PS

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Pressure Testing Software User Guide

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Precision Pressure Testing Software User Guide

1.0 Navigating the Software

1. Graph Area

   Main screen area that has graph of recorded pressure vs. time taken from reading of the pressure sensor.

   a. *Time axis*

      Time is auto scaled as the graph moves with a HH:MM:SS display at each tick mark

   b. *PSI axis*

      Pressure is scaled in the general settings menu with Min Scale and Max Scale
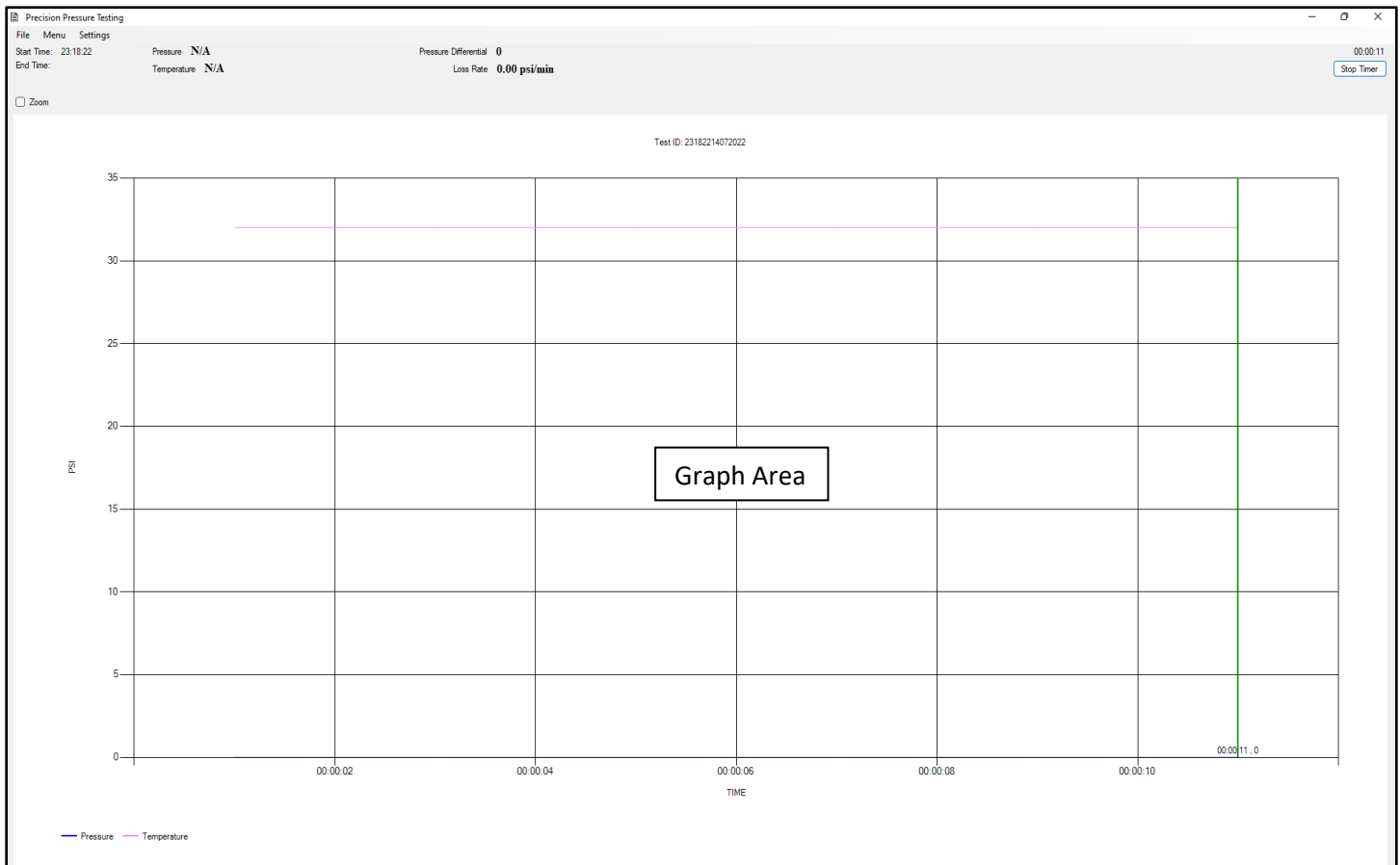
   c. *Test ID*

      An auto generated number that is used to reference the test

   d. *Current pressure/time annotation*

      Green vertical line showing the current time/pressure

   e. *Test analysis pressure/time annotation*

      Green vertical line showing the time/pressure (x) minutes ago based on the test criteria entered in the general settings window.
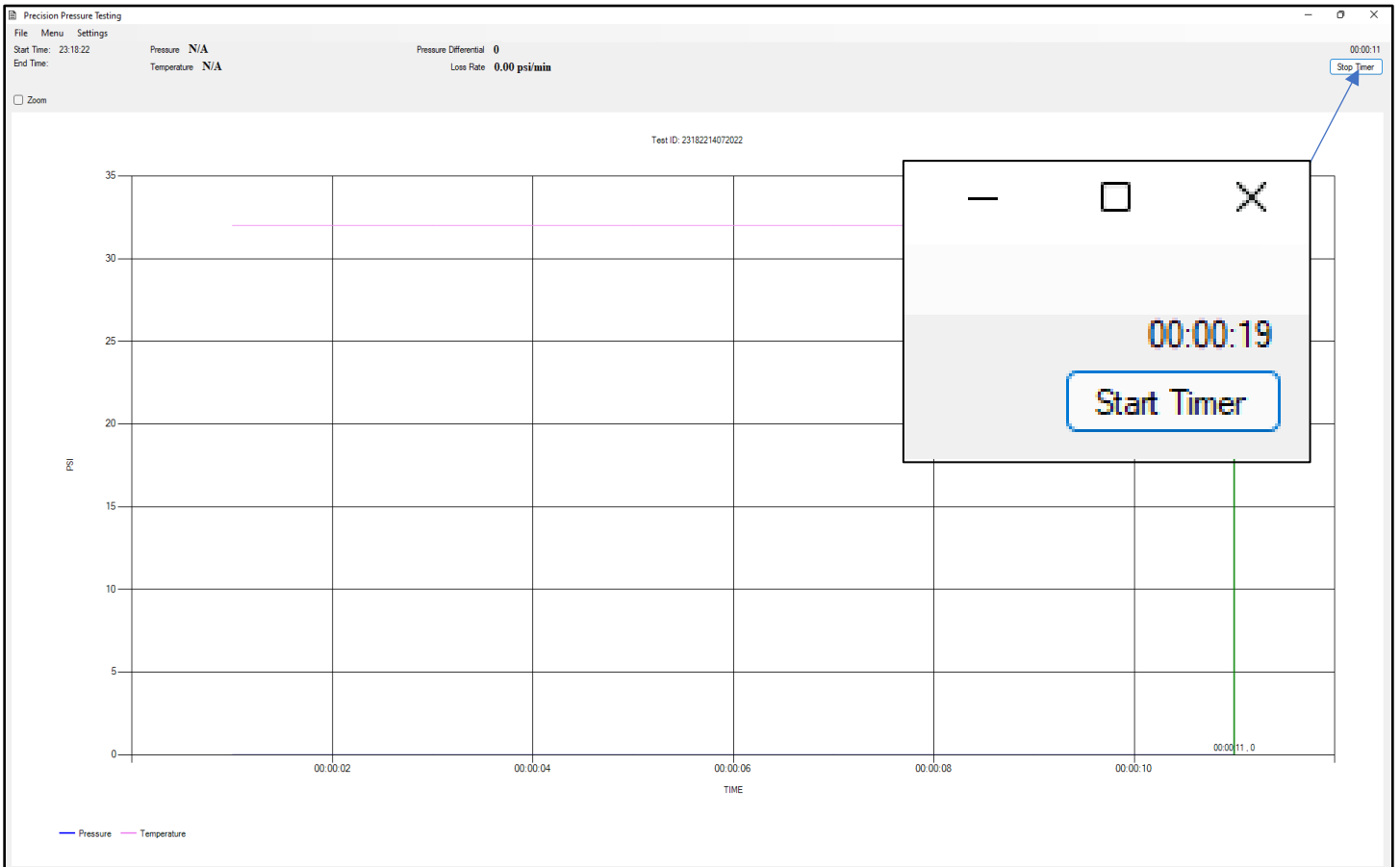
2. Timer Display

