STANDARD OPERATING PROCEDURES (SOP)

Software: Lab Data System

By : Mohamed.a.jaheen@gmail.com

Table of Content

Contents

1. Introduction:

This document outlines the system architecture of Lab Data System Software. The purpose of this software is to provide real-time monitoring of 3 sensors which are pressure levels, Temperature levels, Salinity Levels, Weight Levels and generate comprehensive reports for analysis and decision-making purposes.

2. Equipment and Materials:

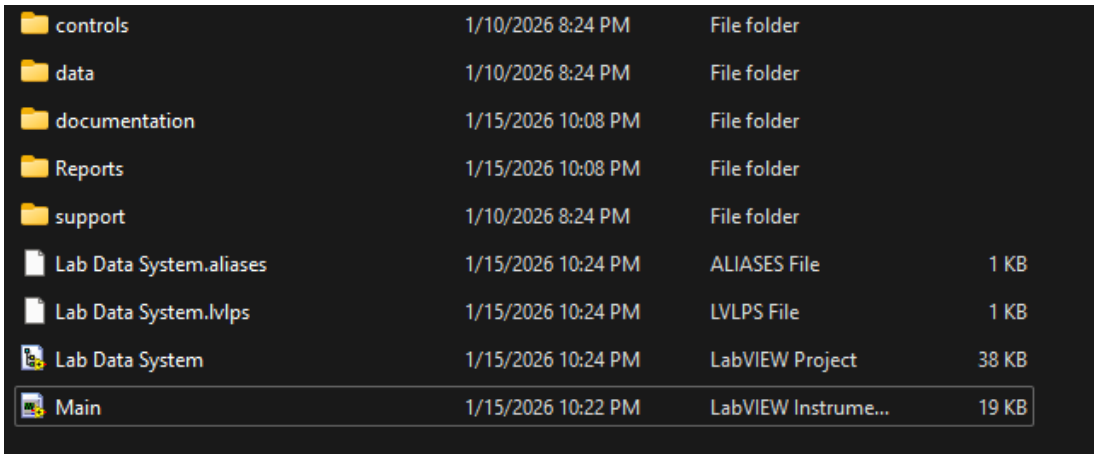
- Lab Data System Software for Pressure , Temperature , Salinity , Weight Monitoring and Reporting
- Compatible hardware sensors and devices
- Computer system with the required specifications

3. Procedure:

3.1 Opening and Closing Software:

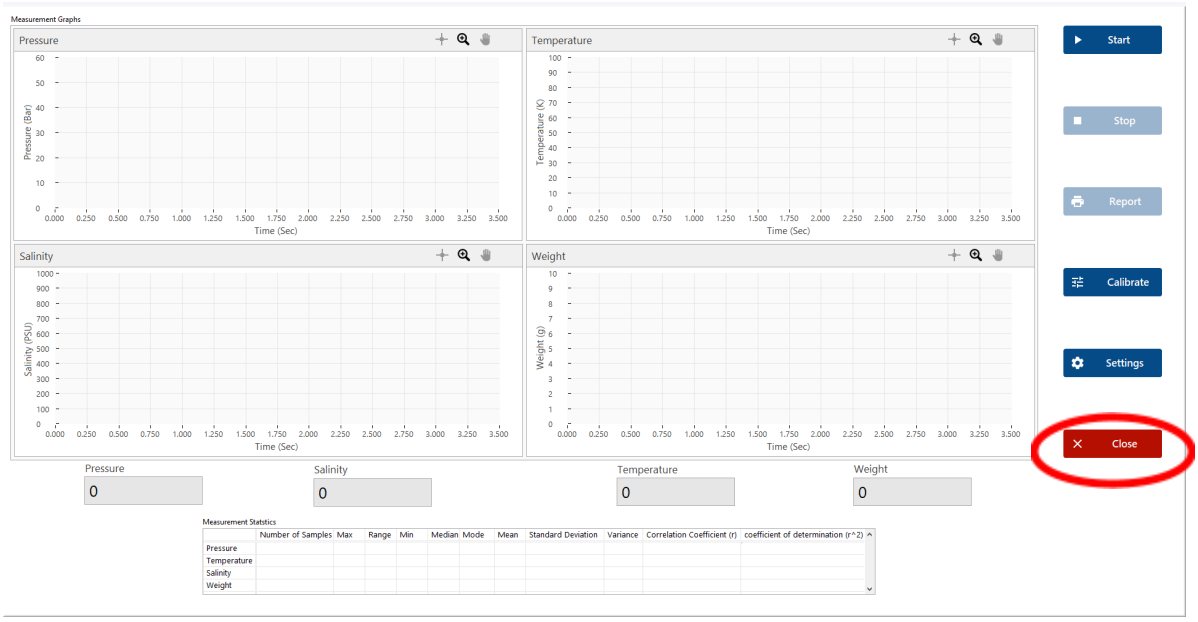
3.1.1 Open Software

You can open the software using Software shortcut in the desktop or go for directory “C:\Program Files (x86)\ Lab Data System\Lab Data System.lvproj”



