Little Dipper Temperature Calibration with the EZ Zone Controller

DI water   Stir bars

Fill baths to fill line.

Rotate temperature sensors down.

Set temperature controllers to 65°C.

Actual Temperature
left display (red)

Set Temperature
right display (green)

Advance Button   Up/Down Arrows

Infinity/Return Key
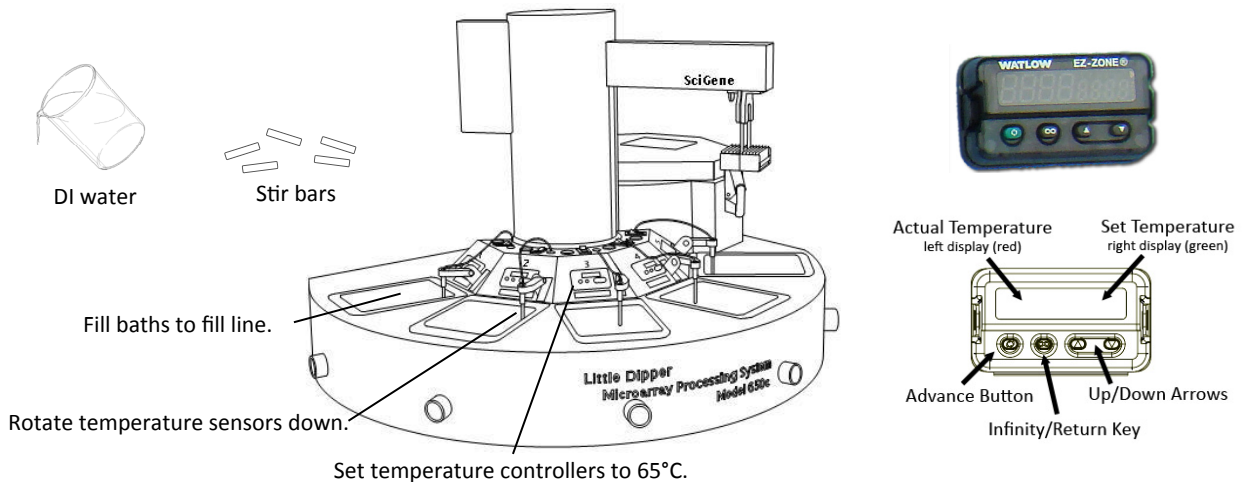
Introduction

Five temperature controllers regulate bath temperatures on the Little Dipper Processor. They are calibrated at the factory to ensure accurate bath temperatures from ambient+5 to 95°C ± 0.5°C. Temperature accuracy should be checked periodically (according to your lab schedule) with a NIST certified digital thermometer (SciGene cat. #1051-52-0).

Required Accessories and Supplies

- **Digital thermometer and cable** (SciGene cat. #1051-52-0)
- **Standard or low volume baths** (SciGene cat. #1080-10-X)
- **Stir bars** (SciGene cat. #1080-11-X)
- **De-ionized water**

Instrument Setup

1. Fill bath(s) to be calibrated with de-ionized water to fill line.
2. Turn on main power to the instrument, place a stir bar in each bath and adjust rotation such that a gentle vortex is formed without splashing.
3. Rotate temperature sensor(s) down.
4. Turn on power to the temperature controller(s). Set to 65°C and allow 30 minutes to stabilize.

Temperature Validation

1. Ensure baths are filled to the fill line; temperature sensors are rotated completely down, and controllers are set to 65°C. Allow 30 minutes for temperature to stabilize.

   ⚠️ *Sensors will not accurately report temperatures if bath liquids are below the fill line.*

   ⚠️ *The thermometer will not accurately report values if bath temperatures have not yet stabilized.*

2. Using the cable provided with the digital thermometer, plug one end into the blue receptacle above the bath and the other into the thermometer.
3. Turn on thermometer and allow it to stabilize for one minute.

4. If calibrated correctly, the controller temperature should be within ±0.5°C from the thermometer temperature.
5. Repeat steps 1 through 4 for the remaining controllers.
6. If the temperature difference between a controller and the thermometer is more than 0.5°C, proceed to calibration.

Temperature Calibration for the EZ-Zone Controller

1. Turn ON the instrument and set the controller to 65°C. Allow 30 minutes for temperature to stabilize.
2. Using the cable provided with the digital thermometer, plug one end into the thermometer and the other end into the blue jack above the controller.
3. Turn on thermometer and allow it to stabilize for one minute. The actual temperature of the block will be displayed.
4. Calculate the difference between the thermometer and the controller to determine the adjustment value. For example, if the thermometer reads 63.9°C while the controller reads 65°C, then the adjustment value is -1.1°C.
5. On the controller, press the up and down arrows simultaneously for 3 seconds. The left display shows "A1" and the right display shows "open".
6. Press the Advance Button (green circle) 3 times until the right display shows "i.CA". The left display will show the offset value between the controller and thermometer when the unit was last calibrated.
7. Using the up or down arrows, add the adjustment value from step 4 above to the existing offset value shown on the controller. For example, if the adjustment value is -1.1°C and the current offset is -0.3°C then the new offset is -1.4°C.
8. Press the Infinity Key (∞) twice to exit calibration. Verify that the thermometer matches the controller.   ¤

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