SMD Torque to Spreadsheet Software User Manual
— by Software Developer Huy Huynh

PC Driver Setup

Prior to attempting the full procedure detailed in this document, the first attempt to troubleshoot should be done as follows:

1. Download driver for RNDIS Ethernet Gadget. Navitate to https://www.aimco-global.com/software and click on Gen IV System Port Connectivity - Windows 10 RNDIS Driver. The driver will automatically download a Zip file to your PC's Download folder.

2. Copy and name the folder RNDIS Driver and place into Documents. Unzip folder to Documents so it has a home on the PC that can be found easily

3. Return to Device Manager (still open from Step 1). Right Click on the device the PC assigned as a COM port in the beginning.

4. Select Uninstall Device and the COM port assigned devce will be removed

5. At the top of the Device Manager screen, click on the Monitor Icon which will scan for hardware changes
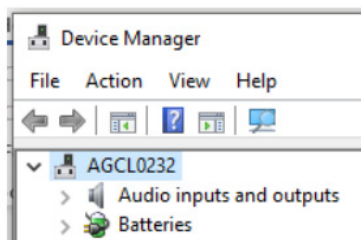
The device will now appear, depending on your PC configuration, as an RNDIS Ethernet Gadget or a COM port

6. Right click on the Device that appeared and select Update Driver

7. Click on Browse my computer for driver software

8. Click on Let me pick from a list of available drivers on my computer and Have Disk

9. Select driver from folder placed in PC Documents

10. Install driver

In Device Manager, the device should now appear as UDB Tehernet/RNDIS Gadget and connectivity will be functional.

Software Description

Torque to Spreadsheet (TTS) is an intuitive application that allows users to quickly connect to torque test stands or digital transducers through a serial or USB Cable. This application facilitates the display, collection, archiving, and processing of torque readings. For data export, TTS can launch Excel for further data analysis, reporting, and archiving.

Platform Requirements:

- Windows 7/8/10/11
- Microsoft Excel is required for Exporting Readings and Graphing Function

## Installating the Software

1. Application is installed by simply running the Torque To Spreadsheet.msi file that is provided. Please read the Readme file before extracting and running.

2. Follow instructions on screen to finish installing.

3. The Driver for Cables can be installed by running CDM21216_Setup.exe.

Please note: ONLY install the Driver for USB Cable if the software fails to recognize the cable.

Application Components

Software Modules - choose the module by selecting the desired. Details for each tab are discussed in subsequent sections.

a. Torque To Spreadsheet Tab
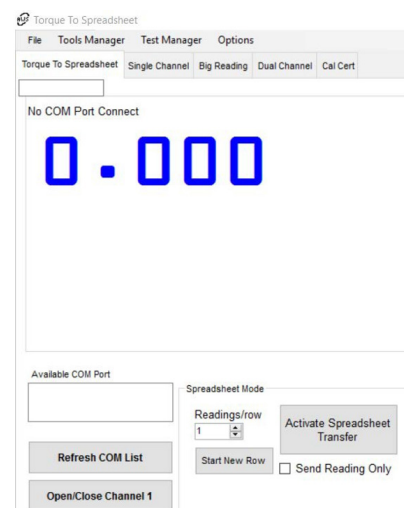
This module allows the user to export the reading from testers directly into an Excel file (works as a terminal emulator). Click on "Activate Spreadsheet Mode." Open an excel file and place mouse cursor on any cell of Excel Spreadsheet. Each reading will be exported into the Excel file where the cursor is located.