3.1.2 Close Software

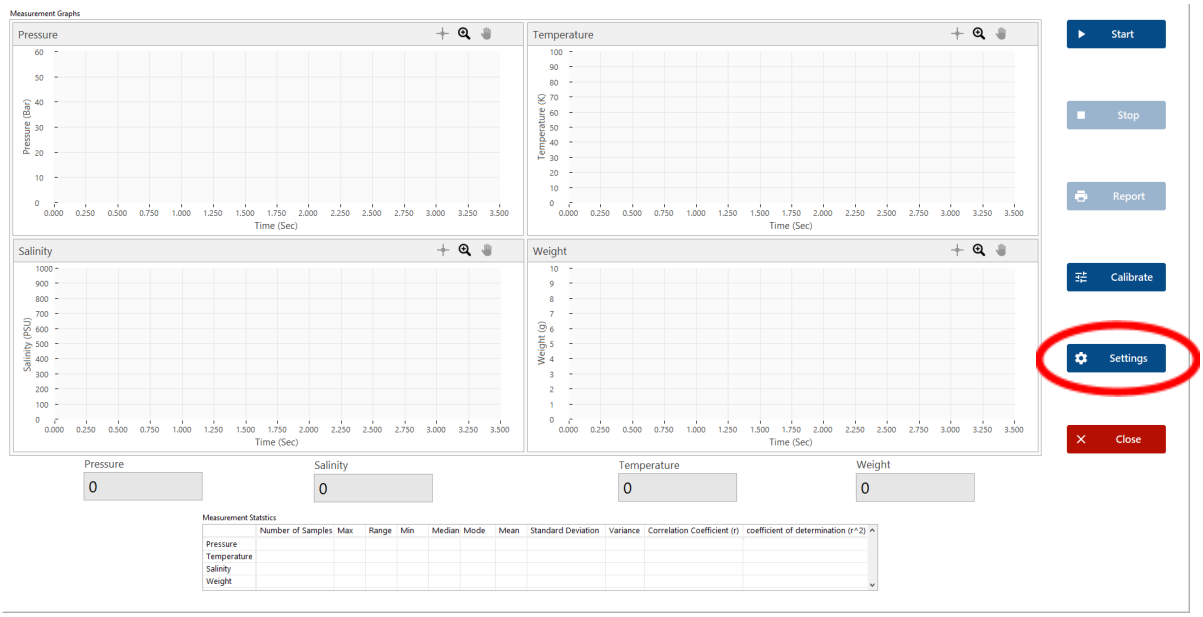
In Main Page " Lab Data System" Click in Close Button in the right of the screen



3.2 Sensor Calibration:

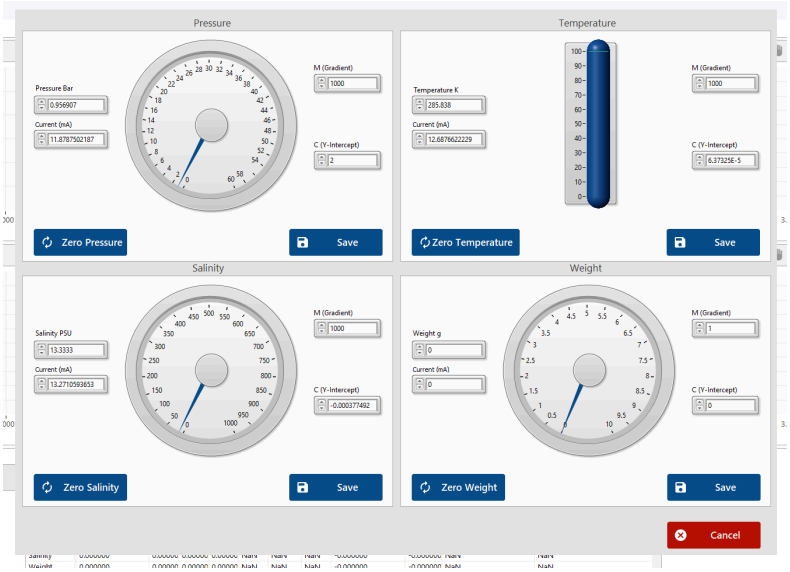
3.2.1 Open Sensor Calibration page

- In Main Page " Lab Data System" Click in Calibration Button in the right of the screen



