Techmark, Inc.
SOP 203-3B Calibration of RH sensors on ESUS
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Principle:
How do I calibrate (wet/dry) an RH sensor on an ESUS? This involves calibrating the wet and dry bulb sensors to a common reading. If this is not performed on a regular basis, RH readings can become faulty. A reading of 100% or 101% RH can be caused by insufficient water on the wet bulb. When dry and wet bulb temperatures are the same, the RH% will be 100%. Follow the procedure to calibrate RH sensors for a ESUS.

Procedures to follow:
1. Remove the wick (white lace material) from the wet bulb, and wait for 30 minutes. At this point both the dry and wet bulb should be seeing the same temperature. Make sure the RH fan is working and the door to the RH canister is closed.
2. Determine the **Dry** and **Wet** Analog Input numbers in the System menu of ESUS.
   a) Press **Button 22 SYSTEM** key- Password is **Button 10** and then **# Key**.
   b) Press the right arrow key when the cursor is flashing on **INPUTS** to access the **INPUTS** menu.
   c) **ASSIGN AN-INPUT** will be shown at this point.
   d) Press the single down arrow key once, the cursor will move to **2 ASSIGN RH-INPUT**
   e) Press the right arrow key into **ASSIGN RH-INPUT**.
   f) The display will read **RH Plenum- Dry/Wet**.   It will display a number behind the **IN-D** and **IN-W** assignments. Record these below.
      i. IN-D _____   IN-W _____   Bin 1
          IN-D _____   IN-W _____   Bin 2
          IN-D _____   IN-W _____   Bin 3 (Extra)
          IN-D _____   IN-W _____   Bin 4 (Extra)
      ii. Note these for each of the bins on the ESUS by pressing the tab buttons on the face of ESUS. Bin 3 and 4 are extra bins, but not normally used on an ESUS.
3. Adjust the sensor readings.
   a) Back out of the **ASSIGN RH-INPUT** menu by pressing the left arrow key once, the display will return to the **INPUTS** menu and ASSIGN AN-INPUT will be shown.
   b) Press the single down arrow key 2 times, the cursor will be flashing on **3 AN-IN CALIBR**.
   c) Press the right arrow key into **AN-IN CALIBR**
   d) Note it will read **AN-IN CALIBR_1** This means it is Analog Input 1.

e) Press the double up arrow key until the **IN-D** that was recorded in Step 2 is displayed.
f) Press the down arrow key twice. The display will show the measured values of the **IN-D** sensor, i.e. 221. Record the measured value _____.
g) Press the double up arrow key to display the **IN-W** input recorded above. Record the measured value _____.
h) These two measured values should be equal. If not, adjust the **WET** sensor by changing the value under the **ZR** setting. DECREASE the **ZR** by 1 to 3 counts to increase the measured value by 1. INCREASE the **ZR** by 1 to 3 counts to decrease the measured value by 1. **Do not change the ZR by more than 10 counts up(+) or down(-). If an adjustment of +/-10 is not sufficient, the sensor or wire will need to be replaced.**
i) **Do not change the IN-D!!**
j) Record the new **WET ZR** _____ and **IN-W** measured value _____.
k) Record the current **IN-D** measured value (press the double up arrow to view this) _____.
l) These two values should now match.
4. Calibrate all **Dry** and **Wet** sensors for the remaining bins if needed.
5. Place the web bulb sock back on the wet bulb sensor.