

## YSI Model 85 Dissolved Oxygen, Temperature, and Salinity Meter

At each site in your location you will use this meter to determine the temperature, salinity, and dissolved oxygen in mg/L and %. Take these readings after the seine team has transected the site at about mid depth in the middle of the transect. Transfer the reading from the meter's memory to the site data sheet.

### Calibration of Dissolved Oxygen

**Dissolved oxygen readings are only as good as the calibration. When you get to your Location turn on the meter and calibrate, do not turn the meter off until you have obtained measurements at all sites.**

1. Ensure that the sponge inside the instrument's calibration chamber is wet. Insert the probe into the calibration chamber.

2. Turn the instrument on by pressing the **ON/OFF** button on the front of the instrument. Press the **MODE** button until dissolved oxygen is displayed in **mg/L** or **%**. Wait for the dissolved oxygen and temperature readings to stabilize (usually 15 minutes is required).

(NOTE: if you attempt to do this when the MODE is anything other than **mg/L** or **%** you will override the factory salinity calibration. This will make all salinity measurements invalid until we can purchase a conductivity standard solution and recalibrate!)

3. Use two fingers to press and release both the **UP ARROW** and **DOWN ARROW** buttons at the same time.

4. The LCD will prompt you to enter the local altitude in hundreds of feet. Since you are at sea level, enter 0.

5. The Model 85 should now display **CAL** in the lower left of the display, the calibration value of 100 should be displayed in the lower right of the display and the current % reading (before calibration) should be on the main display. Make sure that the current % reading (large display) is stable, then press the **ENTER** button. The display should read **SAVE** then should return to the Normal Operation Mode.

### Making Measurements

The Model 85 is designed to provide six distinct measurements (we will only record four). To choose one of the measurement modes (temperature is always displayed) simply press and release the **MODE** button.

**Dissolved Oxygen %** -- A measurement of oxygen in % of saturation.

**Dissolved Oxygen mg/L** -- A measurement of oxygen in mg/L

**Conductivity** -- A measurement of the actual conductivity of the liquid sample. (We do not record this value)

**Specific Conductance** -- A measurement of the conductivity adjusted to a specific temperature value. (We do not record this value)

**Temperature** -- A measurement of the actual sample temperature.

**Salinity** -- A calculation done by the instrument electronics, based upon the conductivity and temperature readings.

If the instrument is reading **Dissolved Oxygen** the large numbers on the display will be followed by either a **mg/L** (an indication of the number of milligrams of dissolved oxygen per liter of water) or **%** (an indication of the amount of dissolved oxygen in the water compared to the maximum amount that could be dissolved). It is important to remember that the dissolved oxygen probe is stirring dependent. This is due to the consumption of oxygen at the sensor tip during measurement. When taking dissolved oxygen measurements the probe must be moved through the sample at a rate of 1 foot per second to provide adequate stirring.

If the instrument is reading **Salinity** the large numbers on the display will be followed by a **ppt** (parts per thousand – this is an indication of the number of grams of salt per liter of water).  
If the instrument is reading **Conductivity** the large numbers on the display will be followed by a **uS or mS** (micro or milli Siemens – this is a measure of the conductance of the water). We do not include conductivity on our data sheets.

## Saving Data

The Model 85 is equipped with memory that is capable of storing up to 50 different sets of readings. After 50 data sets have been saved, subsequent saved data will begin overwriting existing data starting with site #1.

The data will not be lost due to power interruption. The Model 85 will assign a site identity number to each set of readings to allow easy review of the data. Note the site identity number may not coincide with the actual site number.

1. While any parameter is displayed on the screen depress the **ENTER** button and hold for approximately 2 seconds. The meter will flash **SAVE** on the display along with the current site identity being used.

## Recalling Stored Data

1. To put the Model 85 into the **RECALL** mode depress the **MODE** button repeatedly until **rcl** is displayed on the screen along with the site ID number in the lower right corner.
2. Depress the **ENTER** button to review the last set of data that was saved. The Model 85 will display the dissolved oxygen in % saturation and temperature. Another press of the **ENTER** button will display the dissolved oxygen in mg/L and the temperature. Depress the **ENTER** button again and again to review the conductivity, specific conductivity and salinity readings. All of which are displayed with the temperature.
3. Depress the **UP ARROW** button to increment through the saved sets of data.
4. Depress the **DOWN ARROW** button to decrement through the saved sets of data.
5. When the correct site ID# is displayed, press the **ENTER** button to display the data.
6. When you have finished recalling data, press the **MODE** button to return to normal operation.

### Erasing Stored Data

1. To erase the data that is stored into the Model 85's memory, depress the **MODE** button repeatedly until the Model 85 displays **ErAS** on the screen.
  2. Depress and hold the **DOWN ARROW** and **ENTER** buttons simultaneously for approximately 5 seconds.
  3. The Model 85 flashing **DONE** on the display for 1 to 2 seconds indicates successful erasure. The instrument will automatically change to normal operation after completion.
- IMPORTANT:** Data in all 50 site ID's will be erased completely and will be lost forever. Do not use the erase function until all recorded data has been transcribed to a data sheet.

## MAINTENANCE, CLEANING AND STORAGE

The single most important requirement for accurate and reproducible results in conductivity measurement is a clean cell. A dirty cell will change the conductivity of a solution by contaminating it. **ALWAYS RINSE THE CONDUCTIVITY CELL WITH CLEAN WATER AFTER EACH USE.**

To clean the conductivity cell:

1. Dip the cell in cleaning solution and agitate for two to three minutes. Any one of the foaming acid tile cleaners, such as Dow Chemical Bathroom Cleaner, will clean the cell adequately. When a stronger cleaning preparation is required, use a solution of 1:1 isopropyl alcohol and 1 N HCl. Remove the cell from the cleaning solution.
2. Use the nylon brush (supplied) to dislodge any contaminants from inside the electrode chamber.
3. Repeat steps one and two until the cell is completely clean. Rinse the cell thoroughly in deionized, or clean tap water.
4. Store the conductivity cell in the meter storage chamber.