Displays the relative time of the test being conducted once the start/stop button is pressed. The timer will return to zero once a new test is started.

   a. *Timer display*

      Shows relative time of test in HH:MM:SS format.
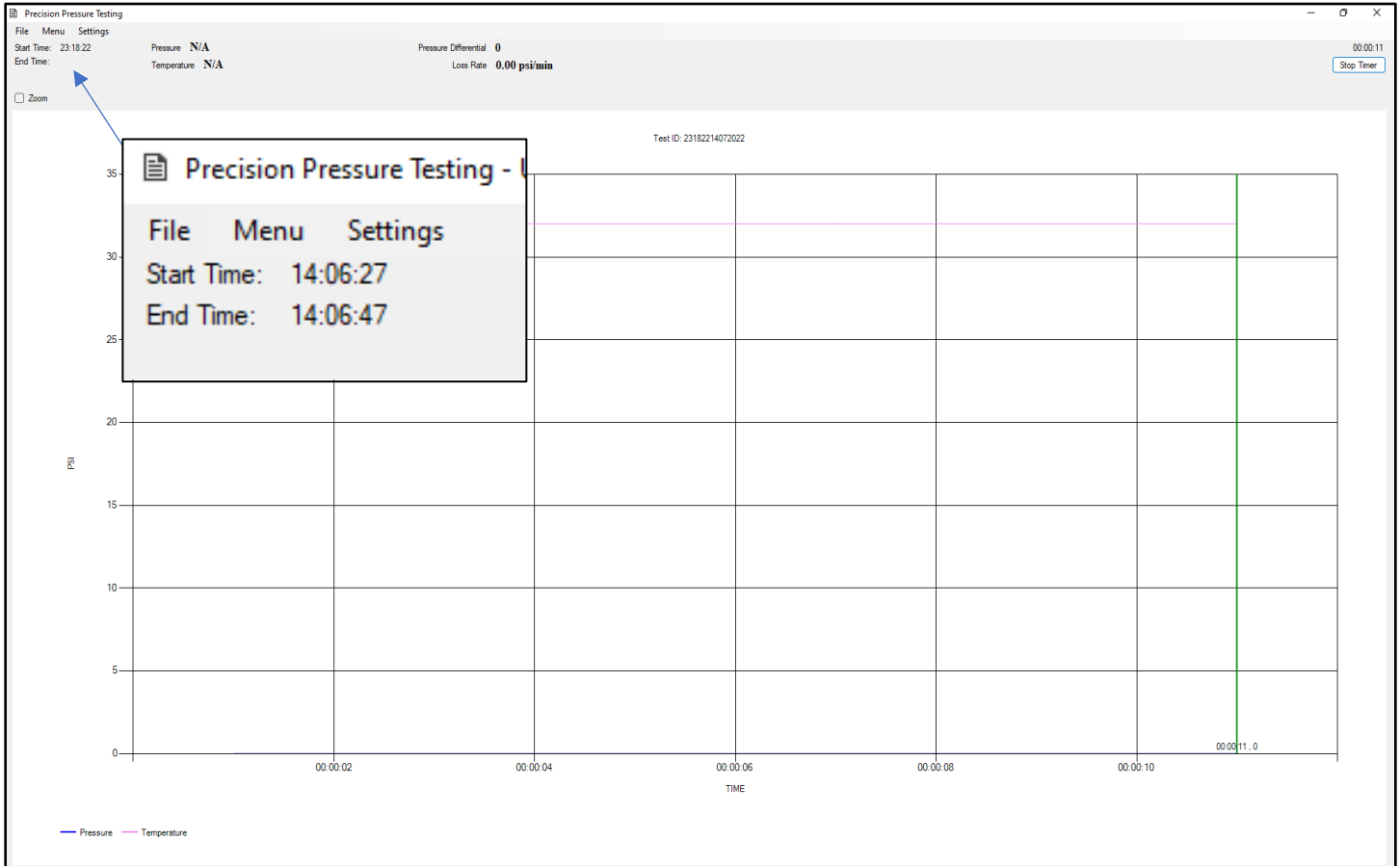
3. Start Time / End Time Display

Displays absolute time when test starts and stops. Resets when a new test is started.

a. *Start Time*

Display absolute time test was started in HH:MM:SS format

b. *End Time*

Display absolute time test ended in HH:MM:SS format

4. Pressure Drop Display

Displays in real time the pressure drop/pressure increase to help the operator know if a test is improving or help to indicate a leak.

    a. Pressure drop

The number is calculated once every 5 seconds based on the current leak rate or build up rate of the pressure being applied to the system over time.

