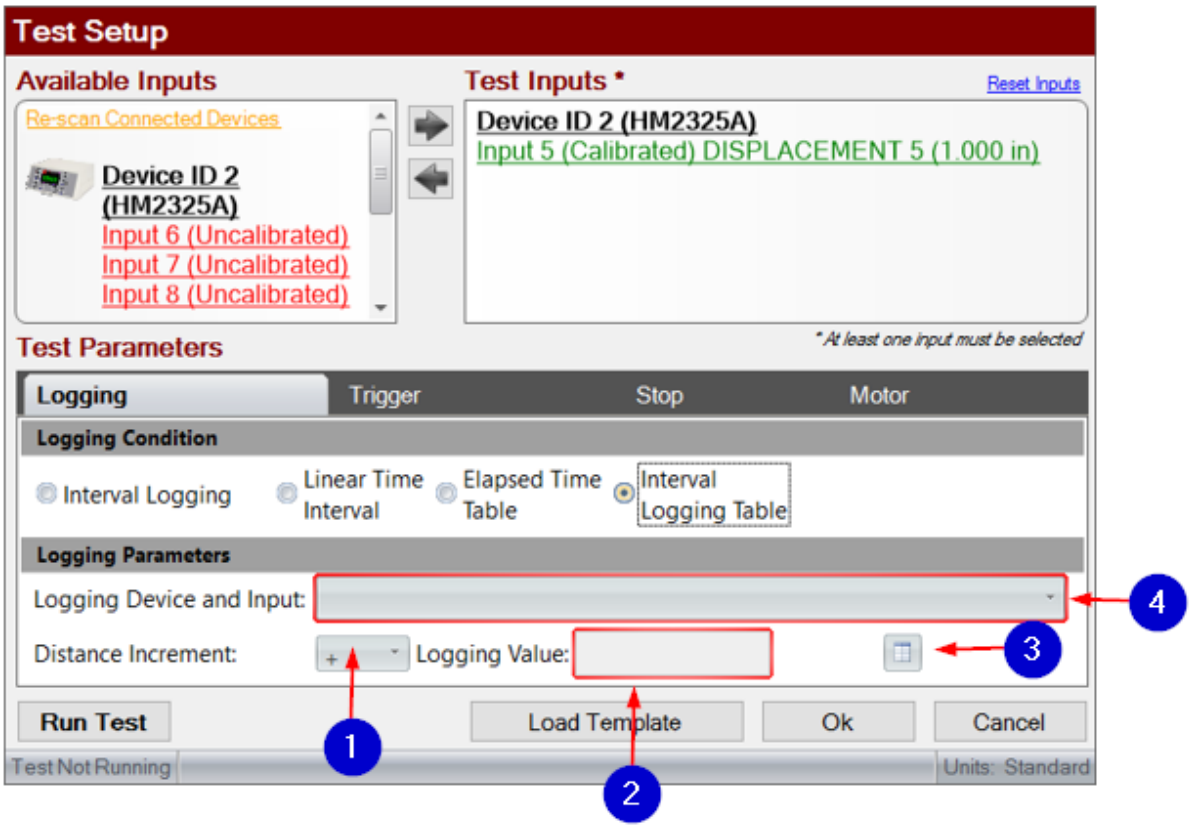
The time table continues to record the difference between the last non-zero time and the previous time regardless of if the time table is full. Time values in the table should always be increasing.

18.1.1.1.1.4 Interval Logging Table

"Interval Logging Table" provides the option to create a table of multiple intervals from which data points will be recorded.



The following information corresponds to the image displayed above.

1. Distance Increment

Choose the distance increment between the test values.

2. Logging Value

Choose the input by viewing the calibrated channel name on your device.

3. Table Values Worksheet

This is a table of sensor values based on calibrations. Press this button to open the table.

4. Logging Device and Input

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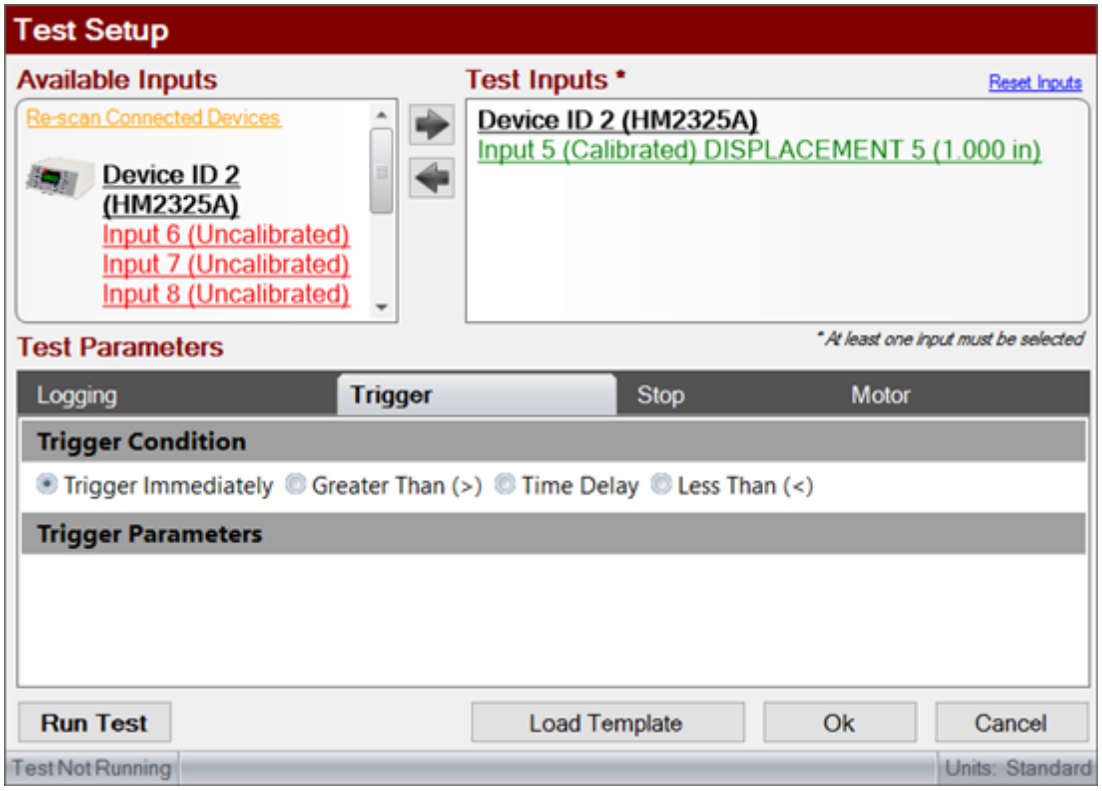
Select the desired logging device and input.

18.1.1.1.2 Trigger

This screen is accessed through selection of the "Test Setup" button, then "Trigger" under "Test Parameters." "Trigger Condition" refers to how the test is triggered. Available options are "Trigger Immediately," "Greater Than," "Time Delay," and "Less Than."



18.1.1.1.2.1 Trigger Immediately

An example of this is shown in the picture above. This will set the test to trigger instantly.

18.1.1.1.2.2 Greater Than

This will set the test to trigger when the current calibrated value for that channel is greater than the entered trigger value.

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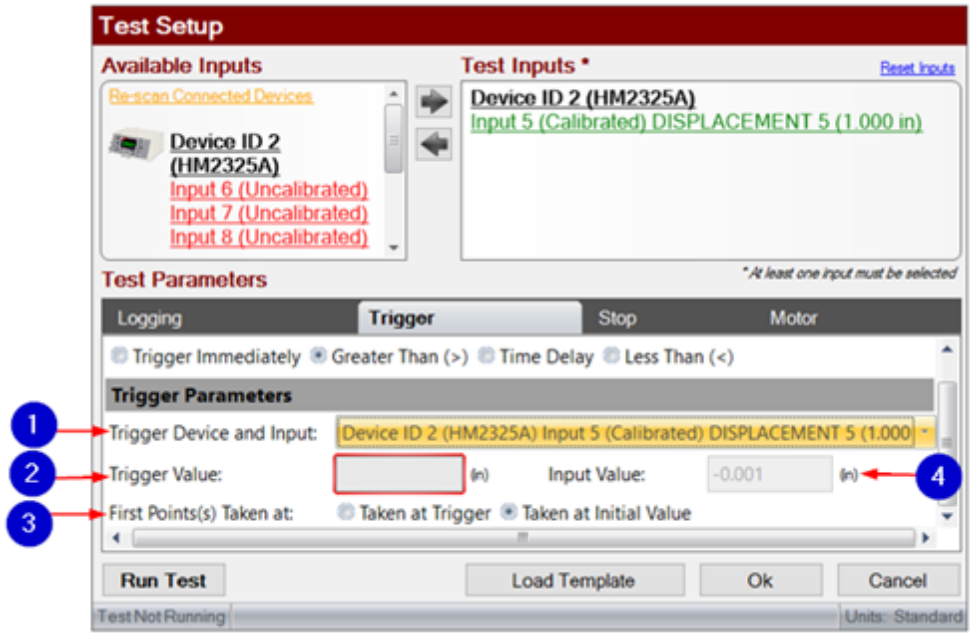

The following information corresponds to the image displayed above.

1. Trigger Device and Input

Select the desired trigger device and input for testing.

2. Trigger Value

Enter the value at which the test will begin recording data.

3. First Points

The option "Taken at Trigger" will record the first point when the trigger condition is met. The option "Taken at Initial Value" will not record the first point until the first logging condition is met.

4. Input Value

This is the current input value, or the display of input you selected. This is used to determine trigger value.

18.1.1.1.2.3 Time Delay

A delay can be set to take place before the first data point is recorded. This time must be entered in the (hh:mm:ss) format. The option "Taken at Trigger" will record the first point when the trigger condition is met. The option "Taken at Initial Value" will not record the first point until the first logging condition is

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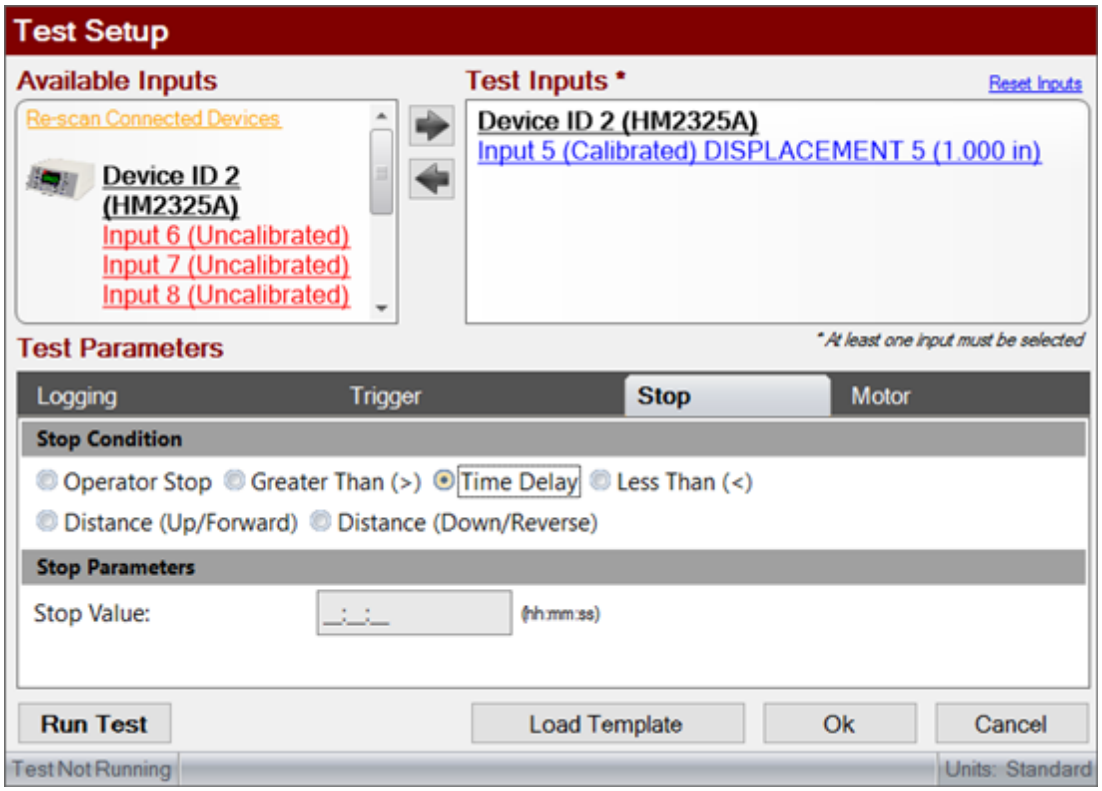
met.



