

MicroVision EX, Fluorometer Pyrenetetrasulfonic acid, tetrasodium salt (PTSA) Probe Calibration

Pyxis ST-500 and *Turner Little Dipper®2* PTSA probes are used to measure concentrations in parts per billion (PPB) of fluorescence treatment chemicals in cooling tower systems. The PTSA probes output a 4-20mA signal that the *MicroVision EX* converts to PPB (parts per billion).

PTSA probe calibration requires two points (high and low), if you only enter one point, you will get a "Bad Cal" alarm. For proper calibration, follow this procedure.

Calibration Steps:

1. Remove power before performing any work inside the *MicroVision EX*'s enclosure.
2. Make sure that the PTSA probe is connected to a 4-20mA input (UGK-MILIN) card located in position #1 or #2. Check the probe wiring against manufacturer's instructions. Remember you must cycle the power after a 4-20mA card is installed.
3. From the Main menu, go to Configure and select "4-20mA In."
4. Select "Input 1" to activate the 4-20mA card (if probe is connected to 4-20mA input #1).
5. Go back to the Main menu, and from the Settings menu select "4-20mA In 1" Select the type as "PPB." If you are connected to input #2, select "4-20mA In 2."
6. Go back and select "Calibrate."
7. Place the probe in uncontaminated deionized water; this would be equal to 0 PPB and you should see "4.00mA/0000 PPB" (+/- .1mA) displayed as the Actual value on the controller.
8. Enter "0000" in the top line using the soft keys (<, >, ^, v). This completes the low point calibration.
9. For the high point calibration, it is best done with the PTSA probe in the actual flow assembly. Allow flow across the sensor for a short time and make sure there are no air bubbles present. Ensure that the probe is mounted according to the manufacturer's recommendations for best results.
10. Take a sample with a hand-held meter, and enter the PPB value as the "High Pt." when a steady 4-20mA value is displayed. PTSA calibration is complete.

Alternate calibration procedure for the High Point using buffer solutions:

1. Calibrate the low point using the same procedure (see steps 1 thru 8 above).
2. For high point calibration, fully submerge the probe in a known buffer, e.g., 100 PPB, making sure that no air bubbles are present. The value of the buffer must be within the operating range of the probes, which is 0 to 200 PPB.
3. Once the 4-20mA reading on the controller is stabilized, enter the PPB value (e.g., 0100) as your High point value using the soft keys. PTSA calibration is complete. The 4-20mA signal will adjust accordingly.

NOTE: The high point's 4-20mA value will likely be less than 20mA, e.g., 100 PPB will be about 12mA.