

FIELD OPERATION GUIDE

YSI 550 DO INSTRUMENT

TURNING THE INSTRUMENT ON

The YSI 550 DO keypad consists of six keys. There are four function keys, and one up and one down arrow keys. The top left key that has a green circle and line is the ON/OFF key. The top right key is the back light. The bottom left is the Mode key, and the bottom right is the Enter key.

Turn the instrument on by pressing and releasing the **ON/OFF** button on the front of the instrument.

NOTE: Since the probe has not yet been prepared, the data on the display will be inaccurate.



The light key is at the top right of the keypad. Pushing the **LIGHT** key will turn on or off the back light. The light will power off automatically after two minutes of non-use.

CHANGING THE TEMPERATURE UNITS

The YSI 550 DO Instrument can display the temperature units in either Fahrenheit or Celsius. To change the units that are displayed, turn the instrument on. Pressing both the down arrow keys and the mode key at the same time will switch the units between C or F.

CHOOSING THE RIGHT MEMBRANE

The YSI 5906 Standard Membrane Kit is supplied with the YSI 550 DO Instrument. This kit contains six cap membranes and a bottle of electrolyte solution. YSI recommends the 5906 membranes for all applications.

MEMBRANE CAP INSTALLATION

To install a new membrane cap on your YSI 550 dissolved oxygen probe:

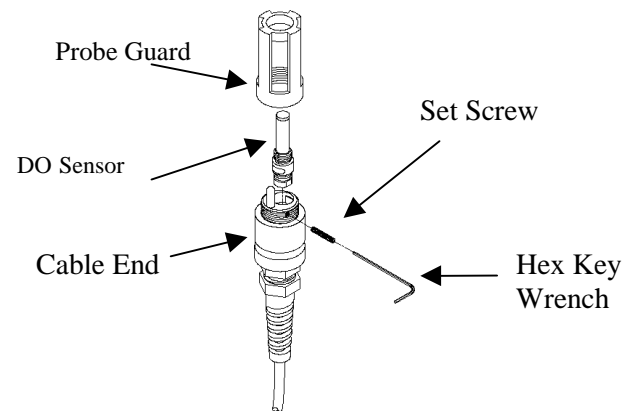
Unscrew and remove the probe sensor guard.

1. Unscrew and remove the old membrane cap.
2. Thoroughly rinse the sensor tip with distilled or DI water.
3. Prepare the electrolyte according to the directions on the solution bottle. Hold the membrane cap and fill it at least 1/2 full with the electrolyte solution.
4. Screw the membrane cap onto the probe moderately tight. A small amount of electrolyte should overflow.
5. Screw the probe sensor guard on moderately tight.

CAUTION: Do not touch the membrane surface.

HOW TO REPLACE THE DO PROBE TIP

In the YSI 559 dissolved oxygen module replacement kit YSI supplies a YSI 559 DO Sensor, a YSI 5906 membrane kit, the set screw that holds the sensor in place, a hex key wrench to help install the probe, and an instruction sheet.



1. Remove probe guard.
2. **IMPORTANT:** Thoroughly dry the sensor so that no water enters the probe port when the sensor is removed.
3. Insert the long end of the hex key wrench into the small hole in the side of the DO sensor module. Turn the wrench counter clockwise and remove the screw. (You do not have to remove the screw all the way to release the sensor.)

4. Pull the DO sensor out of the module. The DO sensor is keyed, or has a flat side, so that it can not be removed improperly.

5. Insert the new probe. Make sure that the inside of the module, and the o-ring of the sensor are clean, with no contaminants, such as grease, dirt, or hair. The DO sensor is keyed, or has a flat side, so that it can not be installed improperly.

6a. **IF you did not remove the screw all the way in Step 3:** Use the hex key wrench to tighten the screw in properly, making sure that the screw does not stick out on either side of the DO sensor module.

6b. **IF you removed the screw all the way in Step 3:** Insert the set screw into the small hole in the side of the DO sensor module, and turn clockwise to rethread.

7. The YSI 559 DO module is shipped dry. **Before using the YSI 550 with a new YSI 559 sensor, the protective membrane on the probe tip must be removed, the membrane cap must be filled with electrolyte solution and a new membrane must be installed.** Follow the instructions below to install the electrolyte solution and membrane.

8. Insert the new probe. Make sure that the inside of the module, and the o-ring of the sensor are clean, with no contaminants, such as grease, dirt, or hair. The DO sensor is keyed, or has a flat side, so that it can not be installed improperly.

CAUTION: Make sure that you do not cross-thread the screw. Use the hex key wrench to tighten the screw in properly, making sure that the screw does not stick out on either side of the cable end. The probe guard will not thread on properly and damage may result if the screw is allowed to stick out on either side of the cable end.

THE CALIBRATION PROCESS

Before you calibrate the YSI 550 DO Instrument complete the procedures discussed in **Section 2, Preparing the YSI 550** and **Section 3, Preparing the Probe**.