    b. Reading drop rate

A negative number approaching zero would indicate that the test is improving and achieving that "leveling out" period where the test can be approved. A positive number shows that the pressure is increasing during "pump up".
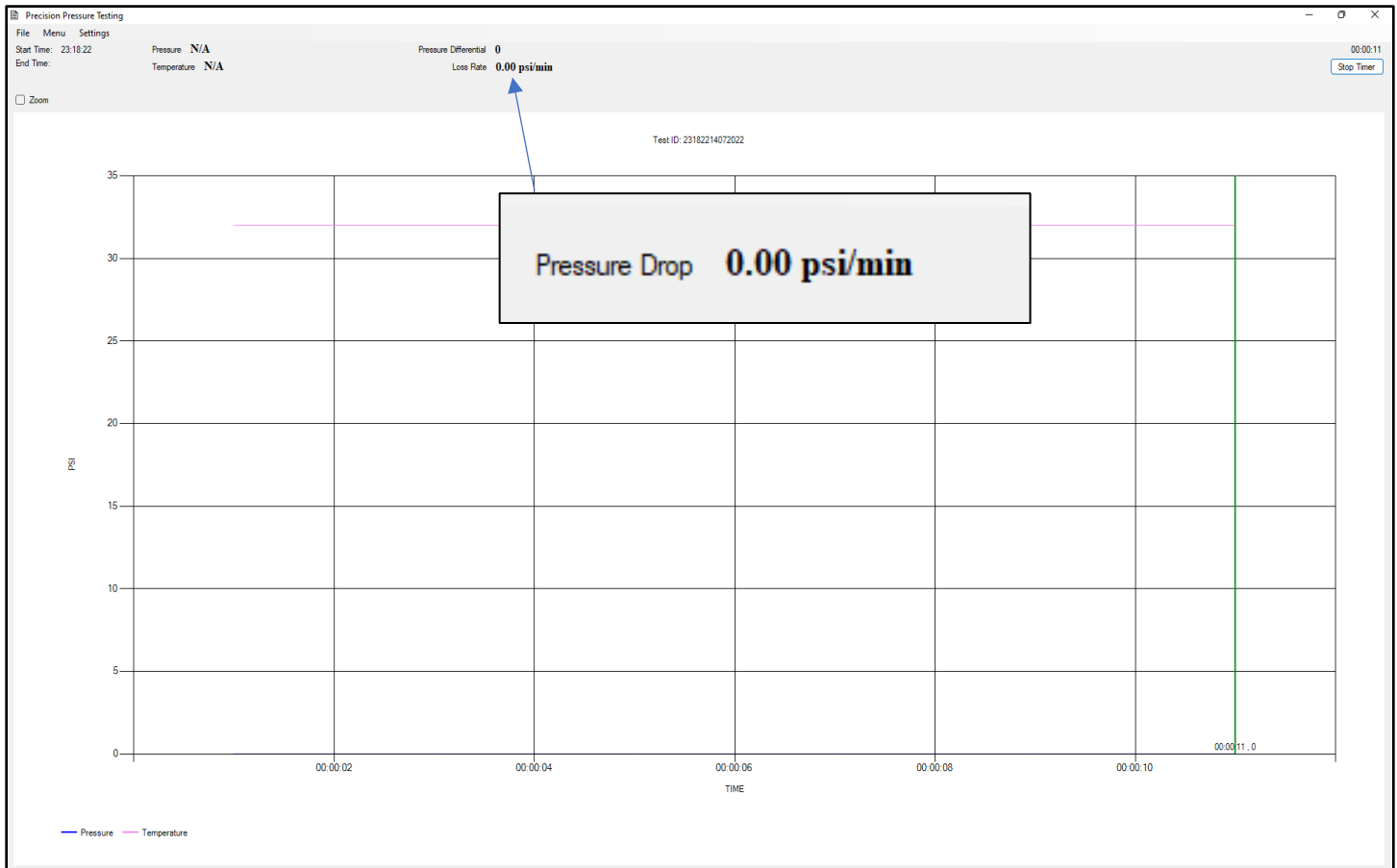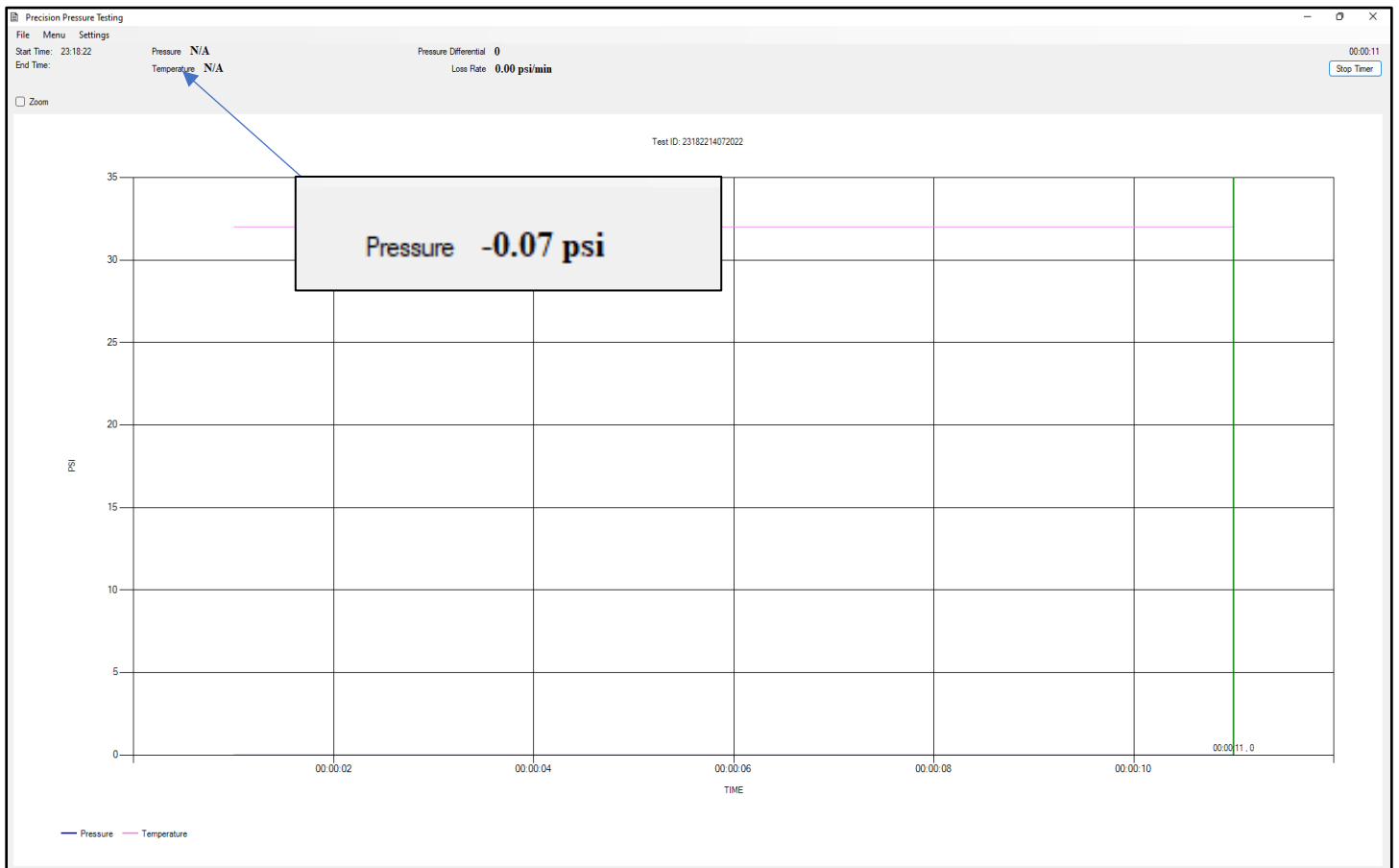
5. Current Pressure Display

Displays the current pressure on the transducer.

a. *Pressure display*

Shows current pressure applied to the transducer, this number updates no matter if a test is running or not.