18.1.1.1.2.4 Less Than

This will set the test to trigger when the current calibrated value for that channel is less than the entered trigger value.

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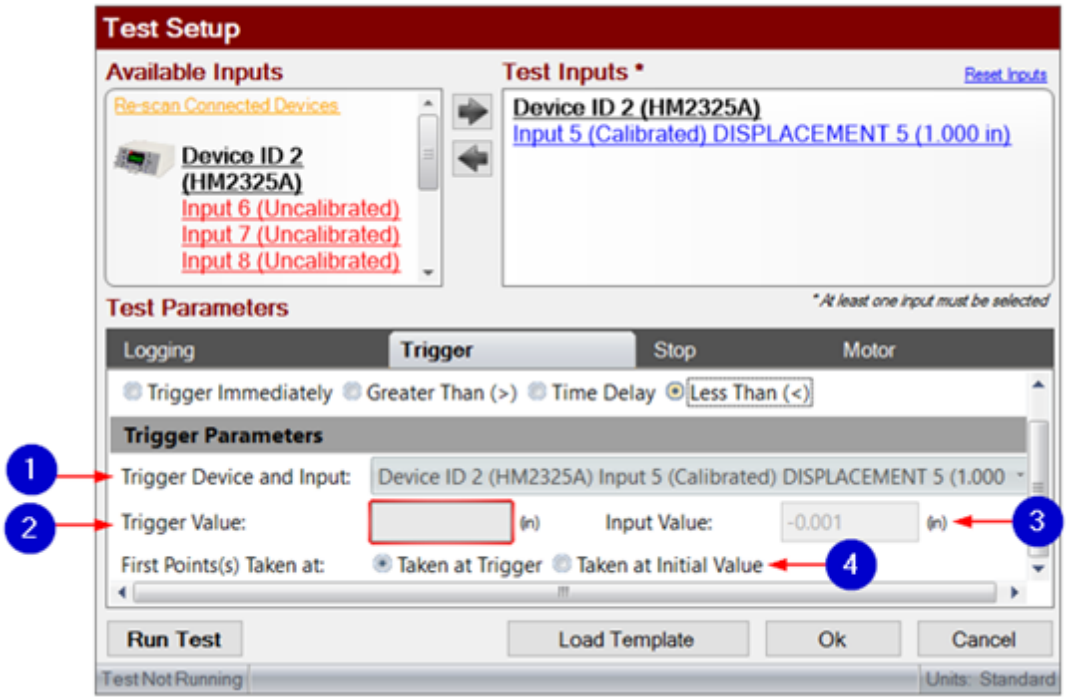

The following information corresponds to the image displayed above.

1. Trigger Device and Input

Select the desired trigger device and input for testing.

2. Trigger Value

Enter the value at which the test will begin recording data.

3. Input Value

This is the current input value, or the display of input you selected. This is used to determine trigger value.

4. First Points

The option "Taken at Trigger" will record the first point when the trigger condition is met. The option "Taken at Initial Value" will not record the first point until the first logging condition is met.

18.1.1.1.3 Stop

This screen is accessed through selection of the "Test Setup" button, then "Stop" under "Test Parameters."

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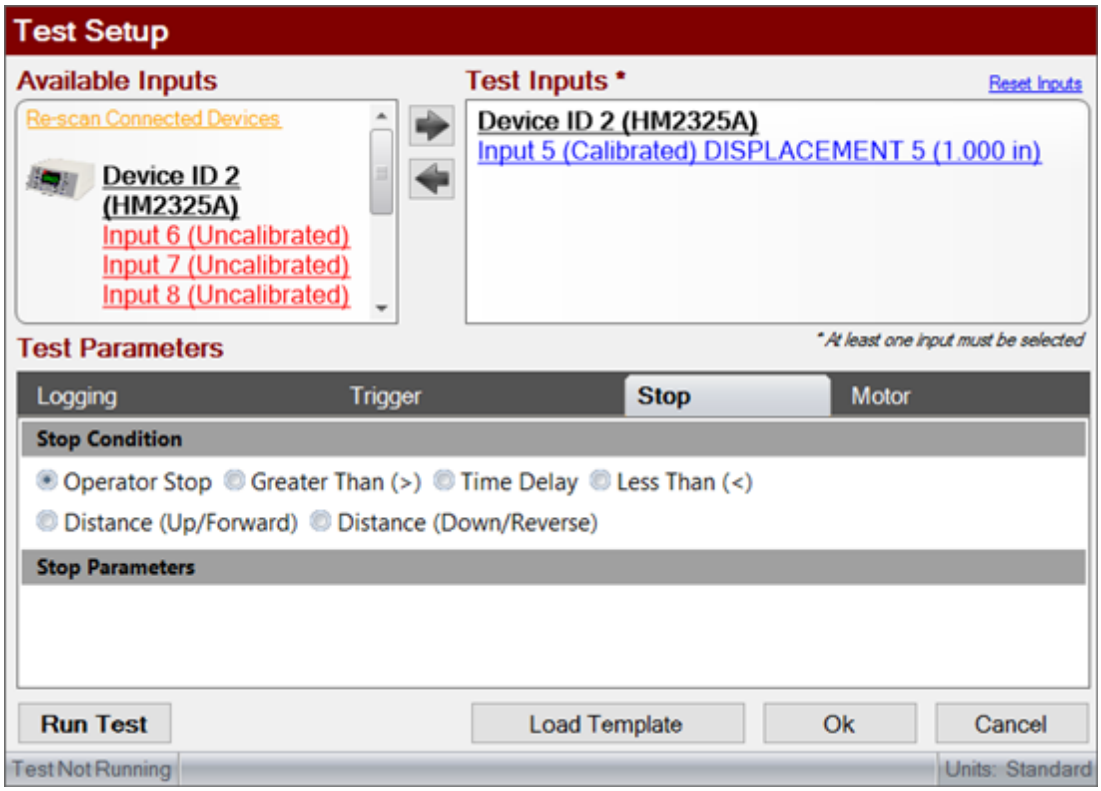

18.1.1.1.3.1 Operator Stop

This example is shown in the picture above. Selection of this option means that there is no stop condition and the test must be manually stopped by the operator.

18.1.1.1.3.2 Greater Than

Selection of this option means that the test will stop when the channel value is greater than the "stop value." Enter the desired "stop value," making sure to keep it in the (hh:mm:ss) format.

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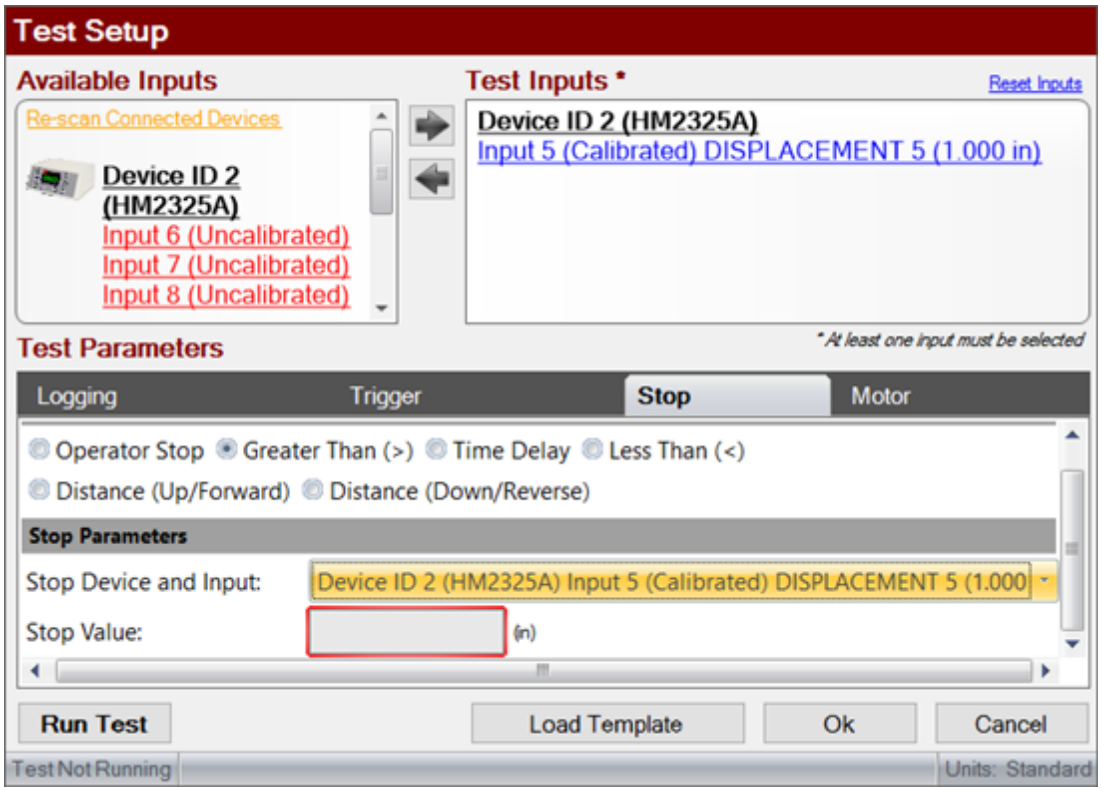

18.1.1.1.3.3 Time Delay

Selection of this option will stop the test after a certain amount of time. Enter the time amount in the "stop value," making sure to keep it in the (hh:mm:ss) format.

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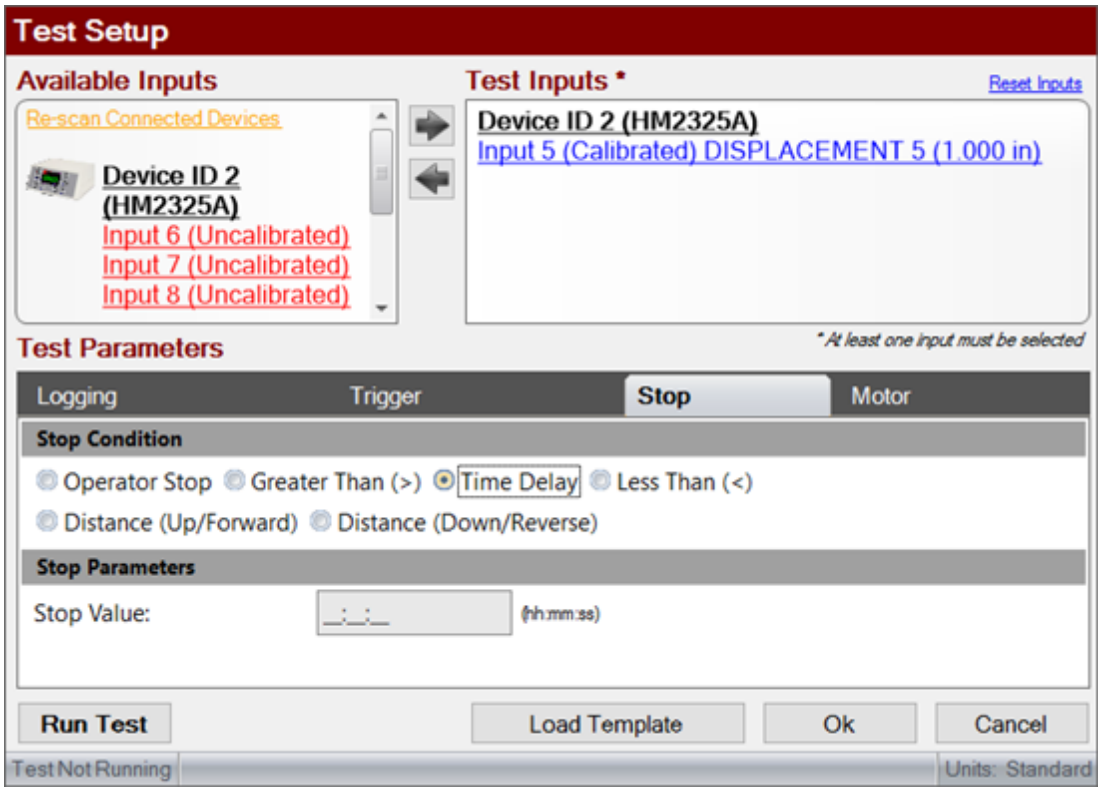

18.1.1.1.3.4 Less Than

Selection of this option means that the test will stop when the channel value is less than the "stop value." Enter this "stop value," making sure to keep it in the (hh:mm:ss) format.