3.2.2 Check Calibration

- For each Sensor , Compare the Reading in the page from gage or form numerical value to the actual reading (you can use the known sensor value as reference or use sensor value from a different calibrated Sensor)



- If you find both reading from software and reference are same you are good to go , just click zero Sensor to save data then cancel , if not follow the upcoming instructions .

3.2.2 Sensor Calibration

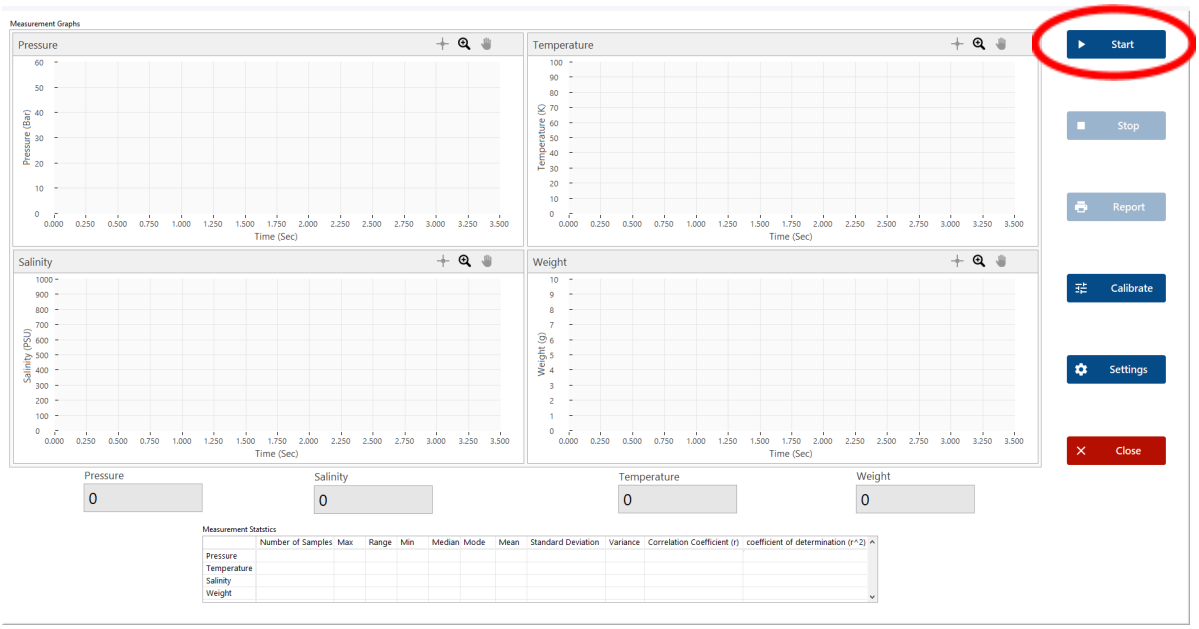
- For each sensor , The sensor calibration used the equation of (Sensor Value for Specific Unit = M * Sensor Output in mAmber + C)
    - According to sensor datasheet, Sensor Output in mA Range is (4-20 mC) and
        - Sensor Output in Pressure bar Range is (0 – 60 bar). So M = 3 and C = 0 .
        - Sensor Output in Temperature C Range is (0 – 200 C). So M = 10 and C = 0 .
        - Sensor Output in Salinity ppm Range is (0 – 100000 bar). So M = 5000 and C=0.
    - In case there is a constant offset between Software Reading and Reference so add this offset to C Constant and Click zero pressure then Cancel (Example Software Reading is – 2 bar , 2 bar , 7 bar – and Reference Reading is 1 bar , 5 bar , 10 bar - , So the C will be 3).
    - In case there isn't a constant offset between Software Reading and Reference , you will had to get two points for bar and mA then use the equation to Find M and C and Click zero pressure then Cancel , Example (First point Pressure = 5 bar and mA = 2 , Second point Pressure = 11 bar and mA = 5 , So M = 2 and C = 1) .