Please note: This feature currently does not work with digital transducers.
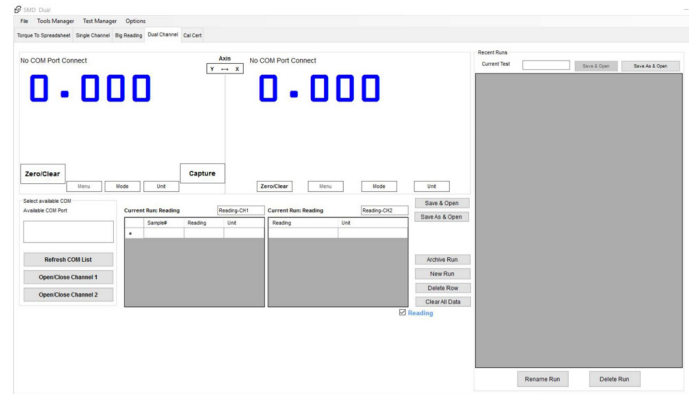
b. Single Channel Tab
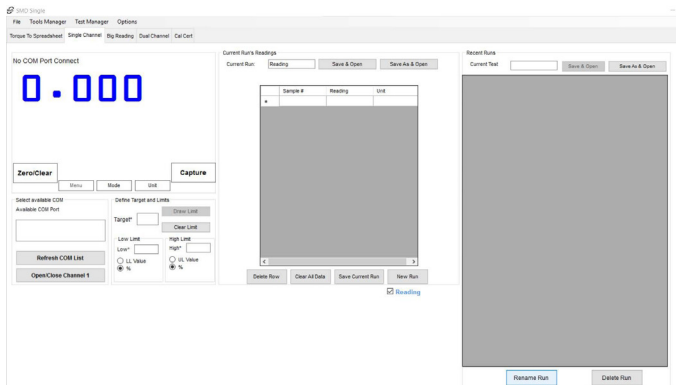
This module allows the user to take readings from one channel. User can set Target, Low Limit and High Limit, as a percentage or absolute value. Single Channel Mode also features live graphing and exporting of all data along with the graph into an Excel Spreadsheet. (User does not have to place cursor into a cell.)

c. Big Reading Tab
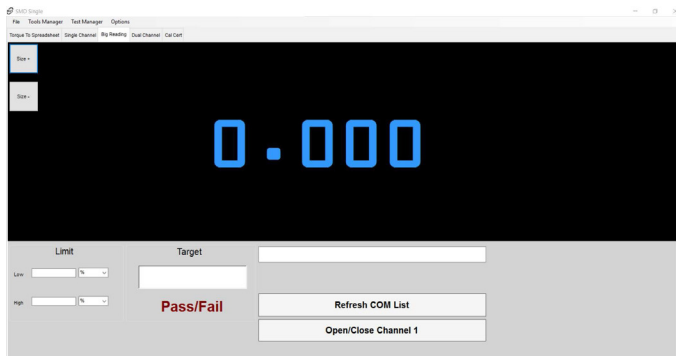
This module displays large readings for easy viewing in Single Channel mode.

d. Dual Channel Tab

This module has the same features of the Single Channel mode and allows the user to monitor and graph two channels almost simultaneously. This facilitates torque vs torque and torque vs pressures graphs.
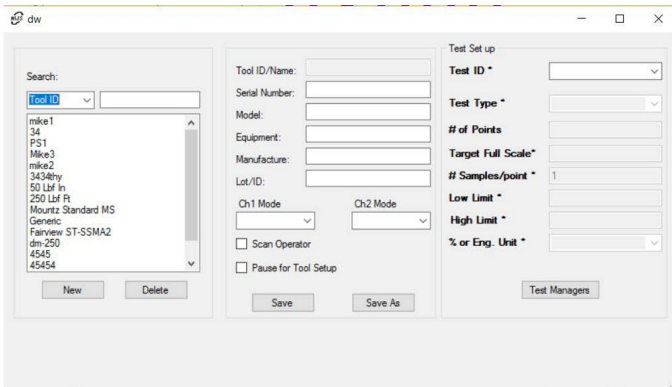
e. Calibration Tab