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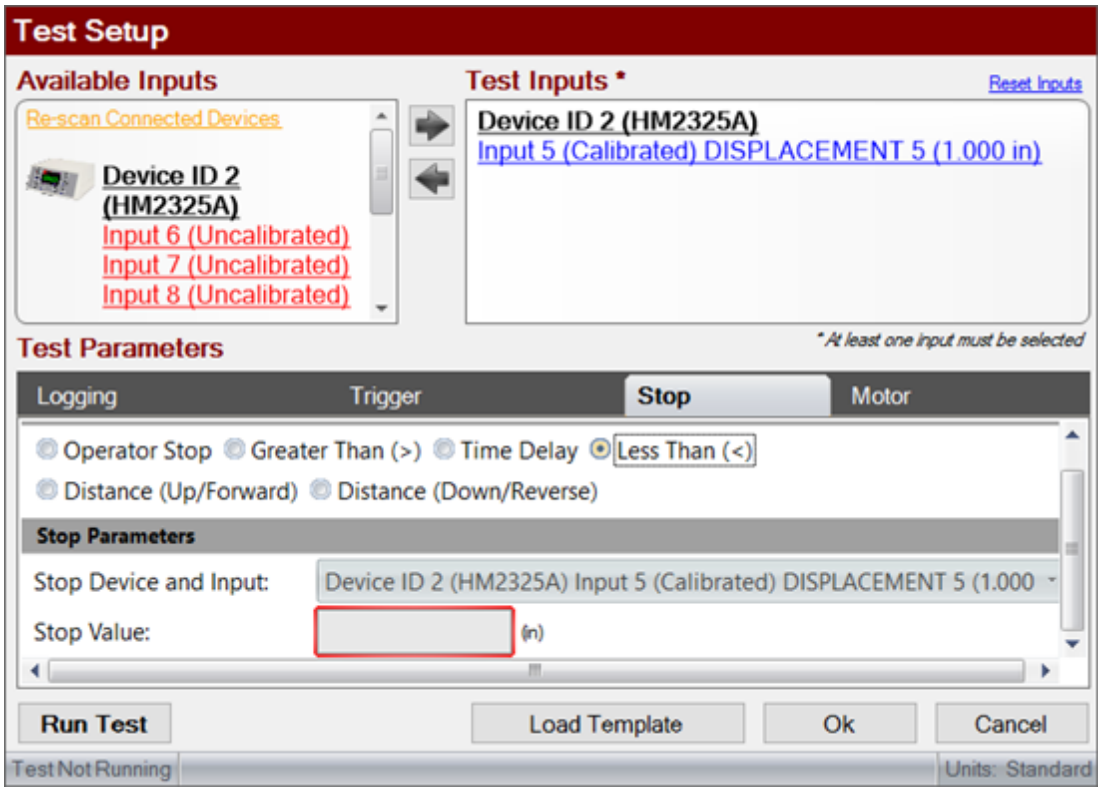

18.1.1.1.3.5 Distance (Up/Forw ard)

This will stop the test after the calibrated channel value has increased the specified amount from the trigger value.

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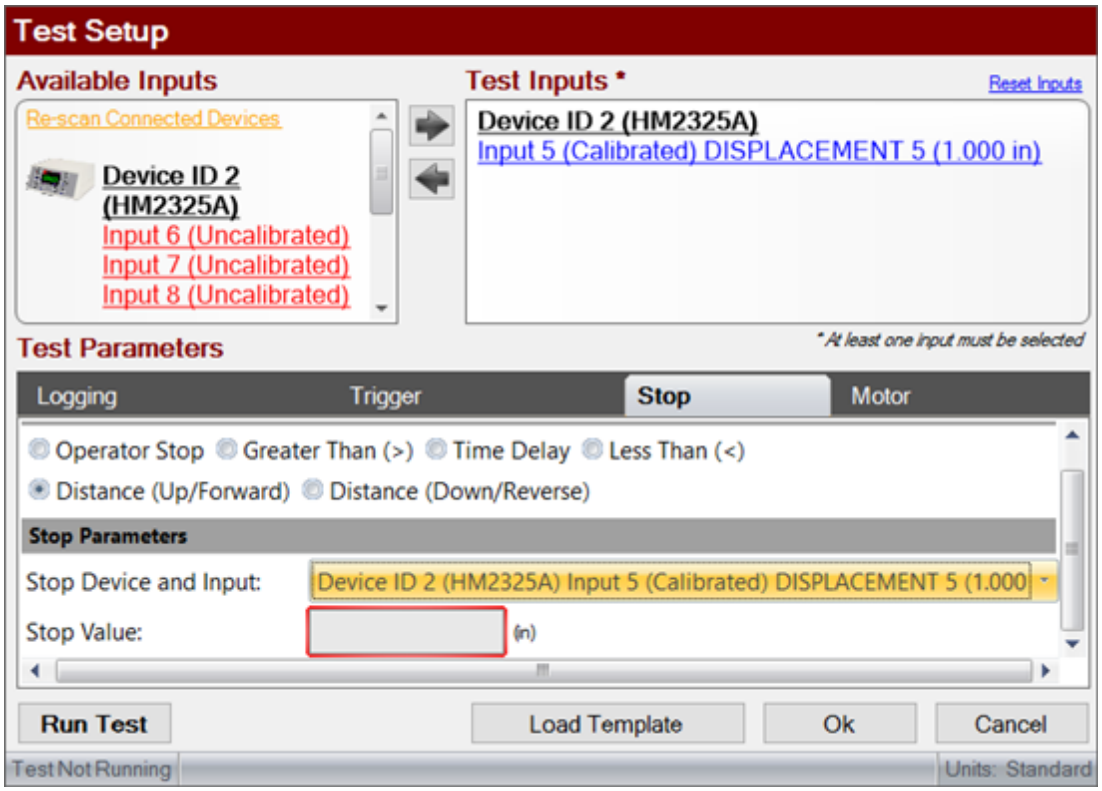

18.1.1.1.3.6 Distance (Down/Reverse)

This will stop the test after the calibrated channel value has decreased the specified amount from the trigger value.

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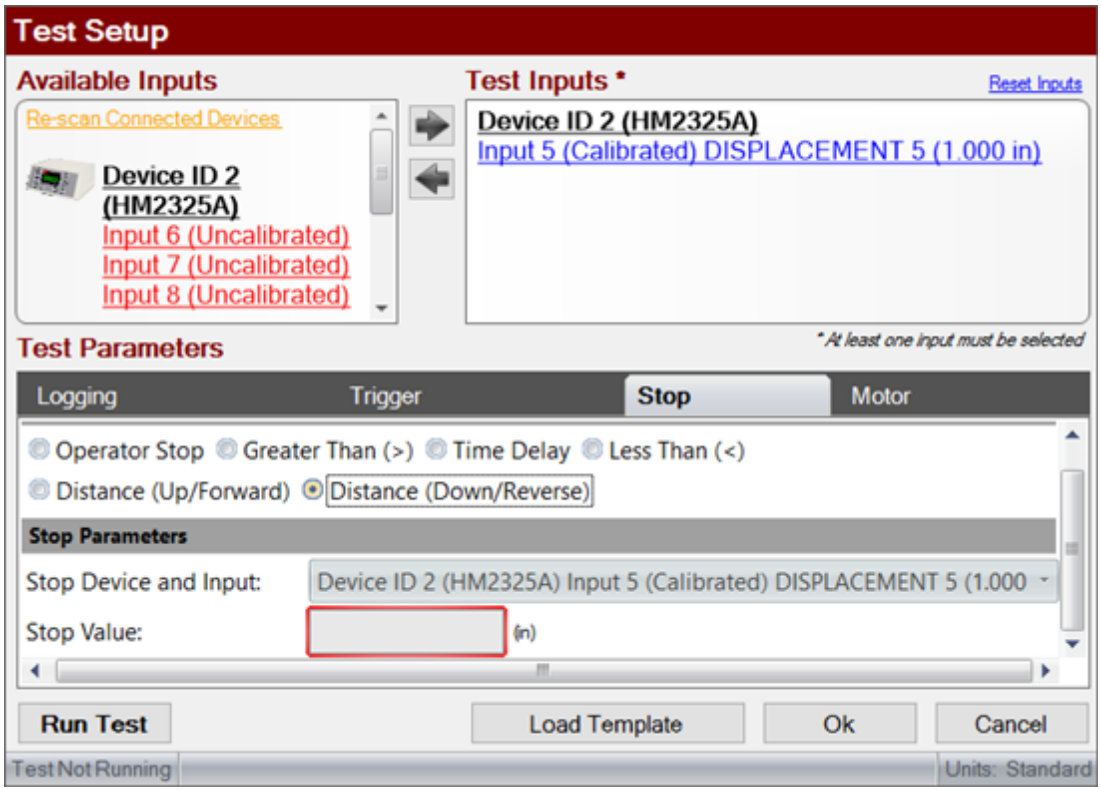

18.1.1.1.4 Motor

This screen is accessed through selection of the "Test Setup" button, then "Motor" under "Test Parameters."

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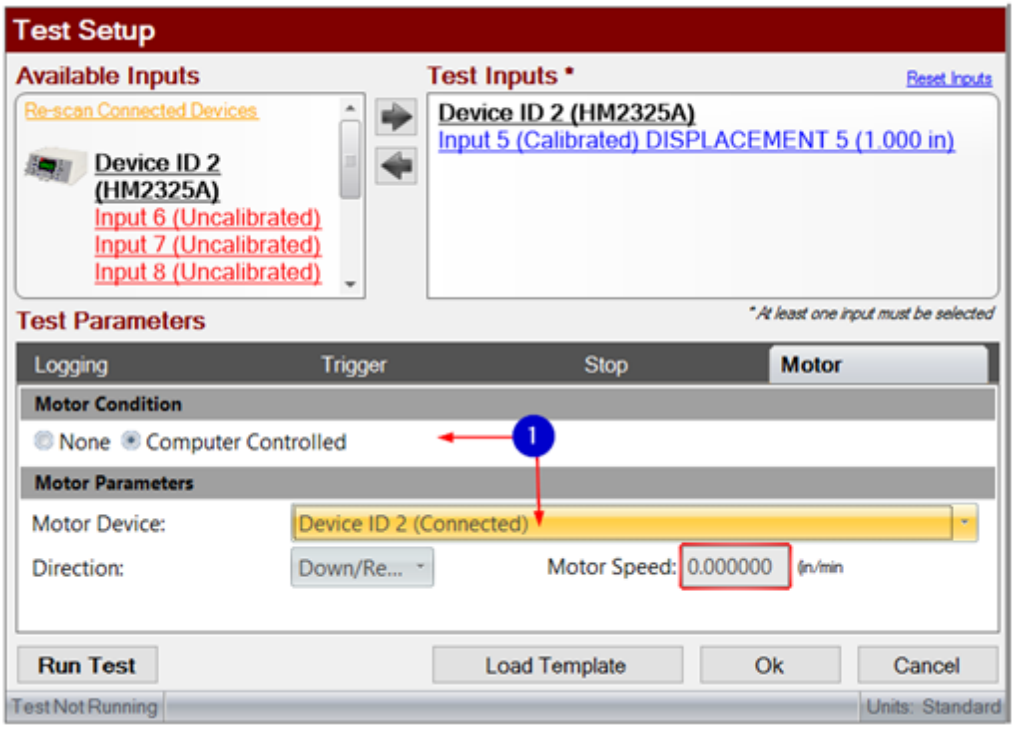

The following information corresponds to the image displayed above.