Note: While testing to EN-61000-4-6, Conducted RF Immunity, per Table A.1 of EN61326, Electrical Equipment for Measurement, Control and Laboratory Use, the YSI 550 exhibited an ERROR 8 message from 8.6 MHz 22.8 MHz at induced RF voltages of 3-Volts to 1-Volt RMS on the 25-foot probe cable. If you observe this interference please relocate the probe-cable away from heavy industrial equipment power and control cables or communications equipment cables which may be causing the interference.

To accurately calibrate the YSI 550, you will need to know the following information:

➤ The approximate salinity of the water you will be analyzing. Fresh water has a salinity of approximately zero. Seawater has a salinity of approximately 35 parts per thousand (ppt). If you are uncertain what the salinity of the sample water, use a YSI 30 Salinity-Conductivity-Temperature instrument to determine salinity.

➤ IF you are going to calibrate in % saturation mode, you need to know the approximate altitude of the region where you are located.

1. Ensure that the sponge inside the instrument's calibration chamber is moist. Insert the probe into the calibration chamber.
2. Turn the instrument on by pressing the **ON/OFF** button on the front of the instrument. Wait for the dissolved oxygen and temperature readings to stabilize (usually 15 minutes is required after turning the instrument on).
3. To enter the calibration menu, use two fingers to press and release both the **UP ARROW** and **DOWN ARROW** keys at the same time.

TO CALIBRATE IN MG/L:

To switch between mg/L and percent saturation to be displayed as the oxygen readings units, press the Mode key. Either a "mg/L" or "%" will be displayed on the right side of the screen.



4. Make sure that the DO reading (large display) is stable, then press the **ENTER** button. The YSI 550 DO instrument should now display **CAL** in the lower left of the display, the calibration value should be displayed in the lower right of the display and the current DO reading (before calibration) should be on the main display.
5. Make sure that the DO reading (large display) is stable, then press the **ENTER** button. The LCD will prompt you to enter the approximate salinity of the water you are about to analyze. You can enter any number from 0 to 40 parts per thousand (PPT) of salinity. Use the arrow keys to increase or decrease the salinity setting. When the correct salinity appears on the LCD (zero for fresh water), press the **ENTER** key. The instrument will return to normal operation.

Once the calibration process is complete, the only keys that will remain operational are the **MODE** key, the **LIGHT** key and the **ON/OFF** key. You can move back and forth from reading dissolved oxygen in the mg/L mode or the % air saturation mode by pressing the **MODE** key. If you are working in a dark area and have difficulty reading the LCD, press the **LIGHT** key to activate the back-light of the YSI 550. The **ON/OFF** key turns the instrument on or off.

For best results:

- Each time the YSI 550 DO Instrument is turned off, re-calibrate before taking measurements.
- Calibrate at a temperature within $\pm 10^{\circ}\text{C}$ of the sample temperature.

TO CALIBRATE IN % SATURATION:

To switch between mg/L and percent saturation to be displayed as the oxygen readings units, press the Mode key. Either a “mg/L” or “%” will be displayed on the right side of the screen.

4. IF you are calibrating in % saturation mode, the LCD will prompt you to enter the local altitude in hundreds of feet. Use the arrow keys to increase or decrease the altitude.

EXAMPLE: Entering the number 12 here indicates 1200 feet.

6. When the proper altitude appears on the LCD, press the **ENTER** key. The YSI 550 DO Instrument should now display **CAL** in the lower left of the display, the calibration value should be displayed in the lower right of the display and the current DO reading (before calibration) should be on the main display.
7. Make sure that the DO reading (large display) is stable, then press the **ENTER** button. The LCD will prompt you to enter the approximate salinity of the water you are about to analyze. You can enter any number from 0 to 40 parts per thousand (PPT) of salinity. Use the arrow keys to increase or decrease the salinity setting. When the correct salinity appears on the LCD (zero for fresh water), press the **ENTER** key. The instrument will return to normal operation.

Once the calibration process is complete, the only keys that will remain operational are the **MODE** key, the **LIGHT** key and the **ON/OFF** key. You can move back and forth from reading dissolved oxygen in the mg/L mode or the % air saturation mode by pressing the **MODE** key. If you are working in a dark area and have difficulty reading the LCD, press and hold the **LIGHT** key to activate the back-light of the YSI 550. The **ON/OFF** key turns the instrument on or off.

For best results:

- Each time the YSI 550 DO Instrument is turned off, re-calibrate before taking measurements.
- Calibrate at a temperature within $\pm 10^{\circ}\text{C}$ of the sample temperature.

CONVERSION CHART

To Convert From	To	Equation
Feet	Meter	Multiply by 0.3048
Meter	Feet	Multiply by 3.2808399
Degrees Celsius	Degrees Fahrenheit	$(^{\circ}\text{C} \times 9/5) + 32$
Degrees Fahrenheit	Degrees Celsius	$(^{\circ}\text{F} - 32) \times 5/9$
Milligrams per liter (mg/L)	Parts per million (ppm)	Multiply by 1

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