Calibration module allows setting up Multiple Target Points for either Single or Dual Channel Test. Export the Test To Excel or Cert Manager for creating Certification.
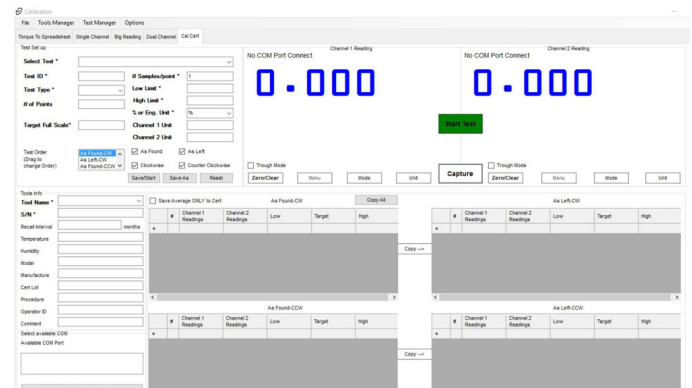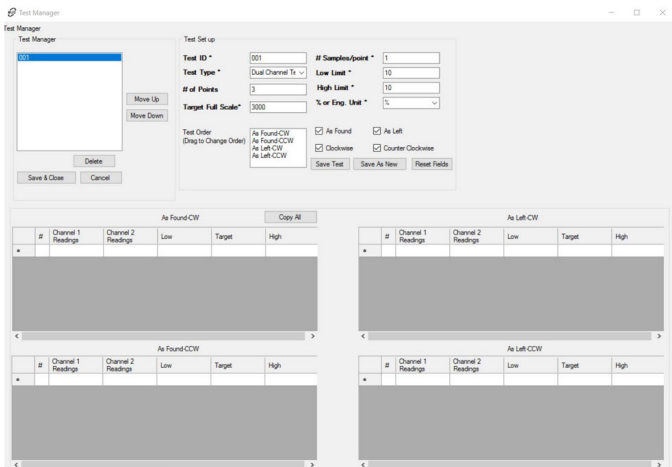
f. Tools Manager Tab

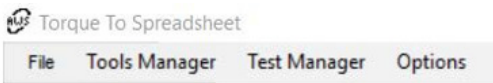This module allows the user to create or select tool files.

g. Test Manager Tab

This module allows the user to create or select Tests to be used to perform calibrations.

Software Application

The top taskbar is consistent througout the software screens

File Menu:

- **Open:** Opens pop up window for selecting directory and files.
- **Restart App:** restart application. All Current Readings will be lost.

- **Define Quick Export Path:** Define a Folder to Export Excel. This folder applies for Single Channel Quick Export, Dual Channel Quick Export and Calibration Excel Export.
- **About:** Copyright, version and contact information.
- **Exit:** exits the application.

Options Menu:

- **Always on Top:** Keep this Application on Top of other Applications.
- **Time Date Stamp:** Include Time and Date along with the Readings-only works in Torque to Spreadsheet.
- **Show ALL COM available:** only turn on this Option if the software is unable to find the connected device.
- **Enable Live Reading:** Turn on by Default. This Option shows the Reading of the Tester that is connected to the software.
- **Overwrite Data at Cursor:** only applies for Single Channel and Dual Channel mode. Turning on this option will record Reading to the Row that user is currently selecting on Grid View.
- **Force Auto-clear:** Forces the device to AutoCLR captured reading.
- **Auto Update:** If application is connected to the internet and company IT department allows the application will automatically update.
- **Check for Update:** If connected to the internet sends a query to our system for any updates.

Torque To Spreadsheet

This is the most basic application module that allows a user make use of Spreadsheet Mode.
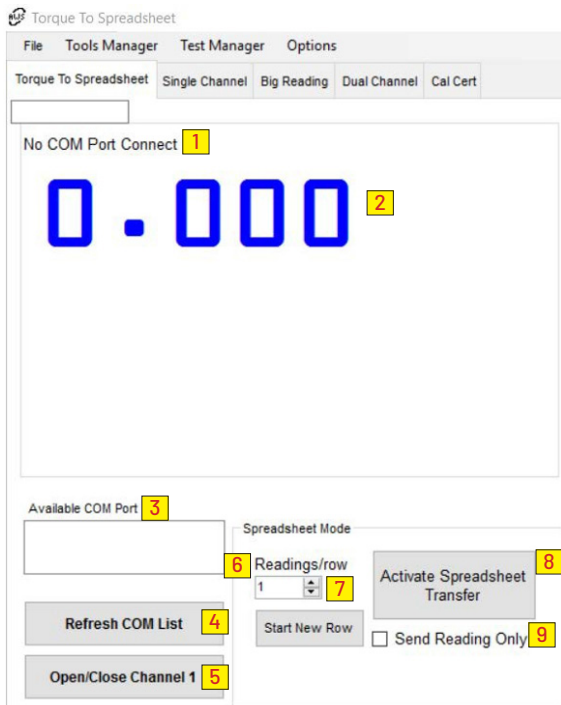
Functions

1. Shows the current COM Port connected and full scale of the tester that is connected.

2. Shows live reading and measurement units of the tester that is connected.

3. Shows list of available testers that can be connected to the TTS Application. To connect to a non-intellect tester, go to Options → Turn on "Show All COM Available."