1. Motor Condition/Parameters

Select whether your device has no motor or is computer controlled. If it is computer controlled, select your motor device by its ID number. Then, pick the direction of the motor (up/forward or down/reverse) and a speed between 0-2 in/min.

18.1.2 Data

Upon opening a User Defined test, the "Data" tab offers options having to do with test input.

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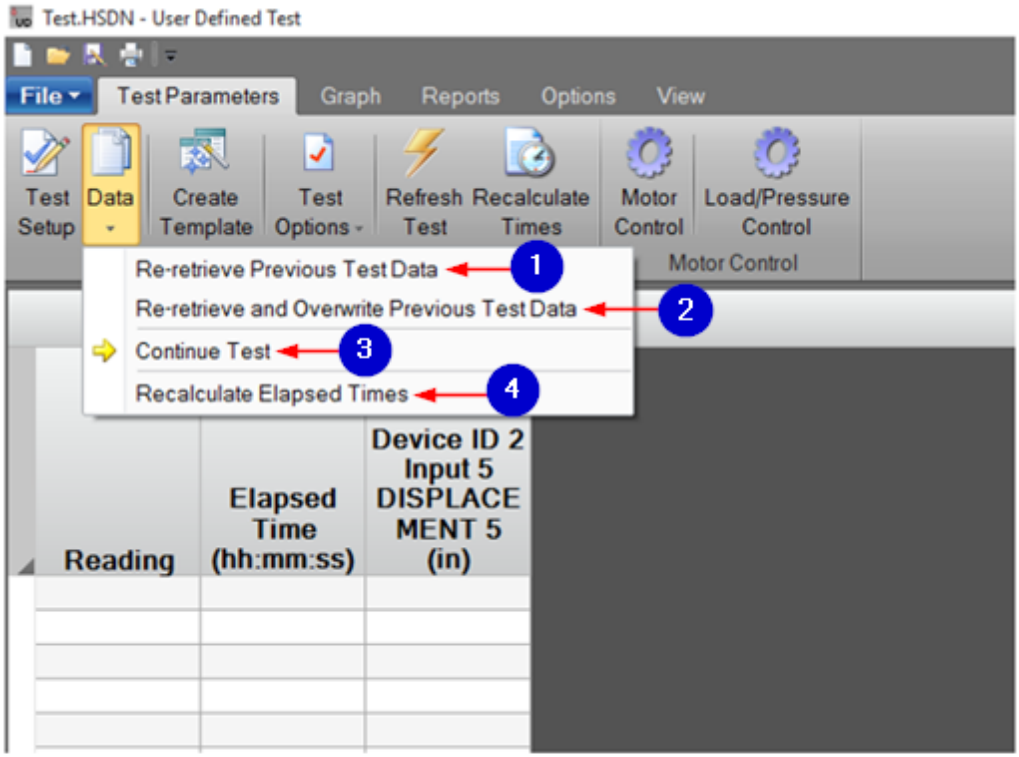

The following information corresponds to the image displayed above.

1. Re-retrieve Previous Test Data

The previous test data will be re-retrieved; missing data points will be collected and inserted. If you press this button, a screen will prompt to confirm testing requirements. An example of this screen is shown below.

2. Re-retrieve and Overwrite Previous Test Data

Previous test data will be overwritten and re-retrieved even if test data already exists. Any missing test data will be inserted. If you press this button, a screen will prompt to confirm testing requirements. An example of this screen is shown below.

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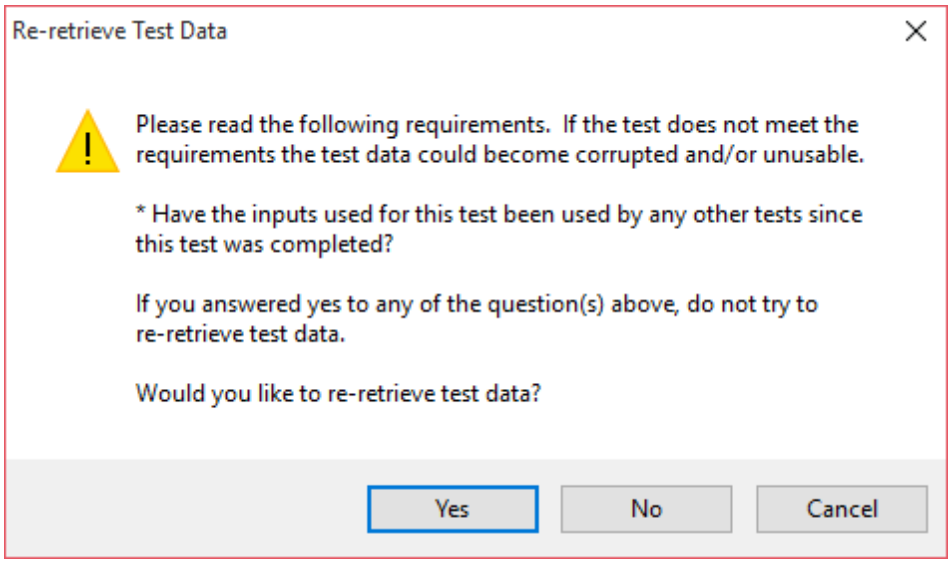

3. Continue Test

Press this button to continue a test that was stopped at an inappropriate time. This feature can only be used immediately after a test is stopped. Once another test is started, this feature cannot be used.

4. Recalculate Elapsed Times

Press this button to recalculate elapsed test times. If test times are not correct, you can force a recalculation of all tabulated times.

18.1.3 Create Template

Create a template of test parameters so that you can setup tests more quickly. You can also modify existing templates in this tool by selecting that option and clicking "Browse." Click "Create a new template" to create a new template. Click "Next" to proceed.

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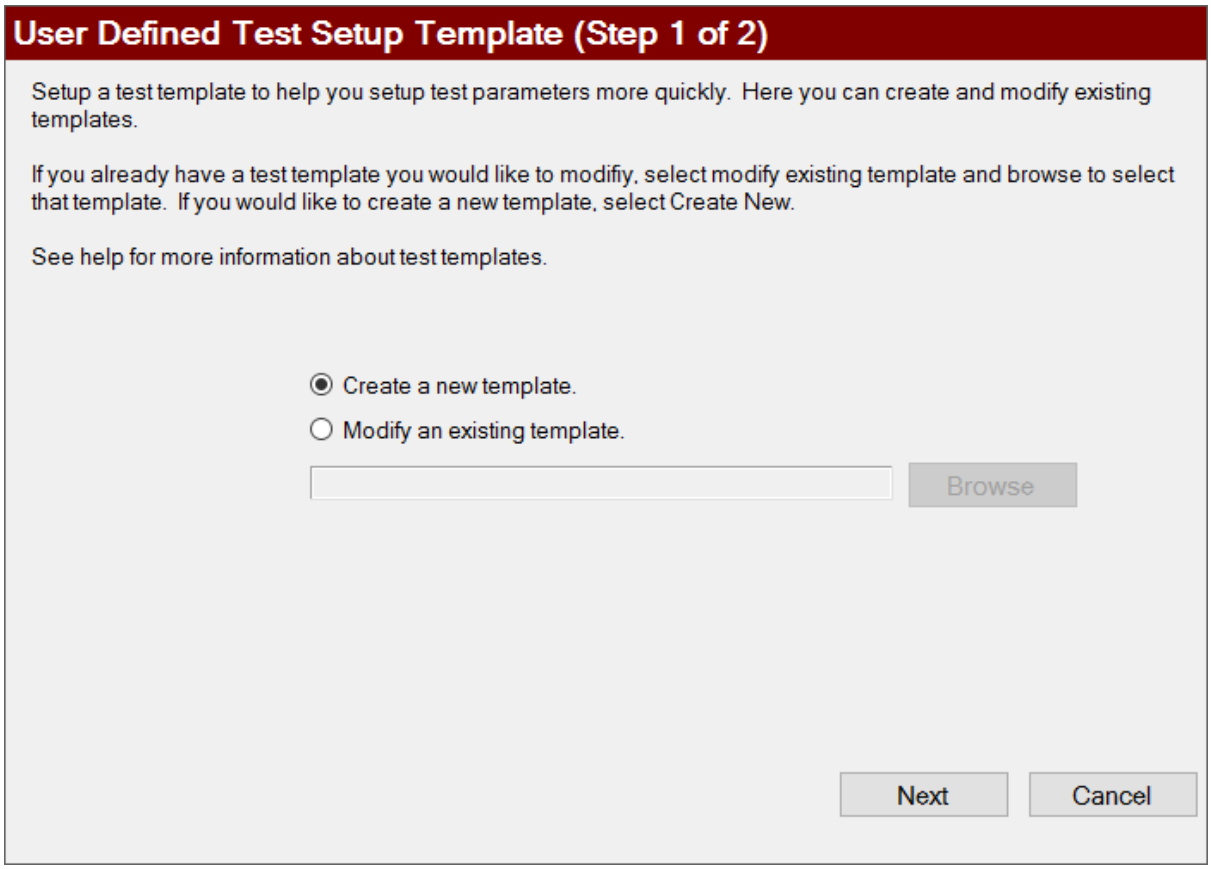

18.1.4 Test Options

This displays available test options, including "Test Units," "Tare Options," and "Monitor Sensor Limit."

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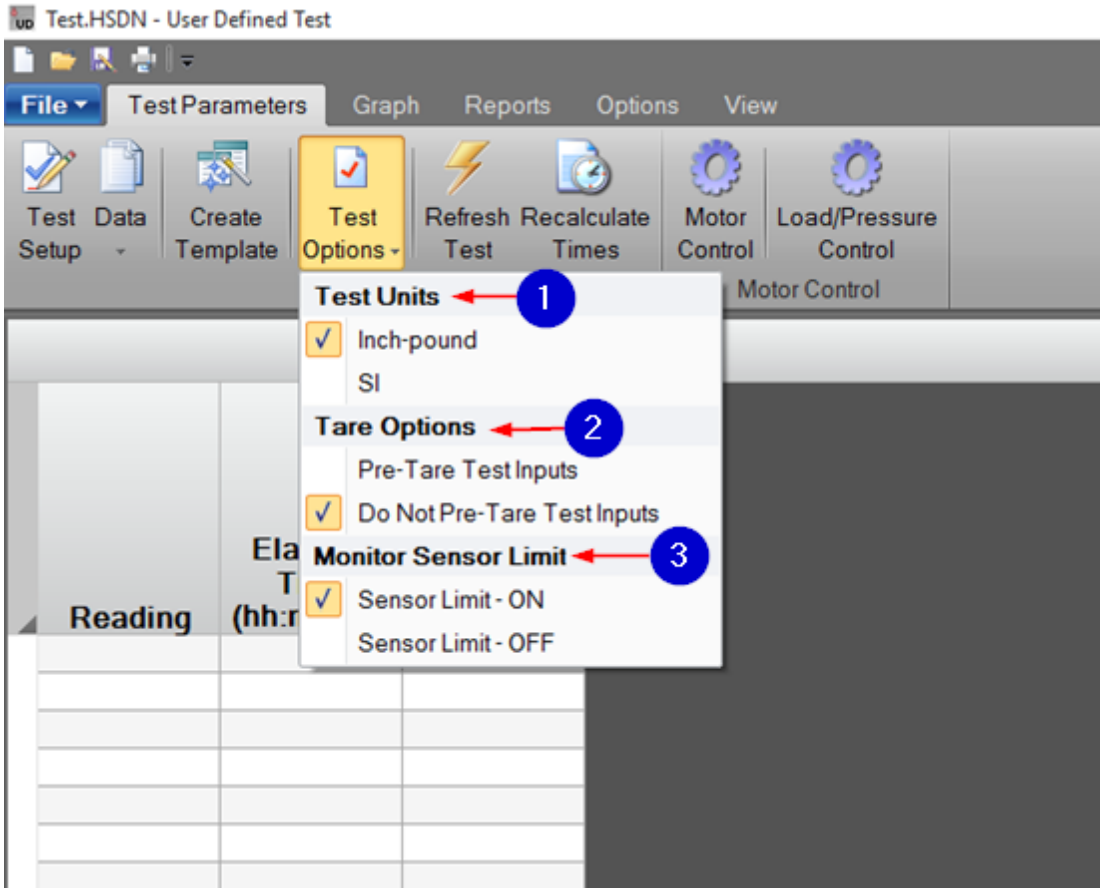

The following information corresponds to the image displayed above.

