Aerodynamics Master Program Guide

For collecting and analyzing aerodynamic data.

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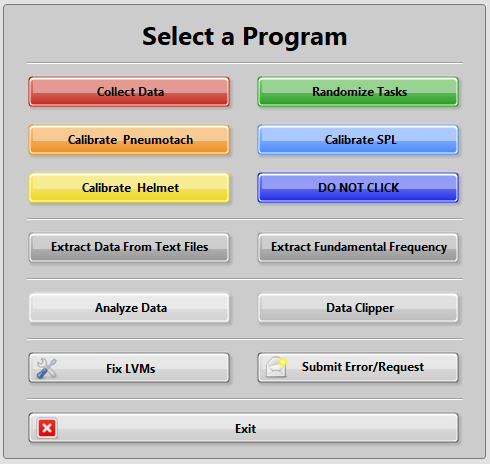
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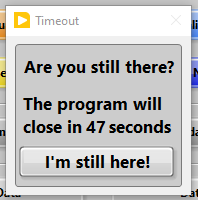
# Master Aero Program

The Master Aero program contains all of the collection and calibration programs used with our aerodynamic devices. This includes the complete/mechanical interrupter, the incomplete interrupter, the airflow redirector, and the singing helmet.

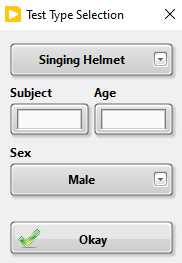
## Front Panel Guide

### Main Menu

The Master Aero program contains all of the collection, calibration, and analysis programs for our aerodynamic devices. The Front Panel is simply an array of different buttons. You can hover over each button for a short description of its function.

If the user spends more than two minutes without clicking any buttons, the timeout prompt will trigger. If there is no input after another minute, the program will close.

### Collect Data

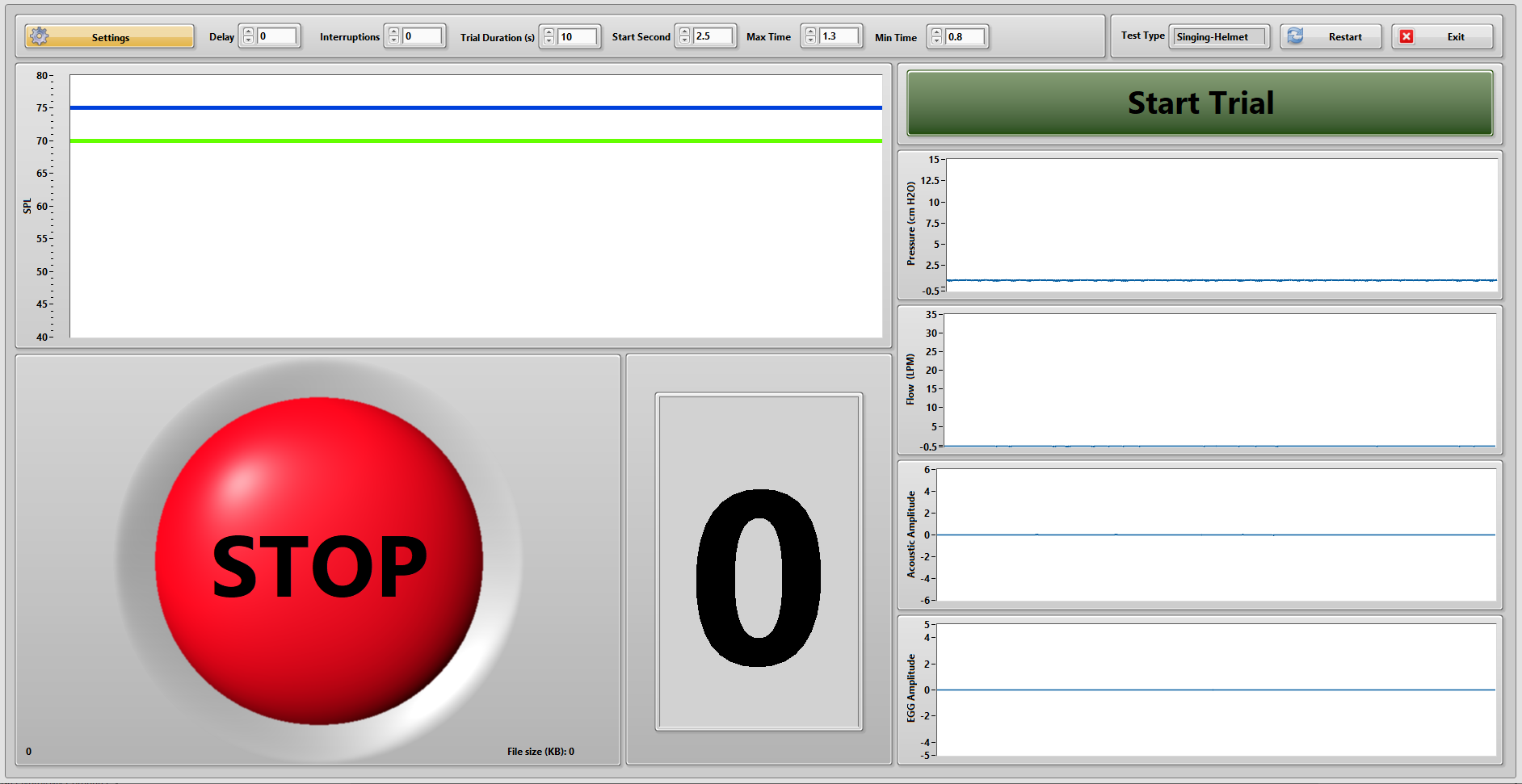
The first thing that occurs when this VI is opened, the user will be prompted to select a folder where their data will be saved. This should default to the Saved Data folder on the Aero Drive.

The user will then be prompted with the Test Type Selection VI. Here, they select what type of test you will be conducting. They should also enter the subject code, their age, select their sex, and then click Okay.

The settings and calibration data used during collection will depend on the type of test selected at this step.

The user will then be prompted to confirm the save location and file name.

Once the save file location is confirmed, signals will start being read from the NI DAQ board. Signals include:

* Sound Pressure Level (SPL) in dB – Upper Left
* Pressure in cm H2O – Upper Right
* Airflow in LPM – Below Pressure
* Acoustic Amplitude – Below Airflow
* EGG Amplitude – Bottom Right

Clicking the Settings button will allow the user to alter the following:

* Delay – How long the balloon will be inflated
* Interruptions – How many interruptions there will be during a trial
* Trial Duration –
* Start Second –
* Max Time –
* Min Time –

### Calibrate Pneumotach

### Calibrate Helmet

### Randomize Tasks

### Extract Data from Text Files

### Extract Fundamental Frequency

### Analyze Data

### Data Clipper

### Fix LVMs

### Submit Error/Request

## Block Diagram

# Master Analysis Program

## Front Panel Guide

### Main Menu

### Labial Interruption

### Mechanical Interruption

### Incomplete Interruption

### Airflow Redirector

## Block Diagram