- In case sample rate is too high and you can't keep track with your eye decrease sample rate speed, referee to advanced settings.

3.3 Start Measurements:

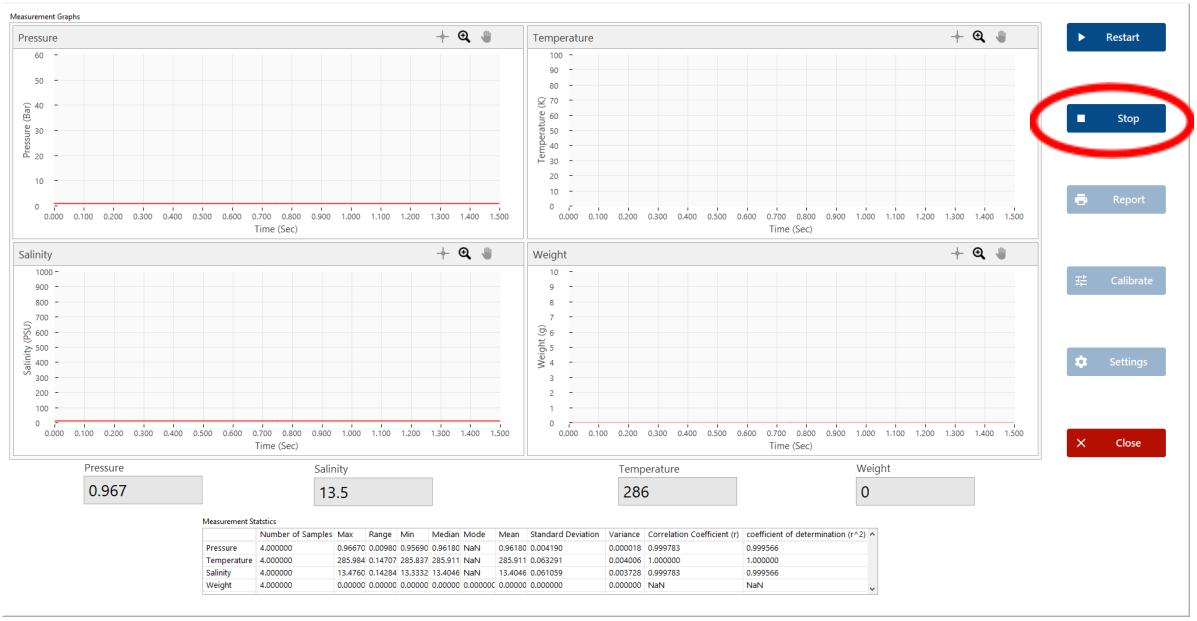
3.3.1 Start Measurements

In Main Page “ Lab Data System” Click in Start Button in the Right of the screen



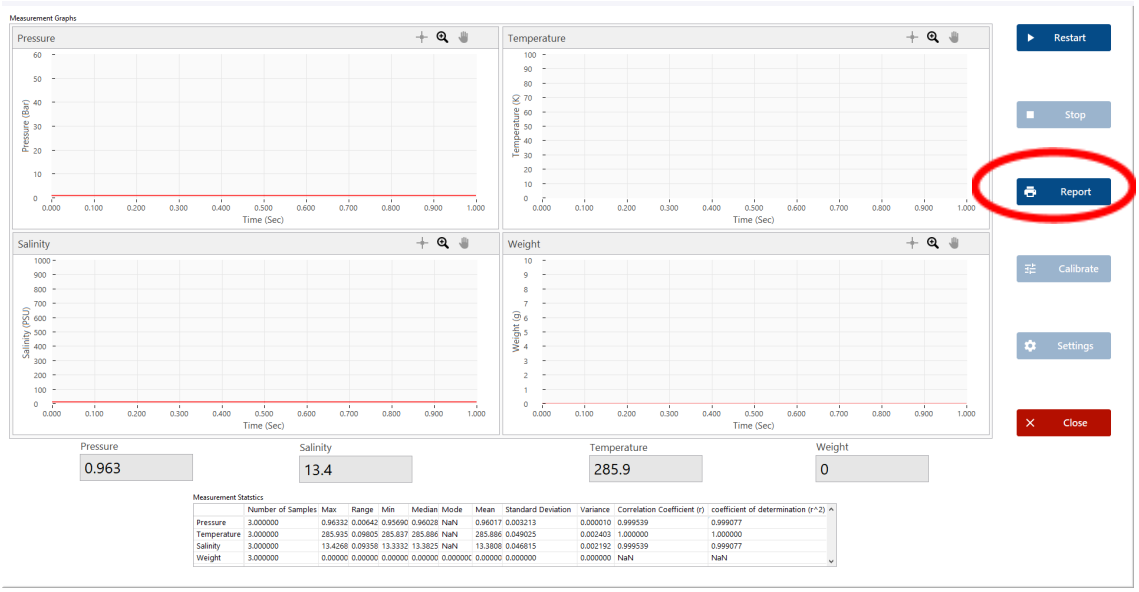
3.3.4 Stop Test

In Main Page “ Lab Data System” Click in Stop Button in the Right of the screen