4. Refresh available COM list.

5. Open or close Channel 1.

6. Select how many sets of Readings (per row) before the cursor moves to next row in the Excel spreadsheet.

7. Reset the Count for readings per row.

8. Start or stop Spreadsheet Mode that parses data from the tester to an Excel spreadsheet.

9. Send Reading Only. User can select Reading only or Memory Location, Reading, Engineering Unit, Date and Time if available to Excel.

Single Channel

This TTS module allows the user to define Target, Low Limit, and High Limit. This option populates captured readings into the graph using the defined Target and Limits. Exporting to Excel will also place the graph into the spreadsheet.


Functions

1. Shows the current COM Port connected and full scale of tester that is connected.

2. Shows live reading and measurement units of the tester connected. If connected to an intellect tester, the user can also control the tester using the TTS application. This is where the user can send parameter setup commands to the tester - Unit, Mode, Menu, Zero/Clear.

3. Shows list of available testers that can be connected to the TTS application. To connect to a non-intellect tester, go to Options → Turn on "Show All COM Available."

4. Refresh available COM list.

5. Open/close Channel 1 Connect or Disconnect the tester.

6. Define a target. This target applies to all readings taken in this module.

7. Define Low Limit, by selecting from % of Target or absolute limit value. This limit applies to all readings taken in this mode.

8. Define High Limit by selecting from % of Target or absolute limit value. This limit applies to all readings taken in this mode.

9. Shows the name of Current Run. User can also change the Current Run name from here.

10. Save & Open or Save As and Open exports the

Current Run readings to Excel (see image on following page). The Excel file will be saved under the Quick Export Path or destination of User's choice (See File → Define Quick Export Path).

11. Export the Current Run Readings to Excel. This option allows the user to choose the specific path to Save, instead of default to Quick Export Path.

12. This grid view shows the recorded readings for current run.

13. Delete the current row that is selected on Current Run's grid view.

14. Clear all the data in Current Run's grid view.

15. Save the Current Run Reading into Recent Run's grid view on the right.

16. New Run saves Current Run into Recent Run grid view and starts new current Run.

17. Live graph showing Target and Low/High Limits (dotted green and solid red horizontal line).

18. Similar to functions described in points 9, 10, and 11, but covers the complete test (including all the saved runs and current run).

19. Shows the readings for all saved runs.

20. User can change the names of all saved runs.

21. User can delete saved runs (Current Run cannot be deleted). To clear the current run, use the Clear All Data button under Current Run table.

Current readings exported to Excel
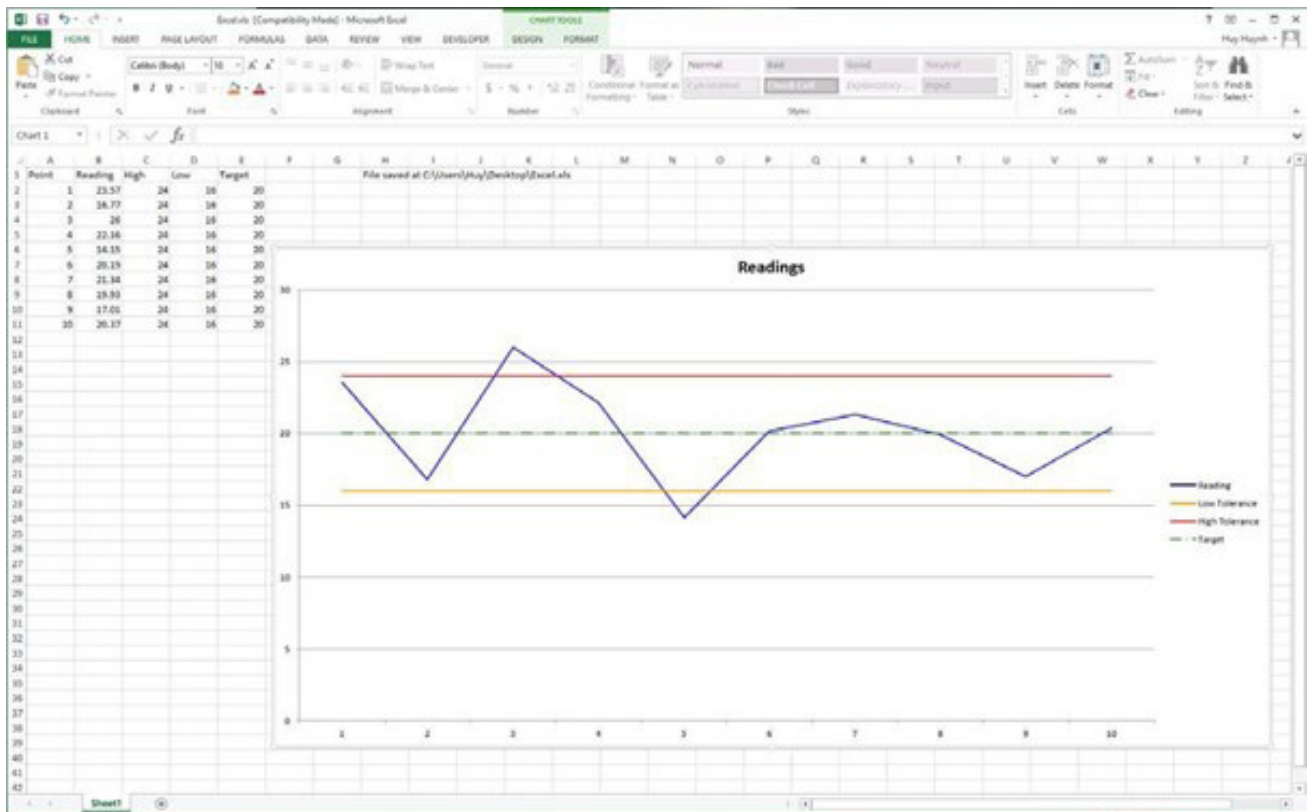
Big Reading Tab