1. Test Units

This allows the option to choose between "Inch-pound" and "SI" for test units.

2. Tare Options

Choose to pre-tare or not pre-tare test inputs. To tare is to zero out a test input. Pre-taring will occur before the test arming sequence is completed if you choose to pre-tare.

3. Monitor Sensor Limit

Choose to turn sensor limits on or off. When turned on, the software will monitor the configuration maximum to avoid overloading the sensor. Load cell and pressure sensors are allowed ten percent over configuration maximum. For all other sensors, the sensor limit will be the configuration maximum. For more information on the configuration maximum, see the "Calibration Management" section. ***Please note: For the software to monitor sensor limits,***

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the test will need to remain opened at all times.

18.1.5 Refresh Test

Press this button to refresh tabulated data display and calculations.

18.1.6 Recalculate Times

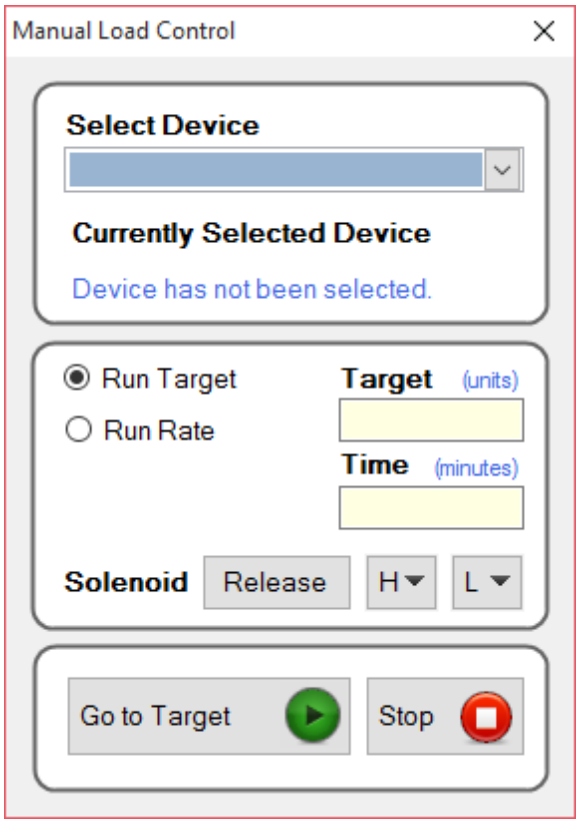
Press this button to refresh and recalculate tabulated times.

18.1.7 Motor Control

This allows the option to manually control an attached devices motor. For more information, please visit the "Manual Motor Control" section of this manual.

18.1.8 Load/Pressure Control

This allows the option to manually control an attached devices target load or target pressure. This only applies to specific device types.



The following information corresponds to the image displayed above.

1. Select Device
Select a device from the drop-down list of available devices. If a device is not listed, it is not compatible with this tool.
2. Currently Selected Device
This displays the device you have currently selected.
3. Run Target
This will load the machine to the specified target. The target will need to be specified or entered in the "Target" entry box.
4. Run Rate
This will load the machine to the specified target at a specified time. The target and time will need to be specified or entered in the "Target" and "Time" entry boxes.
5. Solenoid
Press the "Release" button to open the solenoid. This will set the machine to a low loading state and unload all pressure/loads. Press the "H" drop-down button to hold or apply high loading states. Press the "L" drop-down button to hold or apply low loading states. Using a hold state will allow you to go to a new pressure/load target without affecting the load on the sample. The pressure will change, but the load on the sample will not. Applying the loading state will place the new pressure/load on the sample. ***Note: Please see the equipment manual for more information. Depending on the device selected, some options in this tool will be enabled or disabled. This load pressure control is available in all test modules.***
6. Go to Target
Press this button to perform the target/rate options you have selected.
7. Stop
Press this button to stop any actions that the equipment is currently performing.

18.2 Graph

In this screen, you can select "Custom Graph" to create a new graph.

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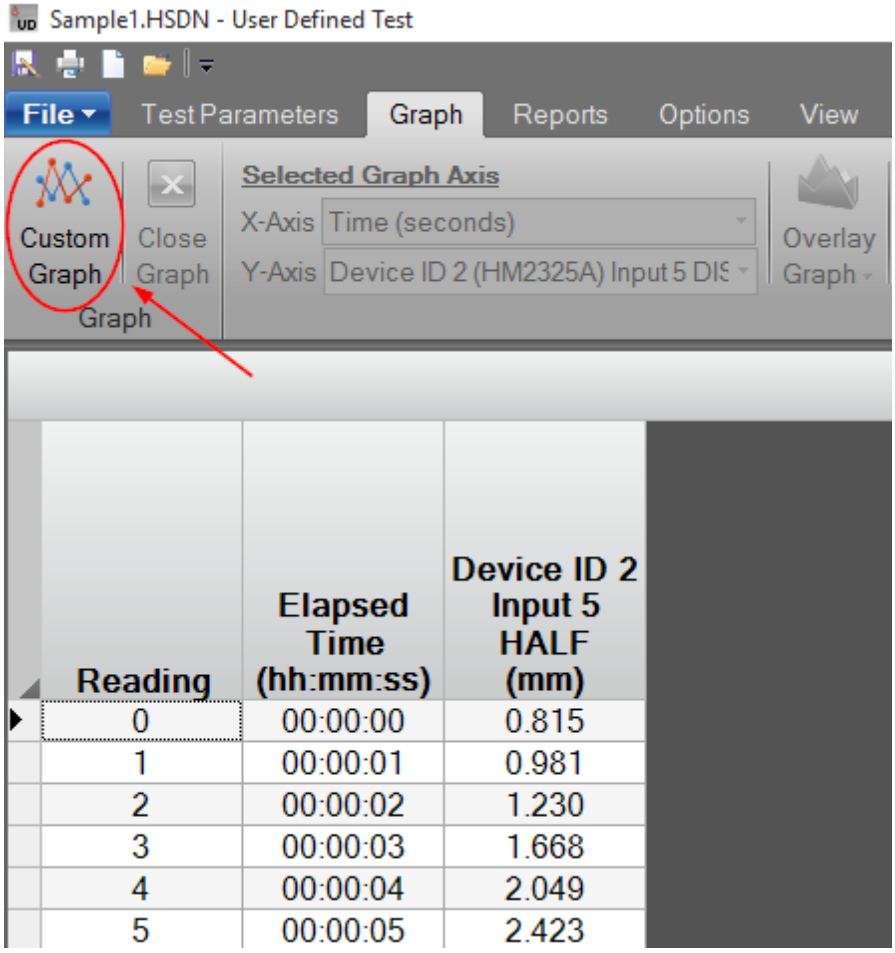
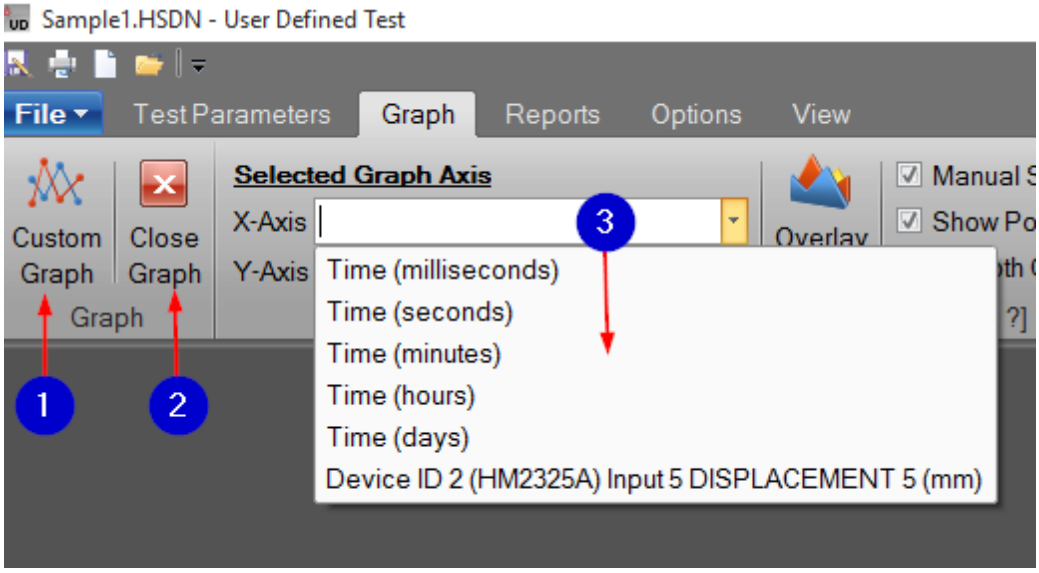


18.2.1 Custom Graph

The custom graph options are displayed in the images below.



The following information corresponds to the image displayed above.

1. Custom Graph

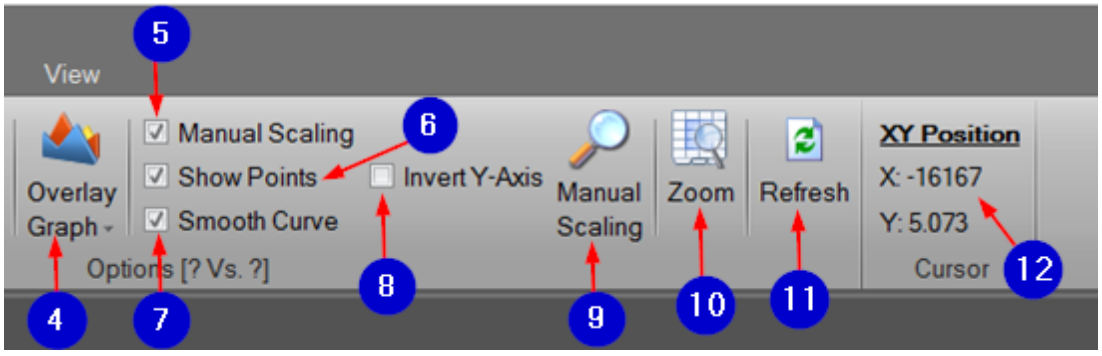
Press this button to create a new graph.

2. Close Graph

Press this button to close the selected graph and return to the User Defined Test screen.

3. X-Axis and Y-Axis

Click the drop-down menus to choose what is graphed on the x and y axes. The graph axis options are time and tabulated data. If you have tested with more than one input, then more than one input will be displayed. Graphing options will be disabled when a graphing tabulation is not selected.



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The following information corresponds to the image displayed above.

4. Overlay Graph

Press this button to show more than one graph on the same graph. There is no limit on the amount of custom graphs. A graph will reload if you close and reopen the test window.

5. Manual Scaling

Check this box to override Humboldt automatic scaling and manually modify X and Y axis scaling. Zooming in on the graph will also turn on this feature.

6. Show Points

Check/uncheck this box to display/hide points on the graph.

7. Smooth Curve

Check this box to smooth/round the edges on the graph. Check this option if you would like to to do a general analysis of the given data. ***Note: This only affects the visual display; no change is made to the actual test points.***

8. Invert Y-Axis

Check this box to flip the Y axis and represent the graph with an inverted Y axis.

9. Manual Scaling Tool

This option appears once the "Manual Scaling" box is checked or the graph is zoomed upon. The screen will prompt for entry of X and Y axis values.

10. Zoom

This tool is used for precision. Press this button to zoom in on a specific part of the graph. To use this feature, press the button, left-click and hold anywhere in the plot area, drag to the extent of your desired viewing area, and release. This manually scales the graph. Uncheck the "Manual Scaling" box to revert back to automatic scaling and exit out of the zoom.

