

System 8400 Operation Quick-Guide

EA 303 Wind Tunnel Laboratory
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The purpose of this guide is to walk through the steps needed to initialize, calibrate, acquire and retrieve data for the System 8400 for CCWT testing.

Initialization and Calibration (done once prior to any testing)

1. Turn on host computer and the System 8400.
2. Open MATLAB and then open the .m file named INITandCAL .m.
3. Verify the System 8400 unit is on, the digital display should read “MONITOR MODE”.
4. Pressurize the nitrogen to approximately 120 psi and activate the white vacuum pump.
5. Run the MATLAB script. Before pressing the final “calibration” button.
6. Run the calibration. A successful calibration should read “...END...” in the blue LED display window.

Data Acquisition (done for each AOA tested)

1. A data acquisition pressure scan is initiated by pressing the keys on the System 8400 front panel. However, you **MUST** first clear the system memory of existing data!
2. Press the PREV key until you see MAIN MENU and the `EDIT INIT CAL DISP >` options displayed in the blue LED display window.
3. Press the right arrow button until you see the options `< DATA VALV STOP SYS >` displayed.
4. Press the F1 key to select the DATA option.
5. Press the right arrow button until you see the option `< CLEAR >` displayed.
6. Press the F1 key to select the CLEAR option. Press F1 again to select TRANSMIT to clear the memory of previous data. When done, the display will return to the `< CLEAR >` option.
7. To execute a new data scan, press left arrow button to get back to `ACQ1 ACQ2 ACQ3 ACQ4 >`.
8. Press the F1 again to select the ACQ1 option.
9. The data acquisition pressure scan will begin after you enter the next parameter. Assure that you have a steady flow in the test section by waiting 2–3 min after adjusting to the desired dynamic pressure.
10. Where the CRS : prompt is displayed, type “111” to begin a pressure scan. When the scan is complete, the `ACQ1 ACQ2 ACQ3 ACQ4 >` options will be displayed. The tunnel can now be shut down.

Displaying Data (done after each data acquisition scan)

1. After a data acquisition pressure scan, the `ACQ1 ACQ2 ACQ3 ACQ4 >` options will be displayed. Press the right arrow key once to get the dataset options, `< DS1 DS2 DS3 DS4 >`.
2. Press the F1 key to select the DS1 option.
3. Where the CRS prompt is displayed, type “111.”
4. The PORT prompt is for the initial pressure port to display. To see a specific port number, type it in directly (see the laboratory handout for the port designations). Otherwise, type “101” and press ENTER.
5. Where the MS prompt is displayed, type “1” and press ENTER.
6. Where the EU prompt is displayed, type “1” and press ENTER.
7. The blue LED display should change to show the pressure on port 101. The value is in psig since it is a gauge pressure measurement.
8. To cycle through the ports press the up arrow key. After port 132, the display will show port 301, and you can cycle through the scanner 3 ports. To switch to the other scanner directly, press PREV and type “301” at the PORT prompt. CRS, MS, and EU should retain their previous values.
9. **NOTE:** You should manually record the data on ports 101–130 and 301–330. Ports 131, 132, 331, and 332 are not used and should read a zero gauge pressure.