3.3.4 Generate Test Report

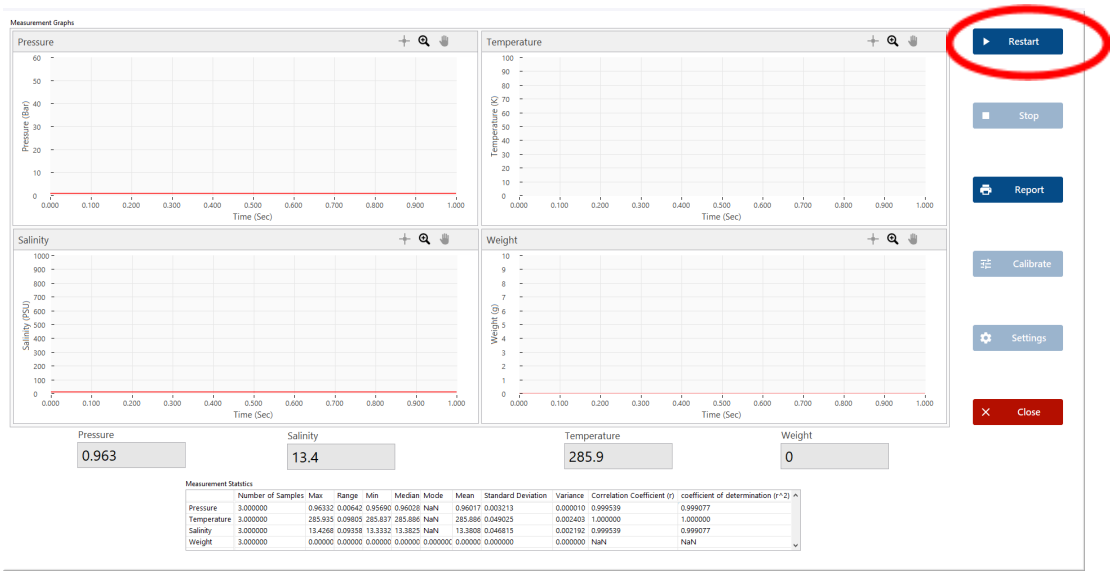
- When clicking ‘Report’ the system will generate a logging report automatically.



- Typically the report will be found in path “ C:\Program Files (x86)\ Lab Data System\Reports ” in folder with same time of the report.

3.3.5 Restart Test

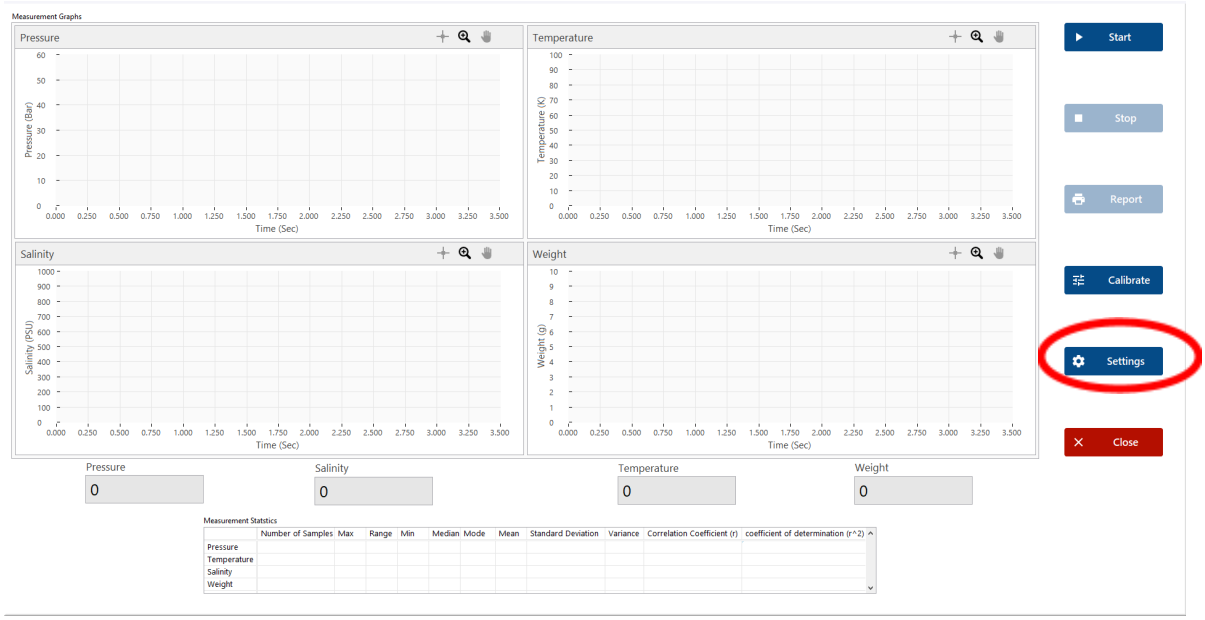
- You Can Restart by press Restart button (You can Restart during Test is running or Stopped)