This TTS module changes the display so that users can easily see readings and Pass/Fail when conducting a test in Channel 1. There are multiple "buttons" for Size +, Size -, Low Limit, High Limit, and Target. The display has Pass/Fail and Refresh COM List and Open/Close Channel 1 to facilitate communication.
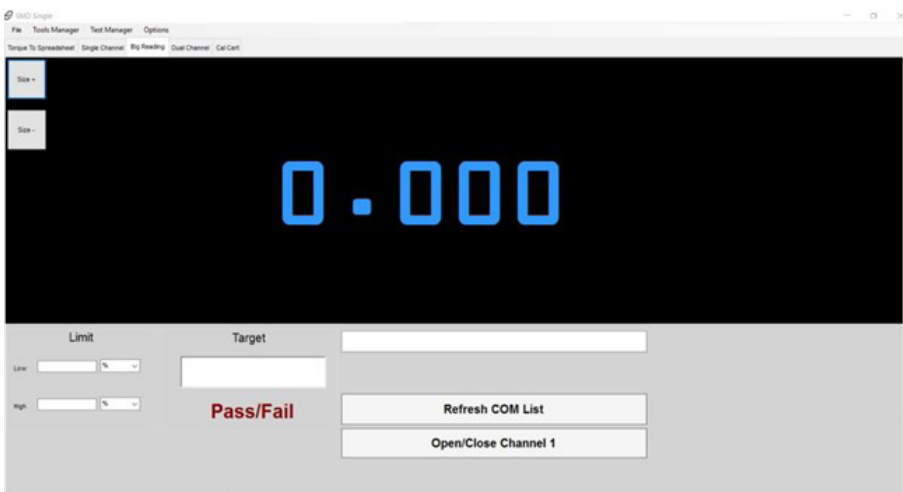
Dual Channel

This TTS module allows user to define Target, Low Limit, and High Limit in the spreadsheet just like previous module, but a user can connect up to two inputs. This option populates captured Readings into the graph using the defined Target and Limits. Exporting to Excel will also place the graph onto the spreadsheet.

*Notes:
- When both Channels are connected, pressing Enter or Capture on Channel 1 will also capture Channel 2.