6. Pressure Differential Display

Display the difference in pressure between current pressure and what the pressure was (x) minutes ago. X being the number used as the criteria for the test analysis feature.

a. Pressure Differential Use

This display will not show until the time (x) entered in general settings has lapsed. It displays the pressure difference between the two green line annotations.
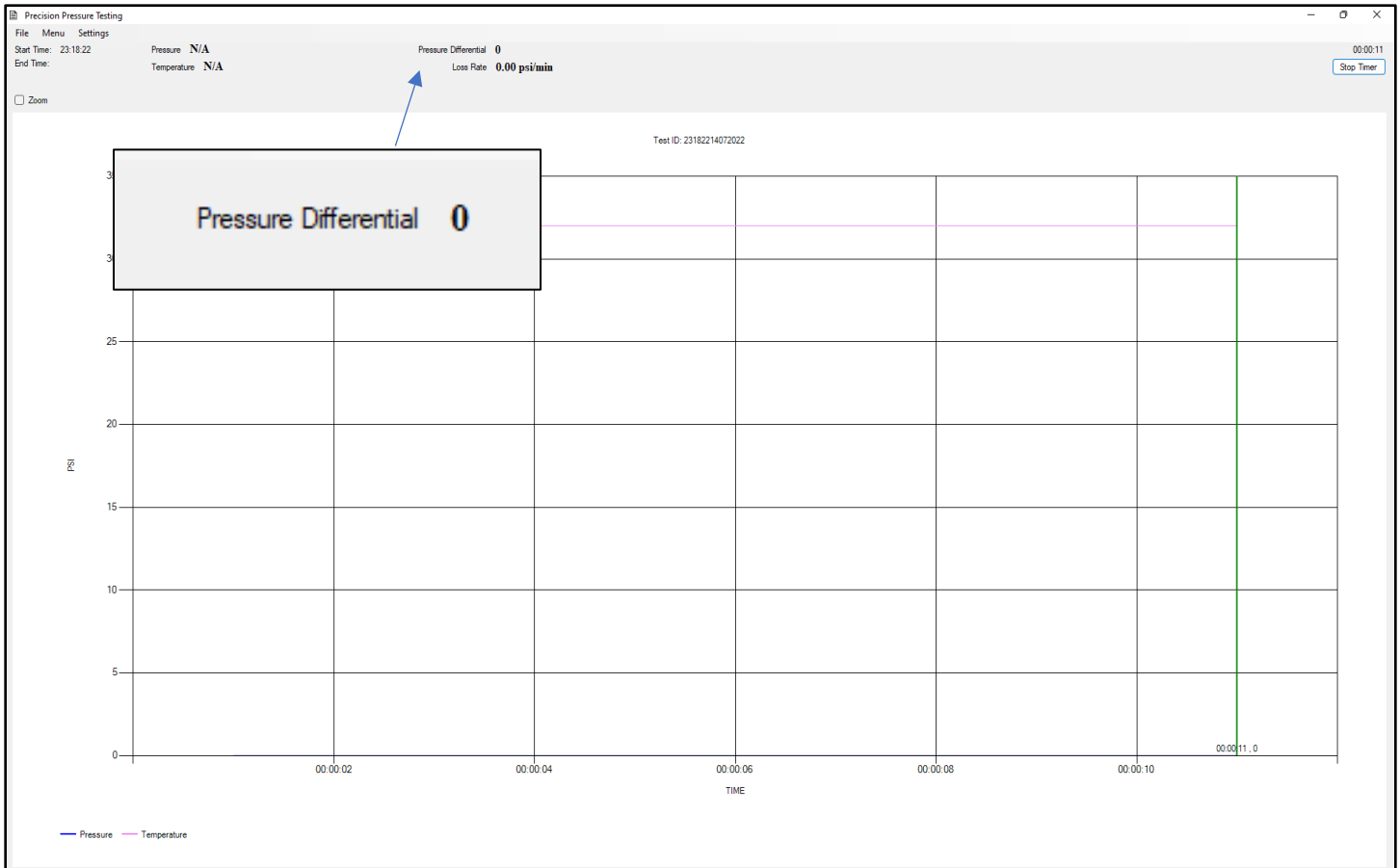
7. Start/Stop Timer Button

Starts and stops timer and begins running the pressure test, until this button is pressed the software is not logging pressure values.