11. Refresh

Press this button to replot the graph. The graph automatically refreshes every five seconds; press this button to force an immediate update.

12. X/Y Position

This displays the location of your cursor on the graph so that test points can be determined.

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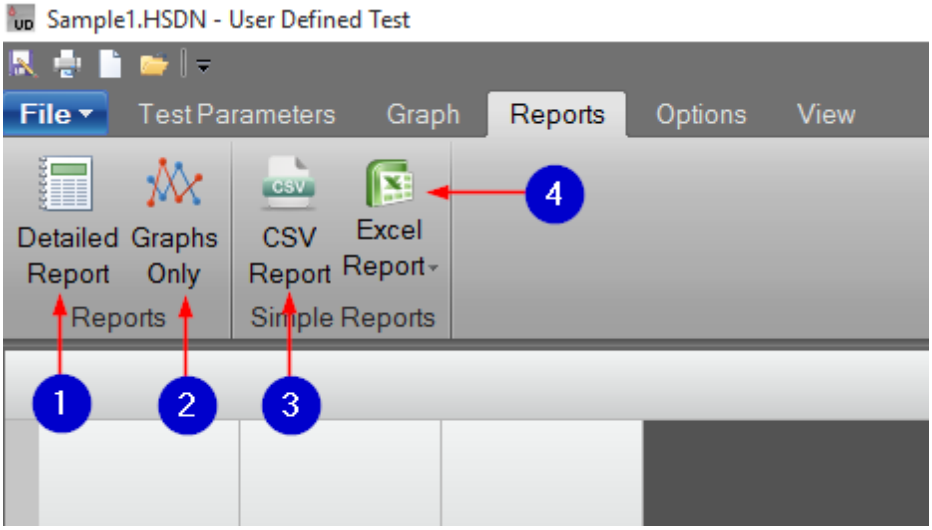
18.3 Reports

This screen displays available report options, which include "Detailed Report," "Graphs Only," "CSV Report," and "Excel Report."



The following information corresponds to the image displayed above.

1. Detailed Report

This will show a report of everything, including tabulated data and any graphs you have created. A detailed description of this screen can be found below.

2. Graphs Only

This creates a report of only graphs.

3. CSV Report

This creates a comma separated value (CSV) file of all test data. ***Note: A CSV file only contains tabulated data and does not contain graphs.***

4. Excel Report

The software will export all data to the designated Excel template. The Excel template source can be adjusted in "Program Options." Humboldt provides an Excel template that can be copied and modified for any custom reporting requirements. **Humboldt is not responsible for issues pertaining to custom templates.** If you would like Humboldt to create a custom report, please contact Humboldt for pricing.

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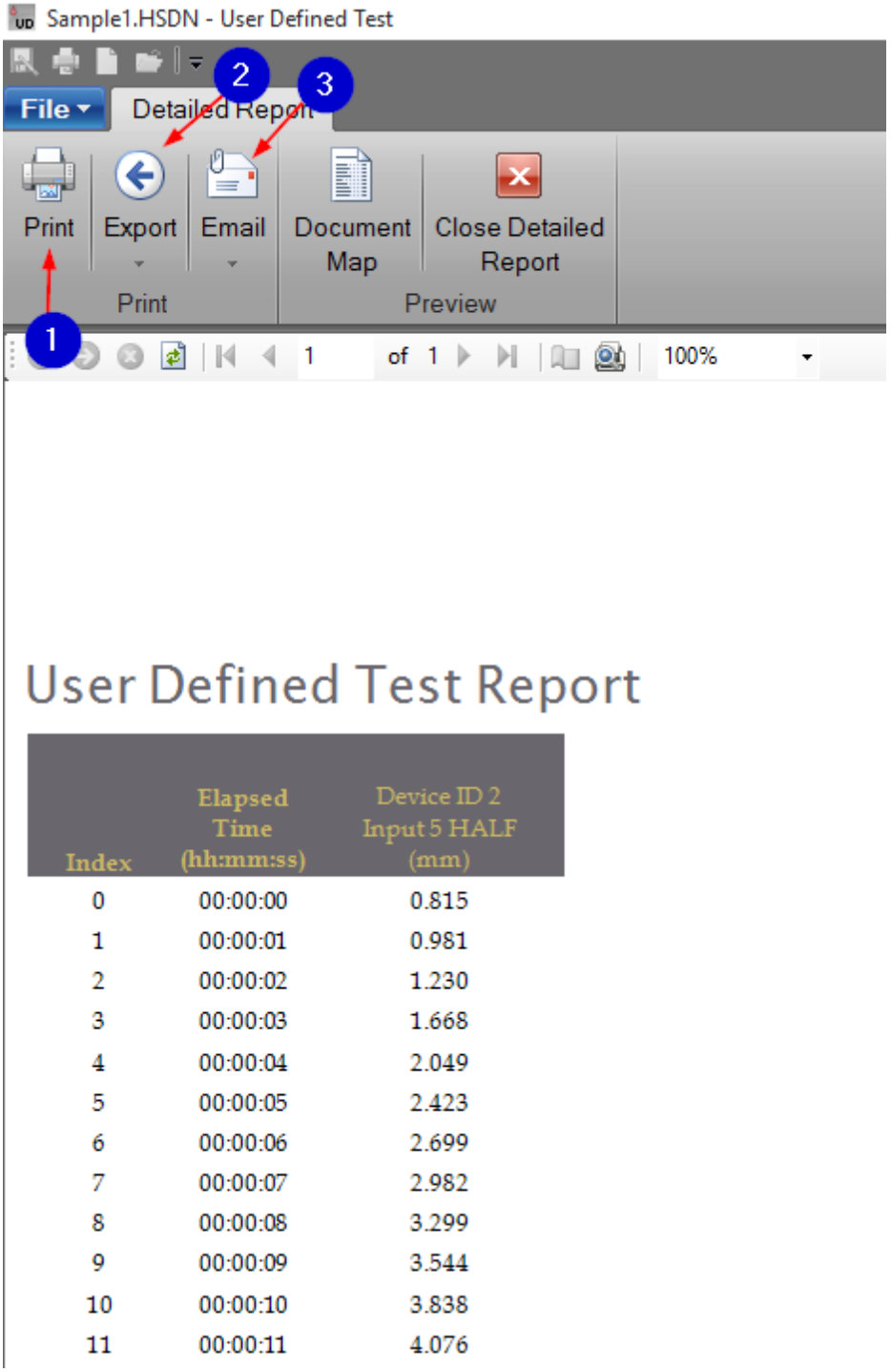

The following information corresponds to the image displayed above.

1. Print

Print the selected report.

2. Export

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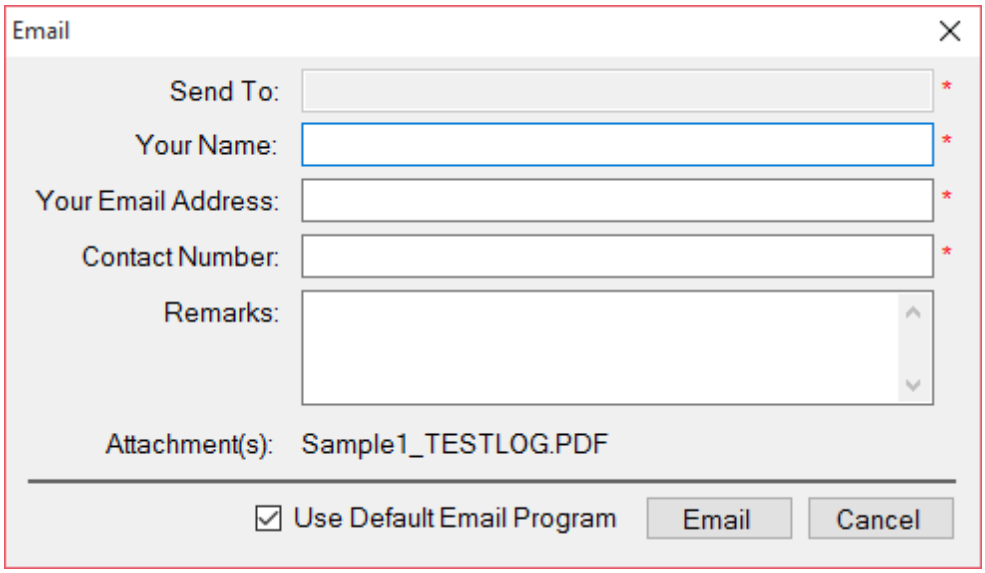
Export the selected report to one of the available formats.

3. Email

Email the selected report to a specific person or to Humboldt for help. This sends a pdf of the report. Selection of either option will open the screen displayed below. If you are emailing a specific person, enter the email address of the individual to whom you would like to send the report. If you are emailing Humboldt, the appropriate email address is already entered. Enter your name, email address, contact number, and remarks about the report. Check "Use Default Email Program" to enable the software to use your default email program (Eg. Microsoft Outlook) to send this email. If you do not have a default email program, uncheck the box and the email will be sent from within the application. ***Note: If you uncheck the box and do not use this option, Humboldt may not receive the email.*** Press "Email" to send the report or "Cancel" to cancel this action and return to the "Detailed Report" screen.



Displayed below are more "Detailed Report" options.

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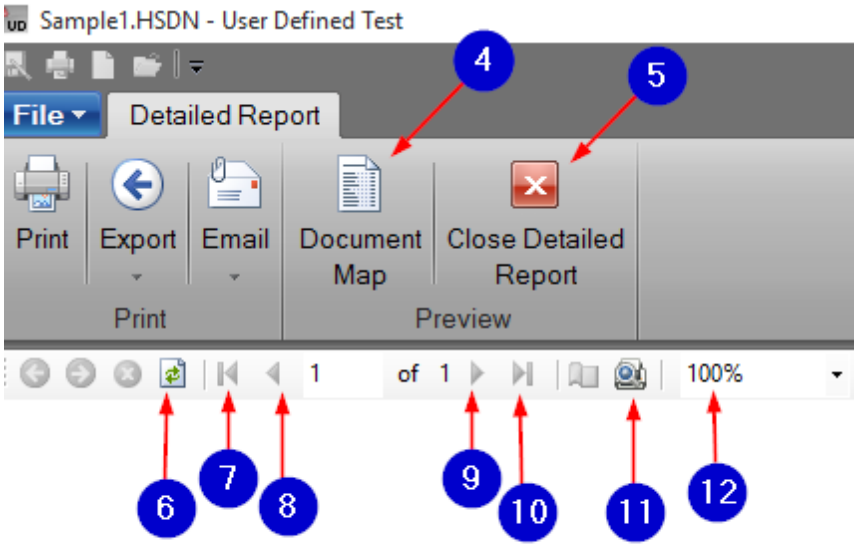

The following information corresponds to the image displayed above.

4. Document Map

Press this button to view different pieces of the report for quick access. Press the button again to hide or show the quick access tool.

5. Close Detailed Report

Press this button to close the report and return to the "User Defined Test" screen. You can also click the "X" in the top right corner of your screen to close the report--this action will not close the User Defined test.

6. Refresh Report

Press this button to refresh the report when new data points have been recorded.

7. Go to First Page

Press this button to go to the first page of the report.

8. Go to Previous Page

Press this button to go to the previous page of the report.

9. Go to Next Page

Press this button to go to the next page of the report.

10. Go to Last Page

Press this button to go to the last page of the report.

11. Print Preview

Press this button to switch between the interactive and print preview views.