- To capture Channel 2 without having to connect a tester to Channel 1, simply type in a new Reading for CH1 in the grid view.
- Each test can consist of many tuns. The default name for first run is "Reading."
- Each run consists of Channel 1 readings and Channel 2 readings. The default names for them are "Reading-CH1" and "Reading-CH2."
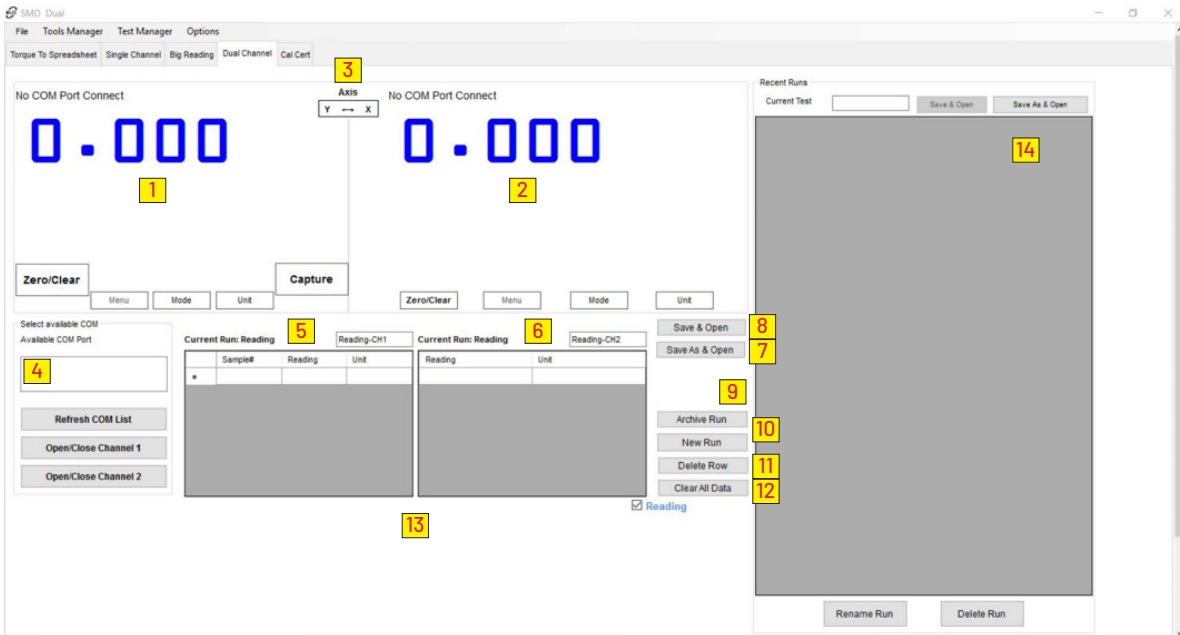
Functions

1. Shows information of tester/transducer and live reading that is currently connected to Channel 1.

2. Show information of tester/transducer and live reading that is currently connected to Channel 2.

3. Choose whether the Channel is graphed as X axis or Y axis. This setting cannot be changed after saving the first run.

4. Shows available testers/transducers that can be connected.

5. Shows Current Run reading for Channel 1, as long as the Current Run Name is selected.

6. Shows reading of Current Run for Channel 2, as long as the Current Run Name is selected.

7. Export the Current Run Readings to Excel. This

option allows user to choose the specific path to Save instead of defaulting to Quick Export Path.

8. Export the Current Run Readings to Excel. The Excel file will be saved under the Quick Export Path. (See File → Define Quick Export Path.)

9. Save the Current Run Readings into Recent Run's grid view on the right.

10. Save "Archive" Current Run into Recent Run Grid view and start new current run.

11. Deletes the current row that user is selecting on Current Run's grid view.

12. Clear All the Data in Current Run's grid view.

13. Shows the live graph for all runs.

14. Shows readings of all saved runs, along with option to export all runs into an Excel spreadsheet.

Cal Cert

The calibration module allows user to create a New Test or to select an existing Test in the Test Set Up window. User can enter the Test ID, Test Type, # Points, Target Fullscale, Capture Angle, Test Order, (As Left CW, As Found CW, As Found CCW, As Left CCW), # Samples/point, Low Limit, High Limit, % or Eng. Unit, Channel 1 Unit, Channel 2 Unit sequences with multiple Targets, and Low/High Limits. After selecting or identifying a test, a user can Run Test and export data to Excel or to Cert Manager application (also included if purchased with SMD-Dual package).

The user can also select or create Tool information. The information includes Tool Name, S/N, Recall Interval, Temperature, Humidity, Model, Manufacture, Cert Lot, Procedure, Operator ID, and Comments. Fields in Bold are required to be filled in.