a. Timer Button Use

The timer start/stop button will start a test by logging the pressure data over time. When a test is complete and either pass or fail is achieved clicking the button again will stop the logging of the data but leave the graph showing the pressure test. At this point the operator can open the generate report button to make a test certificate. After a test certificate is made clicking the button once again will clear the graph and all timer displays to start a new test.
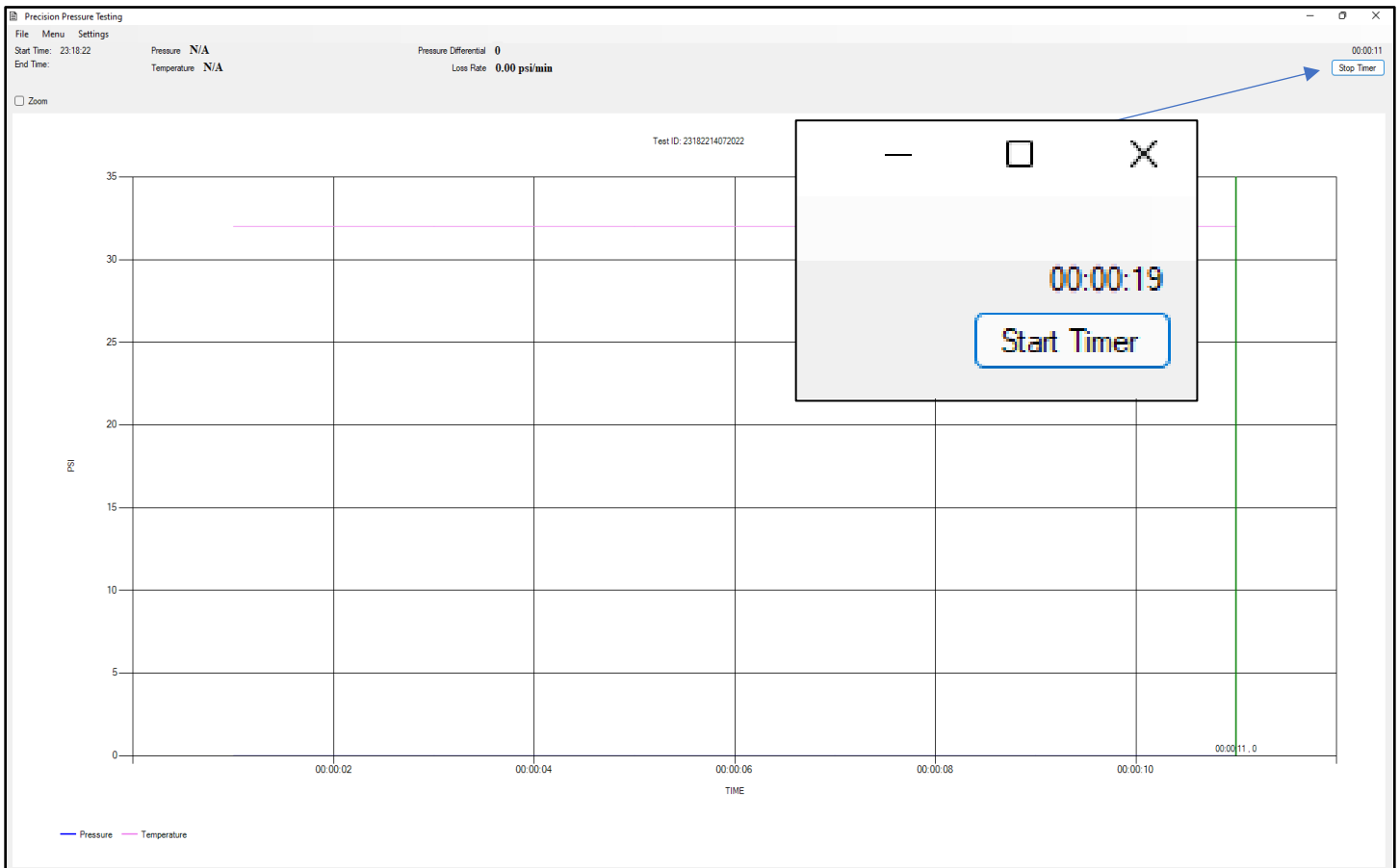
8. Generate Report

Opens the window to create a report after completing a pressure test.
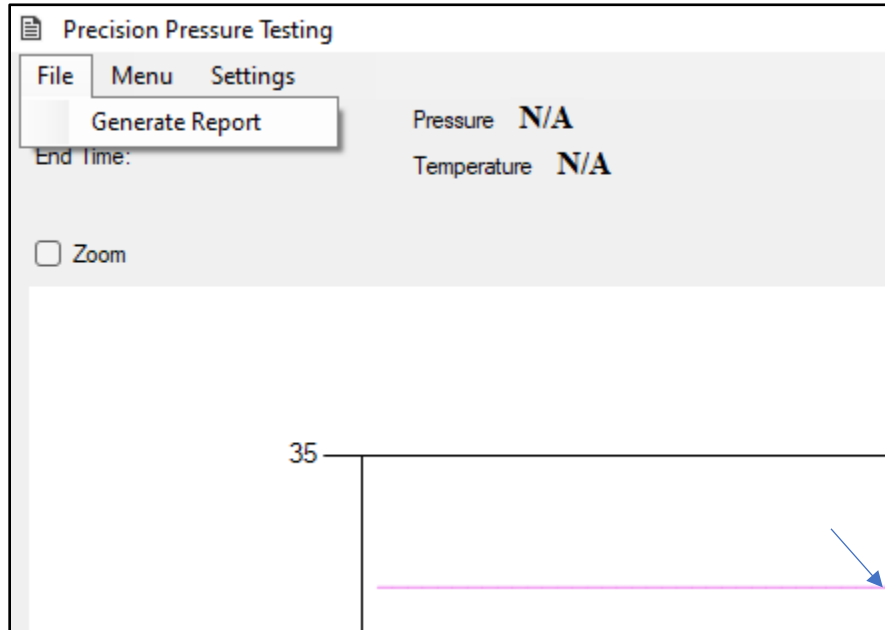
a. *Test Information*

Test information like TestID, Test Date, Start Time, End Time, Test Result, Summary, and Pressure drop are all pulled from the main screen and displayed here to ensure operator is satisfied with the test before proceeding to make a certification.
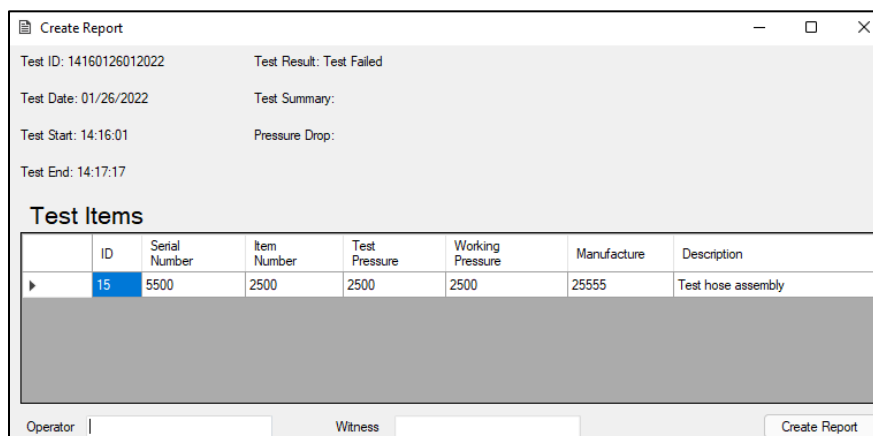
b. *Test Items*

Test item data is pulled from the Test Items Window and displayed here to show the operator what the certificates will be made for. Each item in the Test Items table will get a certificate.

