

WIND PROFILE CODE PROCEDURE

After wave gauges calibration process:

Turning on the equipment:

1. Turn on the electrical boxes, Ethernet Switch, Amplifier & NI cDAQ-9184
2. Turn on the DC power supply positioned on the instruments carriage and set to 5[V]
3. Open [changeVMchangeA.vi](#) located in *D:\Experiment\Vis\Wave Gauges Programs\SubVis*
4. Insert IP Address (192.168.1.2 for larger linear stage) and remote port (503)
5. run program

These values are saved until the electrical boxes are turned off

* To check if the DAQ Device is connected correctly:

open NI MAX $\Rightarrow$ Devices and interfaces $\Rightarrow$ Network Devices $\Rightarrow$ cDAQ9184-1B560CB

right click on this cDAQ and select the "self-test"

- If completed successfully $\Rightarrow$ click on cards NI 9212, NI 9401, NI 9205 to enable them.

- If not successful $\Rightarrow$ right click on the cDAQ and click on "reserve chassis".

Finding and saving the safe position above the highest wave for the airflow sensors:

1. Turn on the wind blower at frequency 40 [Hz]. Open [ctrlSpeedBlower.vi](#) located in *D:\Experiment\Vis\Blower*, insert 40 [Hz] and run the program
2. Move the airflow sensors close to the water surface
3. Open [WaterSensorScopeSimple.vi](#) located in *D:\Experiment\Vis\Scope_Simple*
This VI shows drop in voltage (~1.5-4[V]) when the sensor touches water
4. Move the linear stage so that the exposed tips of the water sensor are in the water.
 The drop of voltage will be evident on the graph/
Make sure the Pitot tube and static pressure probe are not touching the water
5. Move the sensors up with a step of 3-4 [mm] and run the program for 30[sec]
 - If there is a drop of voltage, repeat step e)
 - If there is no drop of voltage, double check if you are in a safe position:
 - * run the program for 60 [sec] and if there is a drop of voltage, repeat step e)
 - * If there is no drop of voltage run the program for 120 [sec]
 - * If there is no drop of voltage proceed to next step, otherwise, repeat step e)
6. Save this point as 0 by opening [LinearStageMaster.vi](#) located in *\\D:\Experiment\Vis\Linear Stage* and insert IP Address (192.168.1.2) and port (503).
 Write "p 0" in the command window and run program
- Sanity check**
 - Write "pr p" in command window, run program.
 - Check if the position equals 0 in data out
7. Open [WindProfile.vi](#) located in *D:\Experiment\Vis\Wind Profile Program*
 Insert the following inputs:
 1. Wind blower frequency:(e.g. 40, 32, 25, 18 [Hz])
 2. Seeking for zero water level:
 - * Sampling rate (e.g. 120 [Hz])
 - * Measurement time (e.g. 60 [s])
 - * Zero seek step (e.g. 3 [mm])
 3. Airflow sensors settings:
 - * Sampling rate (e.g. 1600 [Hz])

- * Measurement time (e.g. 60 [s])
- 4. Linear stage settings:
 - * remote port 503.
 - * IP Address 192.168.1.2
- 5. Z coordinates (relative to 0[mm])
- 6. Fetch (location of airflow sensors relative to drain holes [cm])
- 7. Choose the calibration file
(located in *D:\Experiment\Flume measurements\CalibrationFiles*)
- 8. Insert the Path to Data files
- 8. Run the program.

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