Functions

1. Test Set up: If this window is enabled, it indicates that the application is currently in Test Setup Mode. Fields in Bold and with an * are required to be filled in before being able to start a test.

   - Select Test*: Select existing Tests, (default Tests are indicated by the double asterisk. **) or create a New Test:

     - 3 points**: 20%, 60%, 100% of Full Scale
     - 5 points**: 20%, 40%, 60%, 80%, 100% of full scale
     - 5 points and 10%**: 10%, 20%, 40%, 60%, 80%, 100% of full scale
     - 5 points 5% and 10%**: 5%, 10%, 20%, 40%, 60%, 80%, 100% of full scale
     - 10 points**: 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, 100% of full scale
     - 10 points and 5%**: 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, 100% of full scale
     - 20 points**: 5%, 10%, 15%, …, 95%, 100% of full scale

   - Test ID*: Name of the Test.

   - Test Type*: Either Single or Dual Channel Test.

   - # Of Points*: Indicates how many targets there are. Unless it is one of the Default Tests, Users' custom Test Targets will be full scale divided evenly by the # of points.

   - Target Full Scale*: Indicates full scale of tester.

   - Capture Angle: Select channel that will have Angle captured, if the tester connected support Angle.

- ○ # Samples/points*: Indicates how many samples will be taken for each Target Point.

- ○ Low Limit*/High Limit*: Define the limit that will determine whether the readings pass or fail.

- ○ % or Eng. Unit*: Select whether the limit values are a percentage (%) or a specific numerical value from Target.

- ○ Channel 1 Unit/ Channel 2 Unit: Will automatically sync up with Tester once connected. User doesn't need to fill out this field.

- ○ Test Order: User can select which quadrant of the test to run and in which order.

- ○ Save As: Save the current Test as a New Test.

- ○ Reset: reset all values to the original Values of the Test. Please note that if a Test was changed and saved, it will only revert back to the values AFTER the last Save.

2. Enter tool information in Tools Info window. This information will populate Cert Manager.

3. Shows listing of available testers/transducers that can be connected.

4. Live Reading of Testers/Tranducers that are connected to Channel 1 and Channel 2.

- ○ Angle: Shows Angle for testers that support it.

- ○ Trough Mode: Can only be activated in Dual Channel Test and should only be used for air tools.

5. Save Average ONLY to Cert Manager: in case there are more than 1 # Samples/point, checking this option will export only Average values for each test target to Cert Manager.

6. Copy All: This option is only available in Test Setup Mode. All Low, Target, High values from As Found-CW quadrant will be copied to the other four quadrants when clicked.

7.8.9.10: Shows All Test Points that will be taken for this Test. Target, High, and Low column can be edited manually while in Test Setup Mode, but not during a test. As Found readings can also be copied over to As Left reading by using the Copy button.

11. Save & Open Excel: Export current readings to an Excel spreadsheet, along with Tool Info. Please note that this Excel export CANNOT be read by Cert Manager.

12. Delete Last: Delete the most recent reading that was taken.

13. Clear Readings: Clear all readings. Ready for new test.

14. New Test: Clear all the readings and go back to 1.Test Set up.

15. Save To Cert: Save the current test into Cert Manager. Please make sure to press Import Cert after opening Cert Manager to update any new Cert.

16. Open Cert: Open Cert Manager Application.

Tools Manager

Tools Manager allows user to select or create a tool profile and then associate a Test with the Tool.

User either selects a Tool file or clicks on New to create a new tool file. The Tool ID is required, all other fields are optional. After selecting or creating the Tool file user can associate or create a Test file for this specific tool.

1. Select Tool ID file name or

2. Click on New to create a new Tool file.

3. Tool ID/Name is required, all other label fields are optional at this point.

4. Select Torque Mode for Ch 1 and Ch 2 if running Dual Channel.

5. Select whether to force Operator ID (Scan Operator).

6. Select whether to force a pause to make adjustments to the tool being tested.

7. Select whether to Save or Save As. Save saves file in Quick Path, Save As allow user to save in a different path/ location.