c. *Operator/Witness*

A text field for entering the operator and witness (if applicable) that performed or witnessed the test being performed.
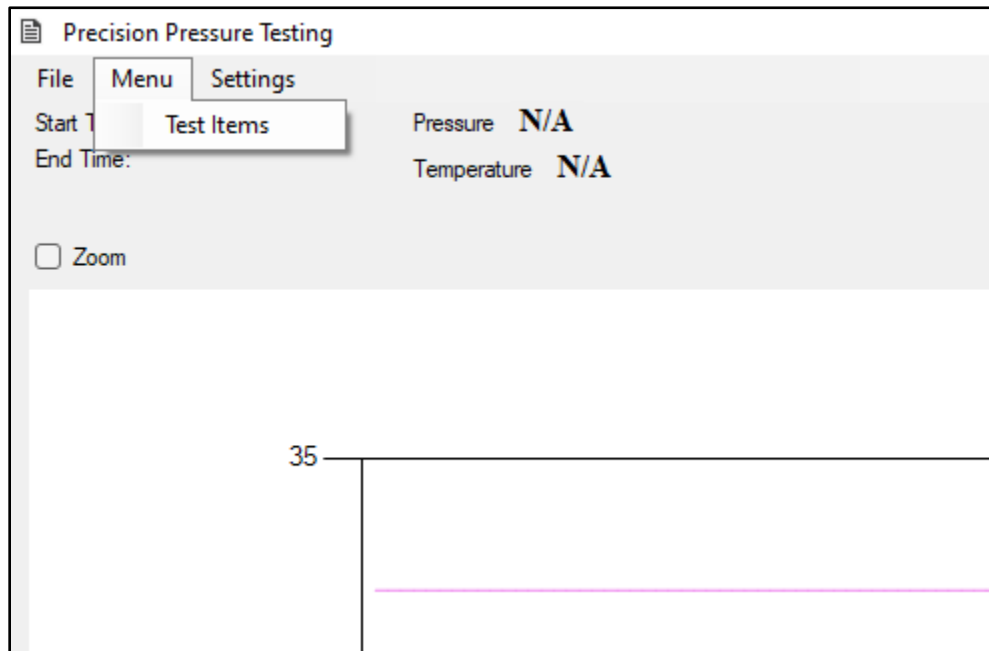
d. *Create Report Button*

Creates the certificates for the test items, window automatically closes when complete.

9. Test Item Window

Window to Add/Delete/Recall items being tested during pressure test.

a. *Test Items Table*

Information about items being tested are entered here, each column name can be customized in the table settings window to better fit each companies testing processes.

b. *Test Items Text Box*

Each column has an associated text box for entering data into, once complete the ADD button will move the information to the table and clear the boxes. If testing a similar item the operator can click on the row in the table to copy and the text boxes will be repopulated and changes can be made. Delete will clear a row and Clear Table button will delete entire table.

c. *Tested Table*

The bottom table shows items previously tested using the software, clicking on a row of a tested item will populate the text boxes with that data and it can be added to the Test Items table.
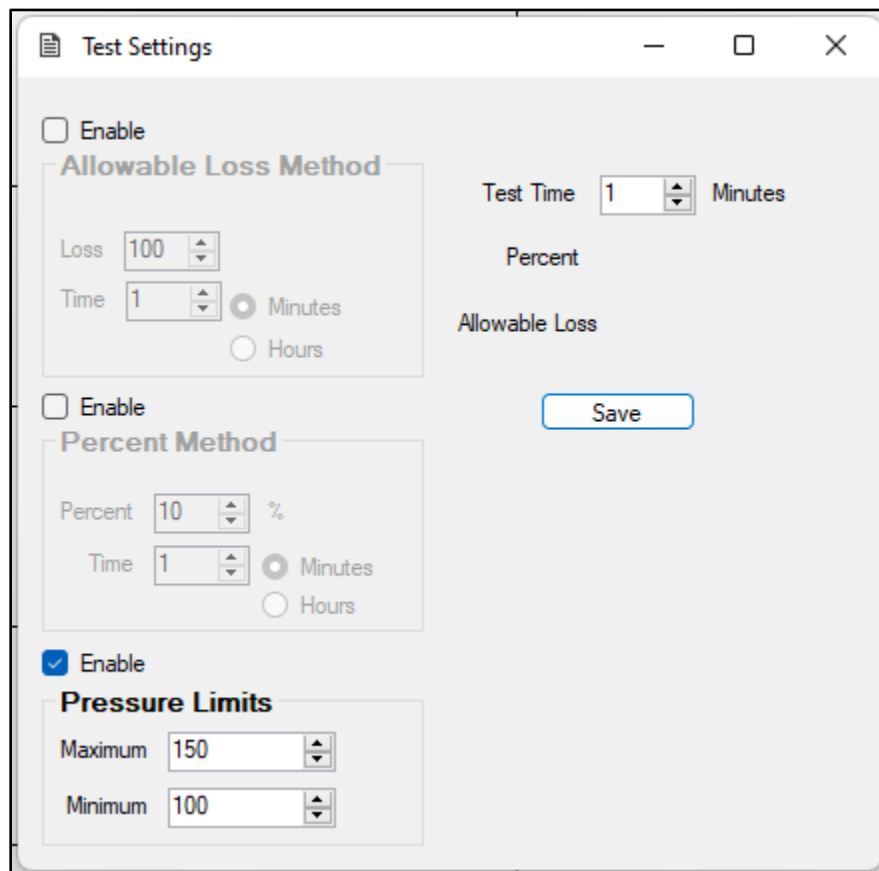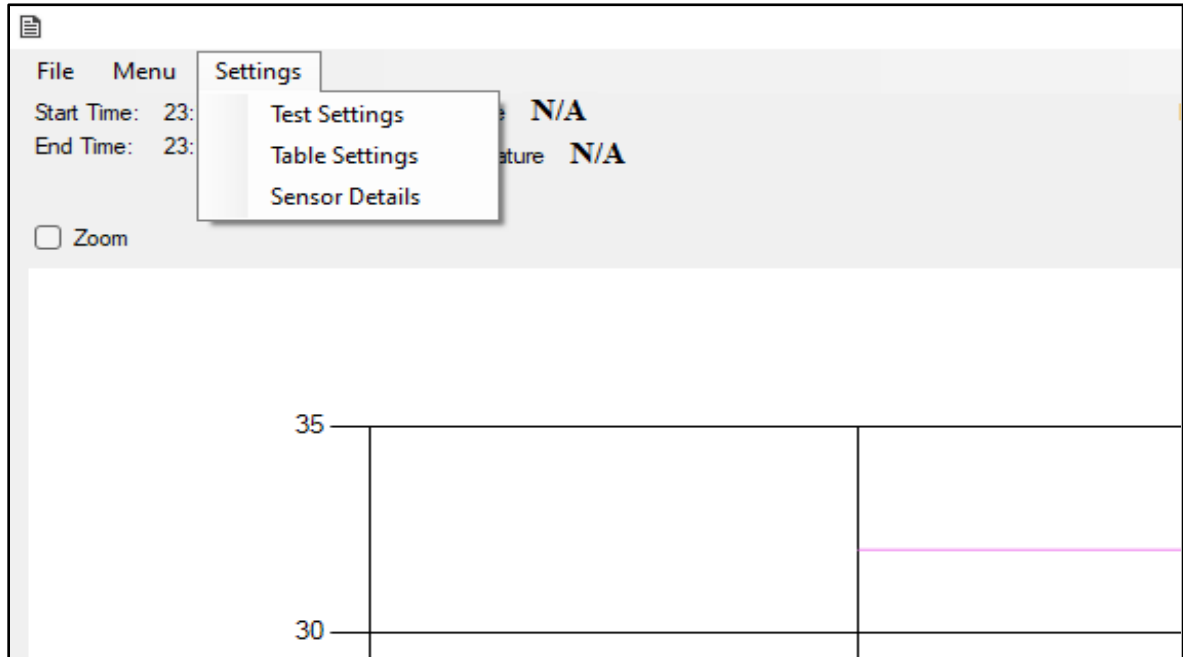
d. *Search Box*

