

Calibrating Foxboro 873 Analyzer Using Thornton 770 Max Sensor

Background:

The Foxboro Analyzer is time dependent, if no buttons are pushed for approximately 10 seconds the display will return to the one prior to it. If this happens you will have to repeat certain steps in the procedure depending on which step was being performed. Reading the procedure prior to performing it is suggested.

Note: The Δ key changes the integers, while the Next key moves right to allow the next number to be changed.

Procedure:

1. Install Thornton Sensor
 - a. Install Thornton 770 MAX Sensor inline with Foxboro Sensor that is being calibrated. (Use CH. 1 on the Thornton)
 - b. Allow Sensor to reach steady state equilibrium (analyzer should stop changing).
Allow a minimum of one hour.
2. Temperature Adjustment
 - a. Read and Record the temperature displayed on the Thornton 770 MAX.
 - b. Read the temperature displayed on the Foxboro Analyzer.
 - i. Push **Temp**, read and record
 - c. Determine the temperature difference of the two devices by subtracting the Foxboro analyzer from the Thornton reading.
 - d. Add this value to 25°C. This is the temperature cell factor (tCF1).
3. Adjust Temperature on Foxboro (tCF1)
 - a. Unlock Analyzer
 - i. Press **Lock**
 - ii. Press **Next** and then use the Next and Δ keys until security code 0800 is displayed.
 - iii. Press **Enter**
 - b. Press **Shift** and while holding, press **Setup**. Release fingers from both keys.
 - c. Press **Next** several times until Cd is displayed.
 - d. Press **Enter**
 - e. If Cd code is not displayed as 0001, change it by using the Next and Δ keys until the desired value is displayed.
 - f. Press **Enter**
 - g. Wait about 10 sec. for the display to return to the Cd display.

- h. Press **Next** several times until the code bL is displayed.
 - i. Press **Enter** and then use the Next and Δ keys repeatedly until personal security code 0800 is displayed.
 - j. Press **Enter**
 - k. Wait about 10 sec. for the display to return to bL, press **Next** several times until the tCF1 is displayed.
 - l. Press **Enter** and then use Next and Δ repeatedly until desired value is displayed.
 - m. Press **Enter**
 - n. Wait about 10 sec. for the reading to return to the resistivity display.
 - o. Recheck any differences that exist between the thermometer and the temperature displayed on the Foxboro. Repeat procedure if necessary.
 - p. Lock Analyzer
 - i. Press **Lock**
 - ii. Press **Next** and then use Next and Δ keys until security code 0800 is displayed.
 - iii. Press **Enter**
 - q. Wait about 10 sec. for the reading to return to the resistivity display.
4. Determining a Cell Factor (CF)
- a. Unlock Analyzer
 - i. Press **Lock**
 - ii. Press **Next** and then use Next and Δ keys until security code 0800 is displayed.
 - iii. Press **Enter**
 - b. Press **Shift** and while holding, press **Setup**. Release fingers from both keys.
 - c. Press **Next** several times until the code bL is displayed.
 - d. Press **Enter** and then press Next and Δ repeatedly until personal security code 0800 is displayed.
 - e. Press **Enter**
 - f. Wait about 10 sec. for display to return to bL, press **Next** several times until the entry CF1 is displayed.
 - g. Press **Enter**, then press Next and Δ until .1000 is displayed.
 - h. Press **Enter**
 - i. Wait about 10 sec. for the reading to return to the resistivity display.
 - j. Lock Analyzer

- i. Press **Lock**
 - ii. Press **Next** and then use Next and Δ keys until security code 0800 is displayed.
 - iii. Press **Enter**
 - k. Read the apparent resistivity displayed on the Foxboro and record.
 - l. Read the resistivity displayed on the Thornton 770 MAX and record.
 - m. Use the equation below to calculate the new cell factor for the Foxboro.
 - i.
$$\text{New CF} = \text{Foxboro Resistivity} \times .1$$
 - a. Thornton Resistivity
5. Adjust CF on Foxboro
- a. Unlock Analyzer
 - i. Press **Lock**
 - ii. Press **Next** and then use Next and Δ keys until security code 0800 is displayed.
 - iii. Press **Enter**
 - b. Press **Shift** and while holding, press **Setup**. Release fingers from both keys.
 - c. Press **Next** several times until the code bL is displayed.
 - d. Press **Enter** and then press Next and Δ repeatedly until personal security code 0800 is displayed.
 - e. Press **Enter**
 - f. Wait about 10 sec. for display to return to bL, press **Next** several times until CF1 is displayed.
 - g. Press **Enter**, then use Next and Δ repeatedly until the new CF1 value is displayed.
 - h. Press **Enter**
 - i. Wait about 10 sec. for the reading to return to the resistivity display. Check for any differences that exist between the resistivity reading on the Thornton and the reading displayed on the Foxboro. Repeat procedure if necessary.
 - j. Lock Analyzer
 - i. Press **Lock**
 - ii. Press **Next** and then use Next and Δ keys until security code 0800 is displayed.
 - iii. Press **Enter**