8. User can select a Test file to associate with the Tool or create a New Test file.

9. Test Managers launches full Test Manager module.

Test Manager

Test Manager allows user to select or create a test profile. User either selects a Test file or enters a new Test ID name.
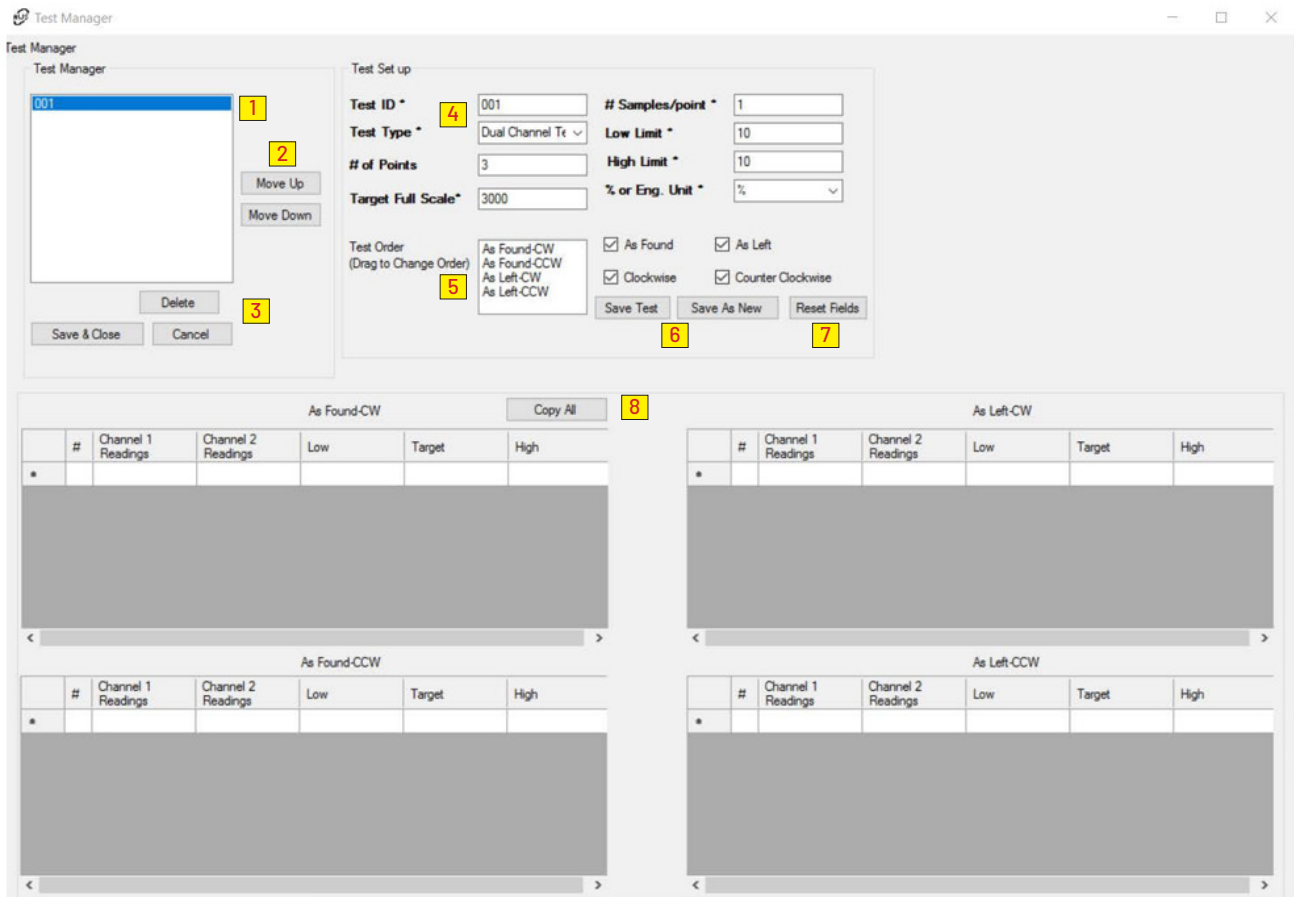
1. Select Test ID file name

2. Use Up and Down buttons to scroll through file names.

3. Select Delete, Save & Close or Cancel.

4. Enter Test Set up Test to edit or create new test file. ID/Name is required as is all bold label fields.

5. Select As Found CW, As Left CW, As Found CCW, As Left CCW.

6. Save Test or Save As New.

7. Reset Fields.

8. Copy All. Copies data into all quadrants.

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