The search box is used to search previously tested items, each field is searchable.
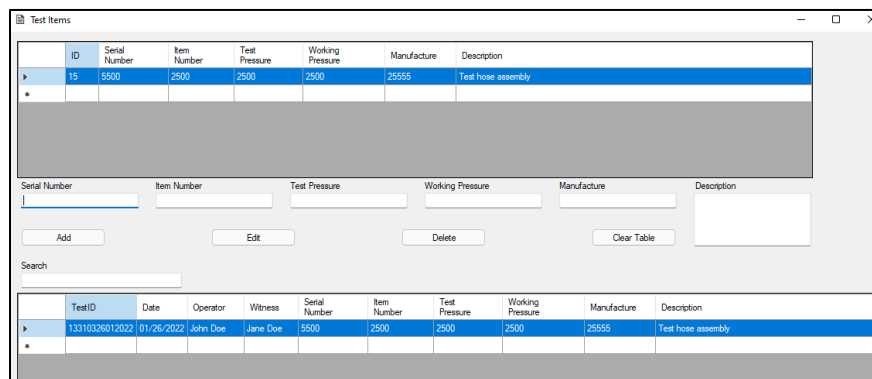
10. Test Settings Window

Window where changes to software settings can be adjusted.

a. *Allowable Loss Method*

Test criteria based on an allowed loss, for example if your test procedure calls for no more than a 50 psi drop in 5 minutes you would check the enable box and enter that information here. Unchecking the enable box turns this feature off.

b. *Percent Method*

Test criteria based on a percent of test pressure loss, for example if you test procedure calls for no more than a 5% drop in 5 minutes you would check the enable box and enter that information here. Unchecking the enable box turns this feature off.

c. *Pressure Limits*

This changes where the cursors on the screen are to give operator a visual reference, if enable this also mean that the pressure line must be within the maximum and minimum limits entered. Unchecking the enable box turns this feature off.

d. *Test Time Input*

Because some procedures call for a different leak rate than what the actual test time could be we have the software configured to calculate the correct rate for you. For example, a test procedure may call for a 50 psi drop over 15-minute interval but a test time of only 5 minutes. The software will calculate the amount of pressure than can be loss in the 5-minute test window based off the criteria entered.
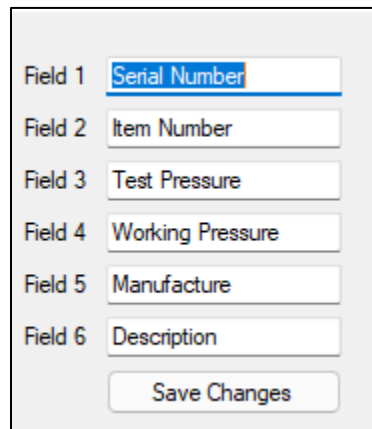
11. Table Settings Window

Window where test item table header names can be customized by the user.
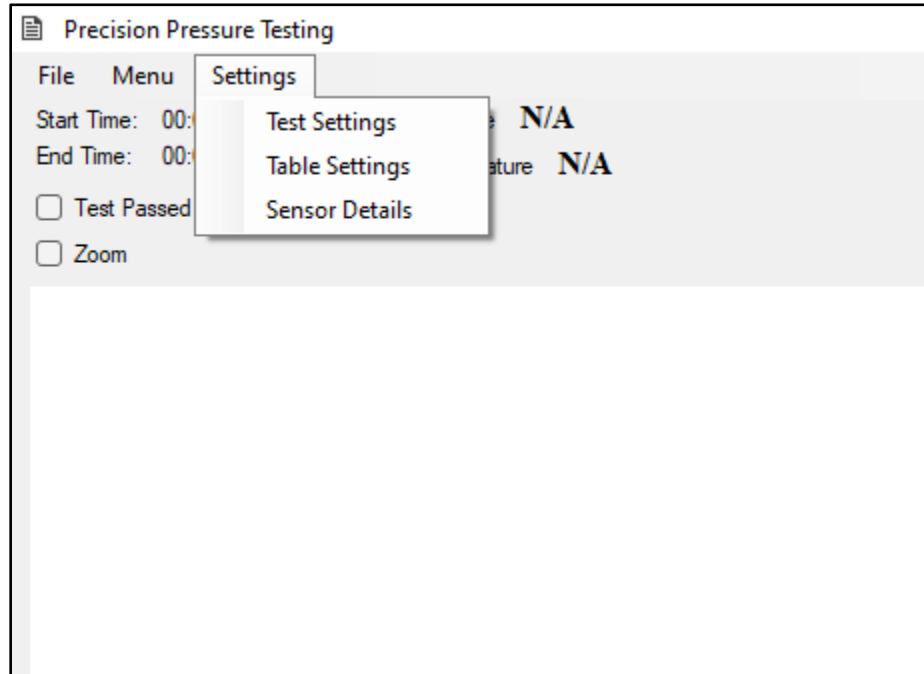
a. Field Values

