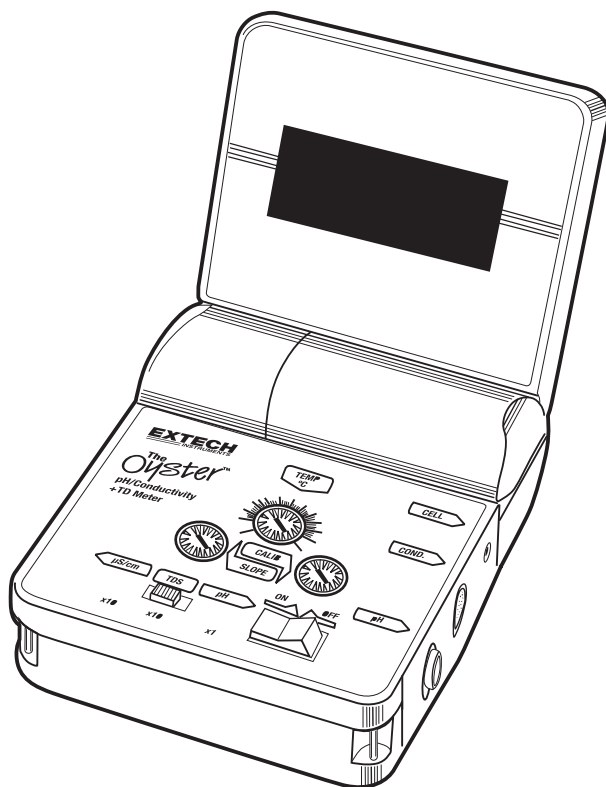


User's Guide



Oyster pH - Conductivity - TDS - Meters

Models 341350 and 341350-P

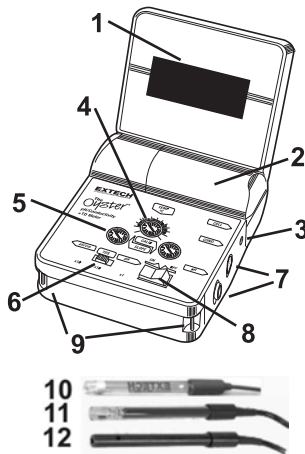


INTRODUCTION

Congratulations on your purchase of the Extech's Oyster Series meter or meter kit. These devices measure pH, Conductivity and TDS. These meters are intended for routine laboratory and field testing. Accurate measurements are provided in a battery operated, portable meter with a hinged display that can be adjusted to any viewing angle. Model 341350 includes a glass conductivity electrode and model 341350-P includes a Polymer conductivity electrode.

METER DESCRIPTION

1. LCD display
2. Battery compartment
3. Conductivity cal pot
4. pH temperature adjust
5. pH CAL and SLOPE adjustments
6. Function switch
7. Electrode connectors
8. ON/OFF switch
9. Lanyard attachment pins
10. pH electrode
11. Glass Conductivity cell
12. Polymer Conductivity cell



OPERATING INSTRUCTIONS

pH Calibration

1. Calibrate the meter and electrode before each use to ensure accuracy.
2. Connect the pH electrode via the BNC connector to the meter.
3. Open the meter to the fully extended position. Open the battery cover and install a 9V battery. Replace the cover and turn the unit ON. The LCD indication should appear.
4. Slide the SELECT switch to pH
5. Adjust the TEMP °C knob to approximate the solution temperature.
6. Remove the wetting cap from the tip of the electrode. Rinse in de-ionized water, blot dry and place the electrode in a 7.00 pH buffer solution. Allow to stand for approximately one minute or until the display stabilizes.
7. Adjust the CALIB knob until the display reads 7.00.
8. Remove the electrode from the buffer and rinse it in distilled water and blot dry. Place the electrode in a 4 or 10 pH buffer solution and allow to stand for approximately 1 minute or until the display stabilizes.
9. Adjust the SLOPE knob until the display reads 4.00 or 10.00 (as required).
10. Repeat steps 6 through 9 until no further adjustment is necessary.

Conductivity / TDS Calibration

The conductivity cell calibration should be performed frequently to ensure accuracy.

1. Connect the conductivity cell to the input socket on the side of the meter.
2. Prepare a conductivity solution of approximately the same value as the solution to be measured. The solution should be prepared at 25°C.
3. Set the meter to the uS/cm or TDS mode.
4. Place the cell in calibration solution and allow the reading to stabilize.
5. Adjust the Cell knob until the display reads the value of the calibration solution.

Example: For a 12560uS/cm conductivity solution the display will read 1256. The user must multiply the reading x 10.

pH Measurement

1. Turn the meter ON and set the function slide switch to the "pH" position.
2. Connect the pH electrode to the side BNC connector.
3. Calibrate the electrode if required.
4. Adjust the TEMP °C dial to the temperature of the sample in degrees C.
5. Place the electrode in the sample solution and read the pH value on the LCD.
6. When all measurements have been taken, unplug the electrode and rinse in distilled water, shake and store in the wetting cap or a pH 4 buffer solution.