12. Zoom

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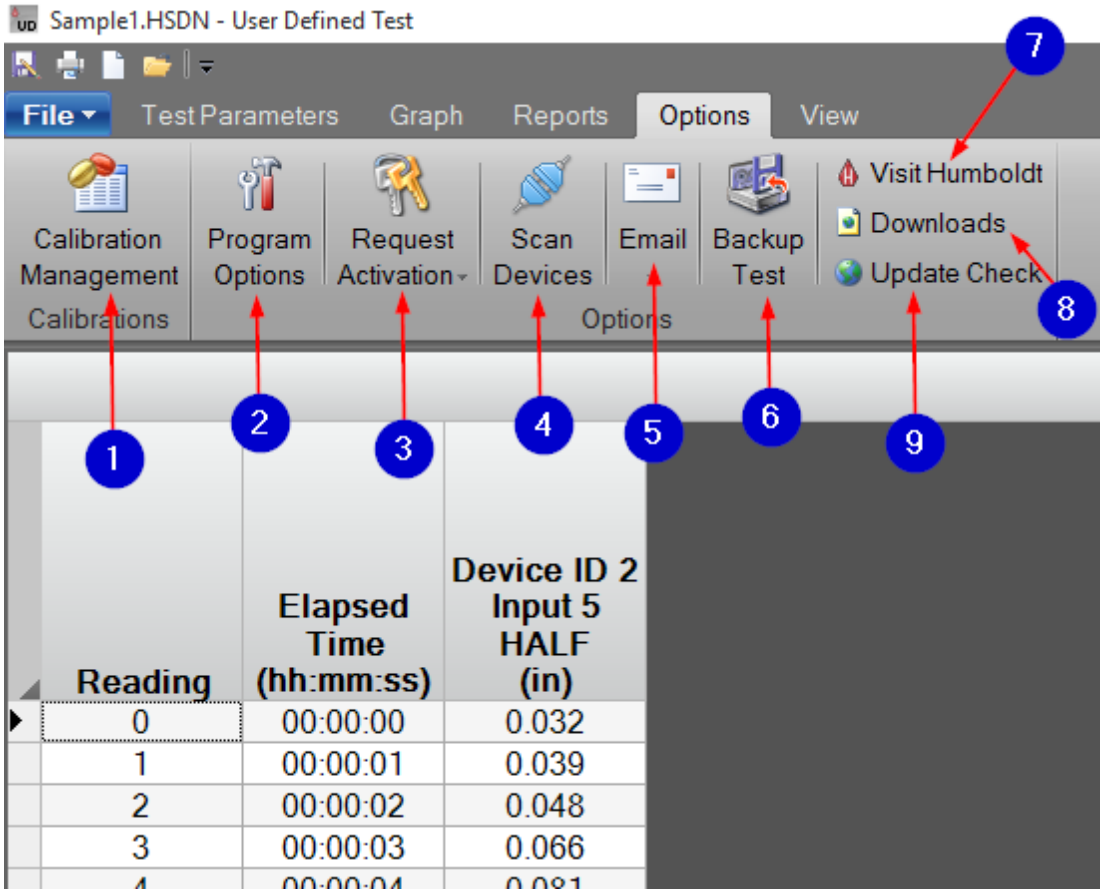
Press this button to zoom in or out of the report.

18.4 Options



The following information corresponds to the image displayed above.

1. Calibration Management

Click this button to open "Calibration Management."

2. Program Options

Click this button to open "Program Options."

3. Request Activation

If you have an active file, you can add activation here without going to the "Activate License" tool. Click the top part of this button if you would like to open the "Activate License" tool. All test modules must be registered; the User Defined Test module is free to use but must be registered. The email is generated through this software.

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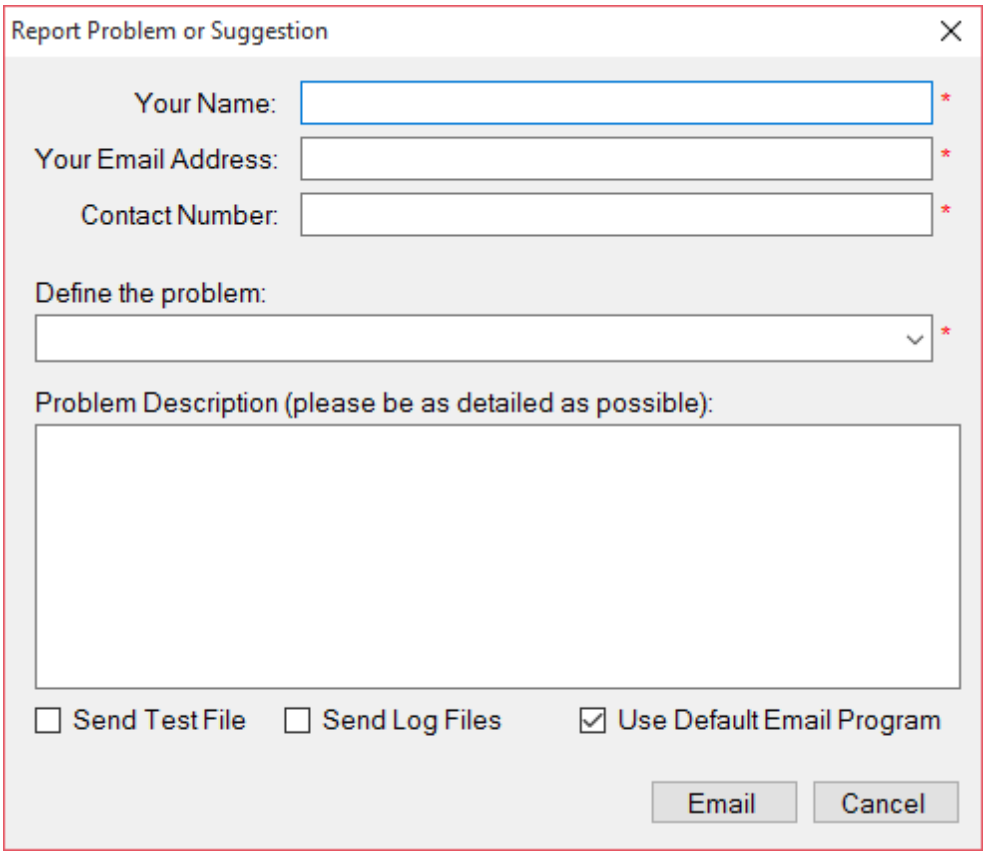
4. Scan Devices

Press this button to scan for any connected devices. The communication port must be configured and the communication protocol must be selected correctly on each logger for devices to be found.

5. Email

Press this button to report a problem or email a test file. An example of these prompts is shown below. Enter your name, email address, contact number, type of problem, and problem description. Choose to send the test file, log files, or use the default email program. Check "Use Default Email Program" to enable the software to use your default email program (Eg. Microsoft Outlook) to send this email. If you do not have a default email program, uncheck the box and the email will be sent from within the application. ***Note: If you uncheck the box and do not use this option, Humboldt may not receive the email.***



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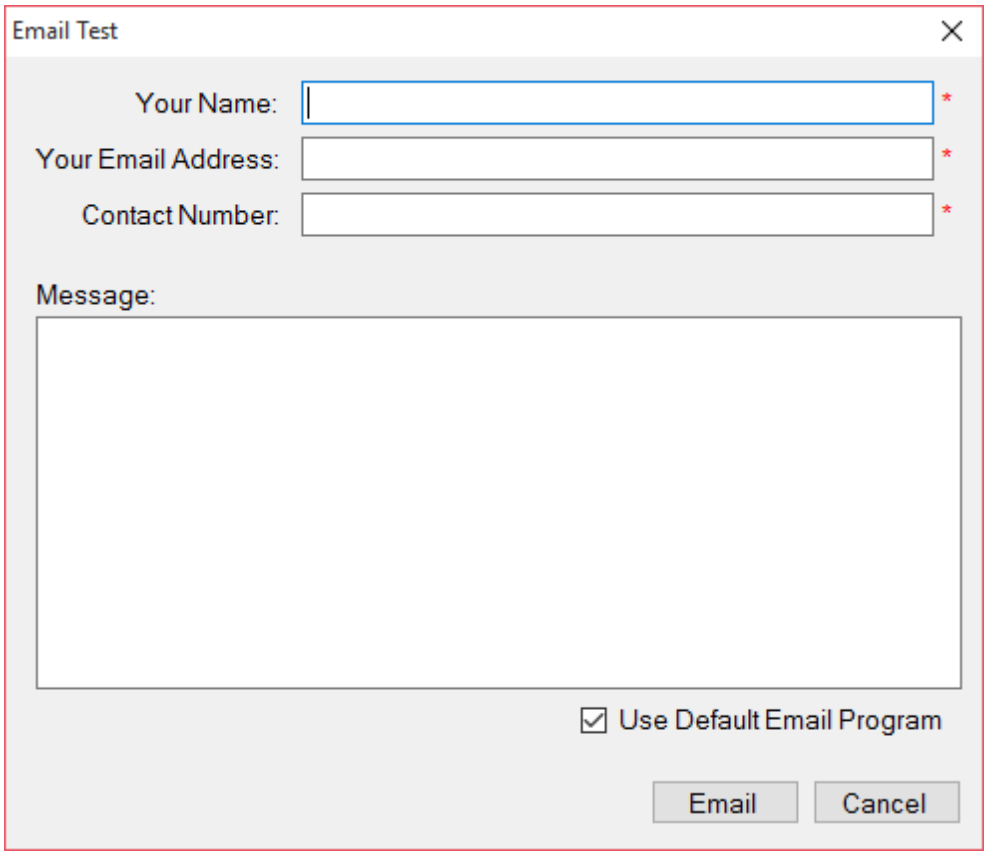

6. Backup Test
Press this button to save a copy of the test to a specified location.
7. Visit Humboldt
Press this button to view the Humboldt Mfg. website.
8. Downloads
Press this button to see available downloads for the HMTS Next Software package.
9. Update Check
Press this button to check if any updates are available for the HMTS Next Software package. This will open the HM Next Update tool.

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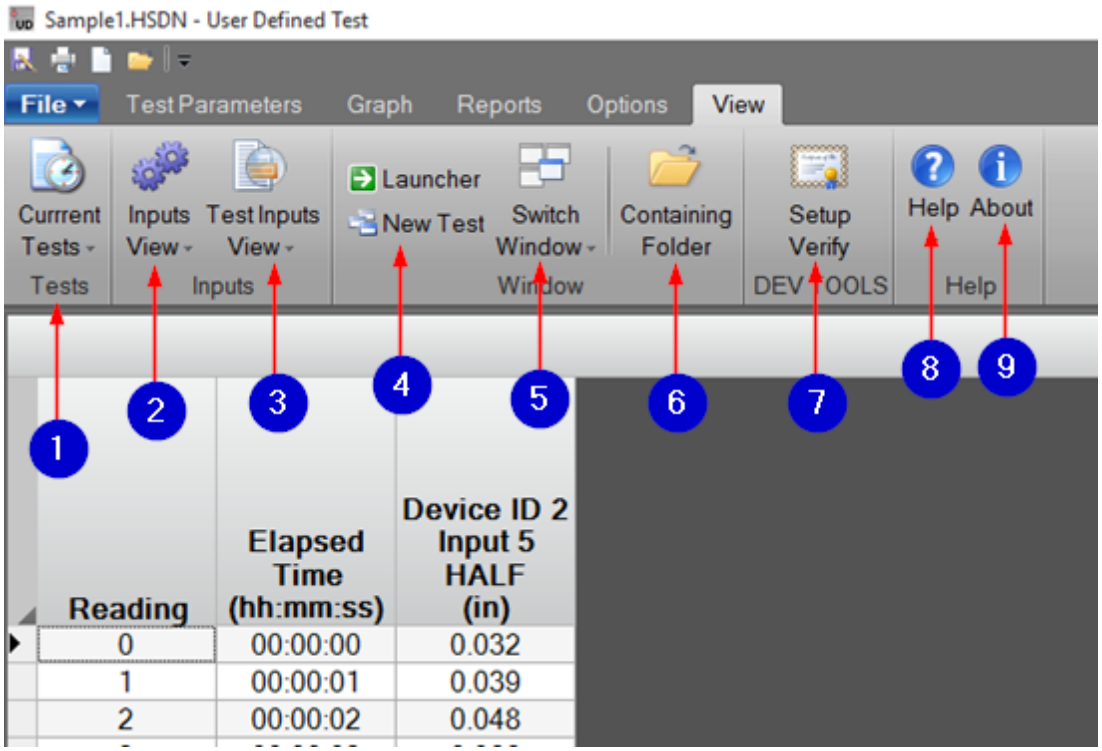
18.5 View



The following information corresponds to the image displayed above.

1. Current Tests

Press this button to see a list of any tests that are current in progress. Selecting a test will open that test in a new window.