The table has 6 available fields, the fields are changed here to the operator's preference.
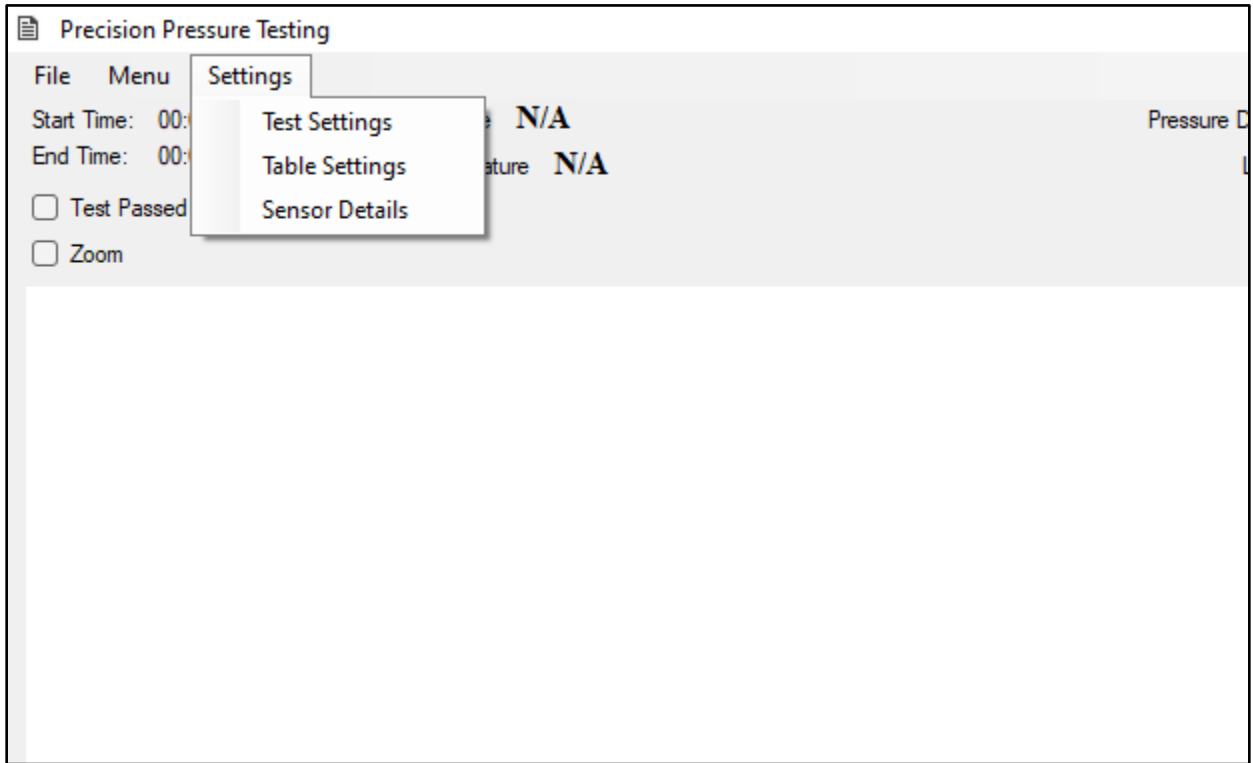
12. Sensor Settings Window

Window for viewing the sensor name, sensor model, serial number, and calibration date of the sensor. The operator changes the name and calibration date of the sensor as needed.

a. *Sensor Name*
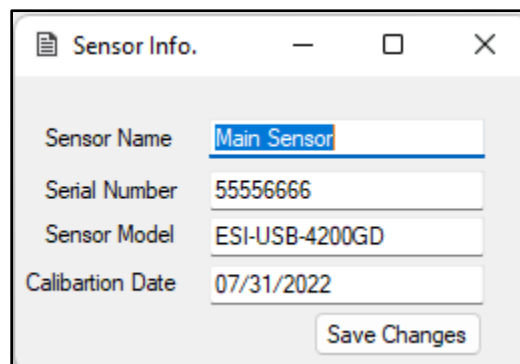
Name for the sensor being used.

b. *Sensor Model*

Model of the sensor being used.

c. *Serial Number*

Serial number of the sensor being used.

d. *Calibration Date*

Calibration date of the sensor being used, this information is to be edited by the operator as needed when a transducer is calibrated.

13. Test Software File Structure

a. Test Certificates

Test certificates are saved on the desktop in a folder names Test Files. Each time a test is saved the software creates a folder named after the first item in test items. In the example below the first field is named Serial Number. Inside this folder is every test certificate for that Serial Number. If a new test is done with the same serial number, the new test certificate is saved in there.

b. Test Logs

Inside the Test Files folder on the desktop is another folder named Test Logs inside of there are folders named by TEST ID which is automatically generated by the software. Each test has a unique TEST ID. Inside the TEST ID folder is a copy of the picture of the graph used to make the test certificate as well as a .txt file which has a log second by second of the pressure and temperature with a time stamp.
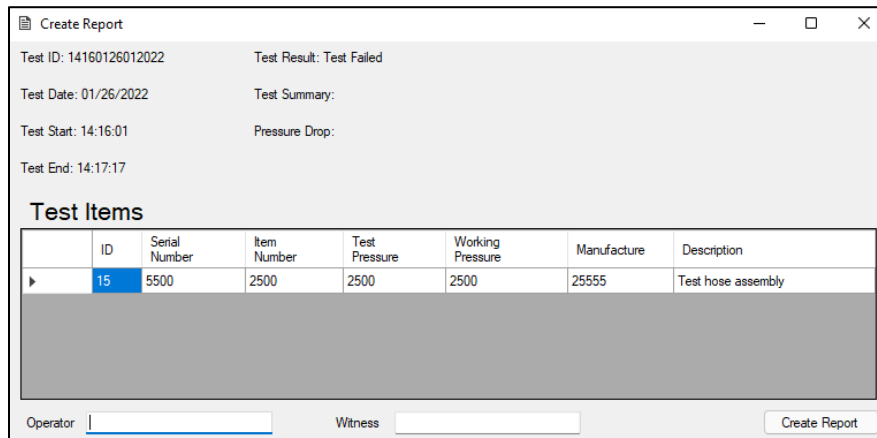
14. Changing Test Certificate Logo

To change the test certificate logo to your own company logo. Navigate to the folder named Test Files located on the Desktop. Inside there is a folder named logo with a default logo for Precision Instruments & Controls, LLC. Place your company logo inside this folder and rename it logo with a .png file extension and delete the old default logo.

15. Quick Start Pressure Testing Guide
1. *Open the program*
    Locate the shortcut on the desktop for the Precision Pressure Testing program.

2. *Start Reading*
    Click the start button to begin sampling data from the sensor.

3. *Entering test data*
    Navigate to Menu Tab→Test Items to open the test item window and enter information about the equipment being tested.   Hit add and close when finished.

4. *Adjust Test Analysis Parameters*
    Navigate to Settings Tab →Test Settings to open settings window. Enter test parameters as per company policy. Both the max and min pressure as well as drop percentage over time are considered when calculating a pass/fail test.

5. *Start Timer*
    Click the start timer button to begin logging data and run the graph of the pressure test.   The graph will run, and you can begin adding pressure to the system. The cursors showing max and min pressure will be visible as a visual aid to stay in between for a passed test. Only one green vertical line will be visible at the beginning of the test until the time entered in general settings has allotted. At this point a second green line will be visible at current time – allotted time.   This is where the test analysis is calculated, this window is a moving window and constantly looks for passing parameters based on the information provided in general settings. Once test has settled a check box saying test passed will appear at the bottom of the screen and once satisfied the operator can check test passed and the window between the green vertical lines will stop moving. It is at this point the operator can bleed to zero.

6. *Stop Timer*
    Once satisfied with results operator can click the stop timer button to stop running the graph.

7. *Generate Report*
    The generate report button can be clicked opening the window for reporting, operator can look over all the test information previously entered for equipment tested as well as pass/fail results. Test items can also be added in the Test Item window if necessary, at this point. Enter the operator and witness name (if applicable) and click generate report. The software will generate a separate certificate for each item in the test item table. Good practice is to verify that the certificates were created by looking for them in the file system. Once verified that the test certificates where made, operator can click start timer once again if need to start a new test.