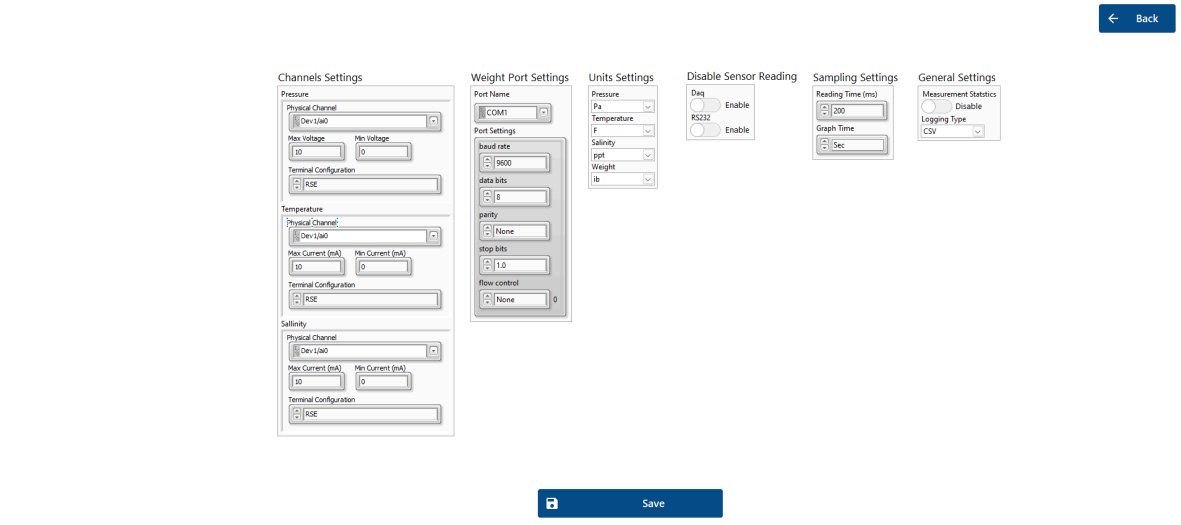


3.4 Settings:

3.4.1 Open Settings page

- In Main Page " Lab Data System" Click in Settings Button in the right of the screen





3.4.2 Change Maximum Reading of Graph

- Double Click on the Maximum value at any graph and write the new value

3.4.3 Channels Settings

- cDAQ Settings for Pressure , Temperature and Salinity Sensors

- Press Save Button to Save Changes

3.4.4 Wight Port Settings

- RS232 Settings for Weight Sensor

- Press Save Button to Save Changes

3.4.5 Unite Settings

- This parameter to configure unit for each sensor

- Press Save Button to Save Changes

3.4.6 Disable Sensor settings

- In case one of the hardware device has error or problem you can disable one of them with any problem

- Press Save Button to Save Changes

3.4.7 Sampling Settings

- Sample Time (mSec) , this parameter is used to identify the sampling time for sensor read per mSec .

- Graph Time , this parameter is used to identify time of the graph if want it by seconds or mSec.

3.4.8 General Settings

- Measurements Statistics : To Enable or Disable live statistics for the measurements of the sensors.

- Logging Type : the Type of logging File (CSV ,TDMS) or disable logging .