2. Inputs View

Press this button to view any live input data.

3. Test Inputs View

Press this button to see a list of any active tests. Click a test to show live input data for all of that test's inputs.

4. Launcher/New Test

Press the "Launcher" button to open the HMTS Next Launcher and open an old test or create a new test. Press the "New Test" button to create a new test of the same type.

5. New Test

Press this button to create a new test.

6. Switch Window

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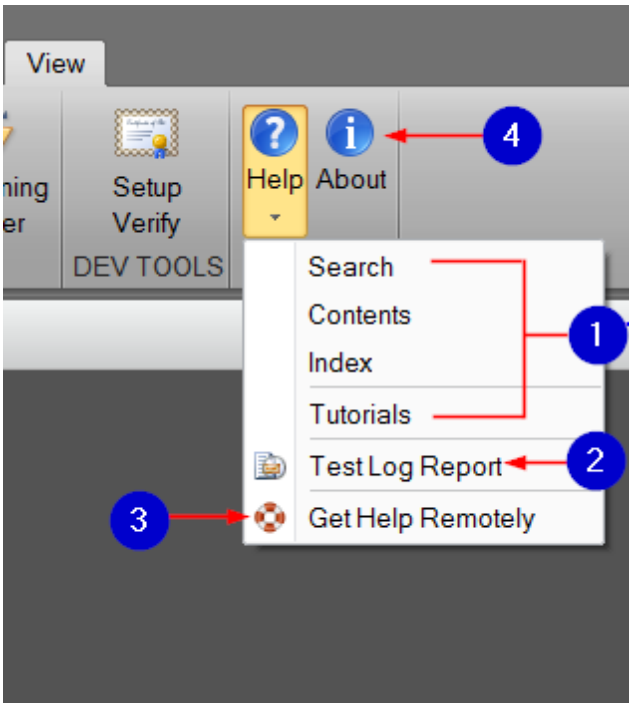
Press this button to view a list of other opened tests.

7. Containing Folder

Press this button to open the location in which the test is saved. This will be done with Windows Explorer.

8. Help

The options under this button are explained below.



The following information corresponds to the image displayed above.

1. Search/Contents/Index/Tutorials

Press "Search," "Contents," "Index," or "Tutorials" to open the manual for help.

2. Test Log Report

Press this button to display the events that occurred with this test. You may be asked to send this test to hmts@humboldtmfg.com if you are experiencing technical difficulties.

3. Get Help Remotely

Humboldt can help you remotely with Humboldt QuickSupport. You must have an internet connection and the tool must be left open to receive remote support. You will be prompted to "Run" or "Save" the application; click "Run."

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Humboldt cannot access your computer without your confirmation.

4. About

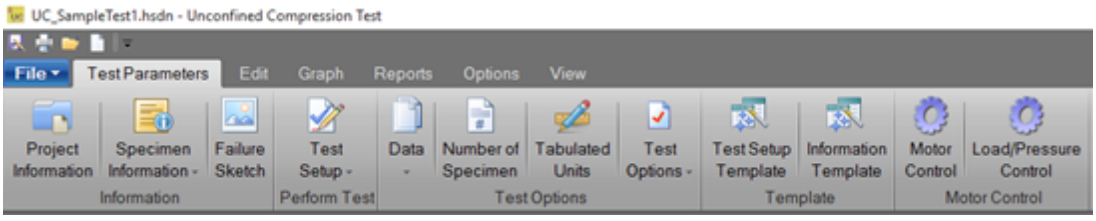
Press this button to view information about the test module.

For information regarding the "Test Log" feature that is available under this tab for other tests, please refer to the corresponding section of this manual.

19 Unconfined Compression Test

19.1 Test Parameters

When a Unconfined Compression Test is opened, the "Test Parameters" tab will be the first display of options that you see. This screen will appear similar to the screens of other tests. For your convenience, details for most of these options can be found on the "Test Parameters" section of this manual. Individual links for each section can be found below.



19.1.1 Project Information

Information about this screen can be found in the "Project Information" section of this manual.

19.1.2 Specimen Information

Information about this screen can be found in the "Specimen Information" section of this manual.

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19.1.3 Failure Sketch

Information about this screen can be found in the "Failure Sketch" section of this manual.

19.1.4 Test Setup

For information on the "Test Inputs, "Logging," and "Trigger" screens, go to the "User Defined Test" section of this manual. Information on the "Stop" and "Motor" screens can be found below.

(insert picture after typo is correct)

Stop

The following information corresponds to the image displayed above.

1. Percent Strain

This refers to the strain percent at which you would like the test to stop.

2. Percent Drop of Maximum Deviator Stress

This refers to the percent drop of maximum deviator stress at which you would like the test to stop.

Warning: If the test is closed, the deviator stress stop will not be evaluated as a stop condition.

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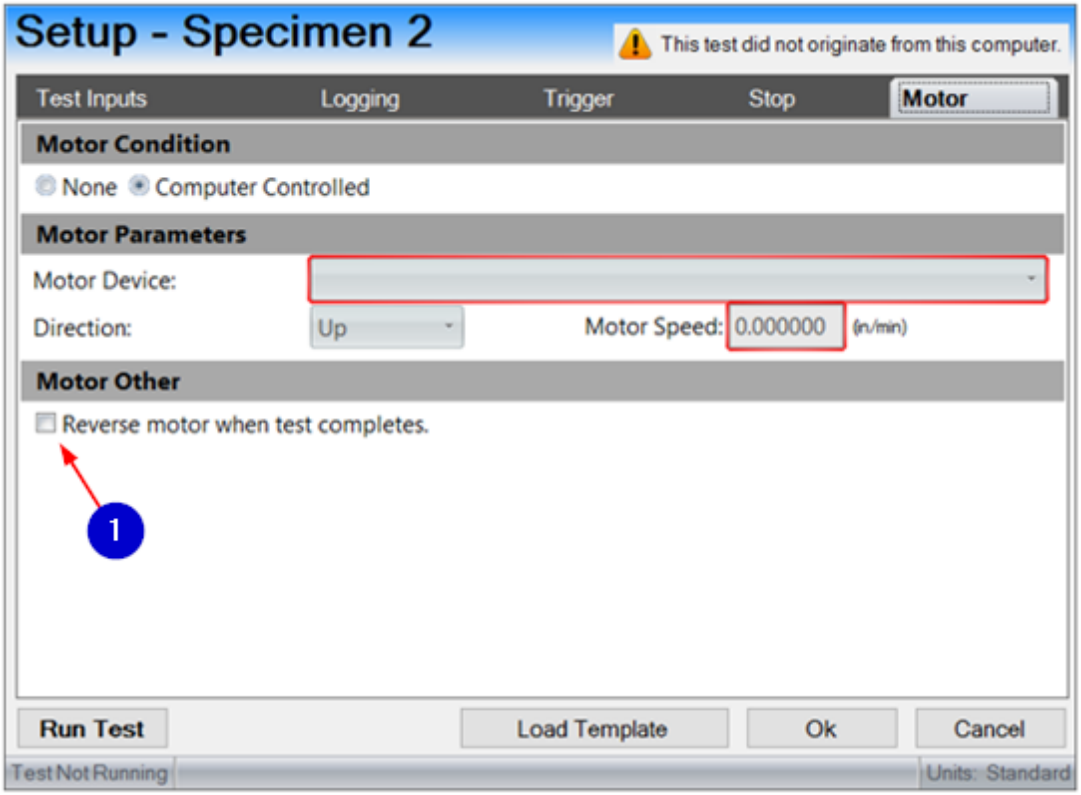

The following information corresponds to the image displayed above.

1. Reverse Motor when Test Completes

Check or uncheck this box to enable or disable this feature.

*For a description of the other motor features, go to the "Motor" section of this manual.

19.1.5 Data

Information about this screen can be found in the "Data" section of this manual.

19.1.6 Number of Specimen

Information about this screen can be found in the "Number of Specimen" section of this manual.

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19.1.7 Tabulated Units

Information about this screen can be found in the "Tabulated Units" section of this manual.

19.1.8 Test Options

Information about this screen can be found in the "Test Options" section of this manual.

19.1.9 Test Setup Template

Information about this screen can be found in the "Test Setup Template" section of this manual.

19.1.10 Information Template

This is where you can set up information parameters for testing. The "Information Template" functions the same way as the "Test Setup Template." Refer to this section of the manual for more information.

19.1.11 Motor Control

Information about this screen can be found in the "Manual Motor Control" section of this manual.

19.1.12 Load/Pressure Control

Information about this screen can be found in the "Load/Pressure Control" section of this manual.

19.2 Edit

Information about this screen can be found in the "Edit" section of this manual.

19.3 Graph

Information about this screen can be found in the "Consolidation Test" section of this manual.

19.4 Reports

See the "Consolidation Test" section of this manual for information about the "Custom Report" option. Information about the other "Report" screen options can be found in the "Reports" section of this manual.

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19.5 Options

For information about the "Create Default Units" feature, please see the appropriate section of this manual. View the "Options" section of this manual for information on all "Options" features.

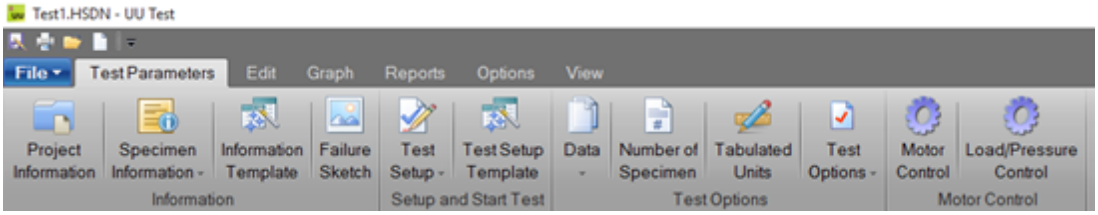
19.6 View

Information about this screen can be found in the "View" section of this manual. An explanation of the "Test Log" option can be found in the " Consolidated Tests" section of this manual.

20 Unconsolidated Undrained Test

20.1 Test Parameters

When an Unconsolidated Undrained Test is opened, the "Test Parameters" tab will be the first display of options that you see. This screen will appear similar to the screens of other tests. For your convenience, details for most of these options can be found on the "Test Parameters" section of this manual. Individual links for each section can be found below.



20.1.1 Project Information

For "Project Information" details, please refer to the corresponding section of this manual.

20.1.2 Specimen Information

For "Specimen Information" details, please refer to the corresponding section of this manual.

20.1.3 Information Template

For "Information Template" details, please refer to the corresponding section of this manual.

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20.1.4 Failure Sketch

For "Failure Sketch" details, please refer to the corresponding section of this manual.

20.1.5 Test Setup

For information on the "Test Inputs, "Logging," and "Trigger" screens, go to the "User Defined Test" section of this manual. Information on the "Stop" and "Motor" screens can be found in the "Unconfined Compression Test" section of this manual.

20.1.6 Test Setup Template

For "Test Setup Template" details, please refer to the corresponding section of this manual.

20.1.7 Data

For "Data" details, please refer to the corresponding section of this manual.

20.1.8 Number of Specimen

For "Number of Specimen" details, please refer to the corresponding section of this manual.

20.1.9 Tabulated Units

For "Tabulated Units" details, please refer to the corresponding section of this manual.

20.1.10 Test Options

Please see the "Test Options" section of this manual for more information.

20.1.11 Motor Control

This allows the option to manually control an attached devices motor. For more information, please visit the "Manual Motor Control" section of this manual.

20.1.12 Load/Pressure Control

Please see the "Load/Pressure Control" section of this manual for details.

20.2 Edit

Information about this screen can be found in the "Edit" section of this manual.

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20.3 Graph

Information about this screen can be found in the "Consolidation Test" section of this manual.

20.4 Reports

See the "Consolidation Test" section of this manual for details about the "Custom Report" option. For information about the other options, please see the "Reports" section of this manual.

20.5 Options

For information about the "Create Default Units" feature, please see the appropriate section of this manual. View the "Options" section of this manual for information on all "Options" features.

20.6 View

Most of these options are explained in the the "View" section of this manual. Other options are explained in the "Consolidation Test" section of this manual.

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