Notes on pH measurements and electrodes

1. The 60120B pH electrode is recessed in the polymer body allowing it to rest against the bottom of a beaker without damage the glass bulb.
2. The Electrode should stored in its wetting cap until used. Use a pH 4 buffer solution or tap water as the storage medium.
3. If bubbles are seen in the bulb area, hold the electrode by its cap and shake downwards until bubbles are removed.
4. To improve speed of response, vigorously stir the electrode in the sample, buffer, or rinse solution.
5. After exposure to a sample, buffer, or rinse solution, shake the electrode with a snap motion to remove residual drops of solution.
6. Use part of the next sample/buffer to be measured as a rinse solution, when possible.
7. When calibrating, use a buffer as close as possible to the expected pH of the sample.
8. Keep buffers and samples at the same temperature to avoid temperature effects.
9. pH readings stabilize faster in some solutions than others; allow time to stabilize.
10. Electrodes deteriorate over time. If accuracy falls to 10% the electrode should be cleaned or replaced. If no improvement is observed, replace the electrode.

Conductivity/TDS Measurements (Multiply readings by 10)

1. Turn the meter ON and set the function slide switch to the "uS/cm" or "TDS" position
2. Place the electrode in the sample solution.
3. Multiply the reading in the LCD display by 10.
4. When finished, unplug the electrode and rinse in distilled water.

Notes on the Conductivity/TDS Cell

1. Cell Storage: On sheathed cells, replace the sheath over the cell when storing. For non-sheathed versions, soak the cell tip in de-ionized water for storage.
2. Cell Cleaning: After each use, the cell tip should be rinsed with de-ionized water. If solids build up inside the cell carefully remove with a cotton swab soaked in solvent taking care not to touch the metal parts of the inner cell.

pH Troubleshooting Chart

Symptom	Cause	Recommended Solution
Long response time or reading drift	Clogged Junction	Soak in 4.07 M KCL @ 60°C for 30 minutes
	Strong Alkaline measurement	Soak in 0.1 M HCL overnight
	Deteriorated Gel layer	
	Protein coating on electrode surface	Soak in 1 gm Pepsin dissolved in 100ml of 0.1 m HCL for 30 minutes or as needed
	Oil, paint, dyes, suspended solids on sensor	Rinse electrode alternately with materials solvent then buffer 7.00
	Organic solvents are coating sensor	Organic mole fraction has to be less than 50% to assure reasonable readings. Limit time of measurement. Keep probe in the 7.0 buffer between readings.
	Dehydrated membrane	
Dry Bulb	Long term storage without wetting	Soak electrode tip in wetting cap filled with 1ml 7.00 buffer for 24 to 48 hours
Static Charge	Wiping electrodes	Rinse electrode in 7.0 buffer and blot. Do no wipe electrode.
Same readings in different buffers and samples	Cracked or broken bulb	Replace electrode. Use bulb guard. Avoid plunging electrode to bottom of container and spinning bars. A wetting cap will protect bulb between measurements.
Erratic LCD display	Samples have low ionic strength (lacks salt); e.g. distilled, de-ionized, boiled, lake water (high pressure)	For each 50 ml of sample add 1 drop (50uL) of SAT.KCL No alteration in pH will occur by inert KCL.

Temperature conversion table

°C to °F Conversion	
<u>°C</u>	<u>°F</u>
0	32
20	68
25	77
30	86
40	104
50	122
60	140
70	158
80	176
90	194
100	212

SPECIFICATIONS

	Range (resolution)	Accuracy
Conductivity	10 - 19,990 μ S (10 μ S)	$\pm$ 0.5%
pH	0.00 to 14.00pH (0.01pH)	$\pm$ 0.02pH
TDS	10 - 19,990ppm (10ppm)	$\pm$ 0.5%
Auto/Manual Temperature Compensation	Manual for pH/Auto for conductivity/TDS; 0-100°C; Correction: 2% per °C	
Power	9V battery	
Display	3-1/2 Digit LCD (90 to 180° adjustable viewing angle)	
Overrange Indication	Automatic (1---) on all ranges	
Low Battery Indication	Automatic	
Dimensions/Weight	3.75 x 4.25 x 2" (96 x 108 x 45mm) / 12 oz (340g)	
Accessories supplied	9V battery, pH electrode, pH buffers, bottle, case, and conductivity cell	

MAINTENANCE

Conductivity Cell Simulator

The meter is supplied with a cell simulator which can be used in place of the conductivity cell to provide a means to verify the operation of the meter. The simulator will produce a reading of approximately 800 - 1200 μ S (~1mS). The simulator should not be used as a calibration device.

This device is helpful in determining if the cause of calibration difficulties is related to the meter or (more likely) an aged or defective conductivity cell.

Battery Installation / Replacement

Install a new battery when the LOW BATTERY indication appears on the LCD.

1. Open the top cover (display) to its fully extended position.
2. Locate the slot below the arrow on the battery cover.
3. Use a flat bladed screwdriver or small coin to pry up and out in the slot until the cover opens.
4. Install the new battery and replace the cover.

Calibration / Repair Services

Extech offers complete repair and calibration services for all of the products we sell. For periodic calibration or repair of any Extech product, call customer service for details on services available. Extech recommends that calibration be performed on an annual basis to insure calibration integrity.

WARRANTY

EXTECH INSTRUMENTS CORPORATION warrants this instrument to be free of defects in parts and workmanship for one year from date of shipment (a six month limited warranty applies on sensors and cables). If it should become necessary to return the instrument for service during or beyond the warranty period, contact the Customer Service Department at (781) 890-7440 ext. 210 for authorization or visit our website at www.extech.com (click on Contact Extech and go to Service Department to request an RA number). A Return Authorization (RA) number must be issued before any product is returned to Extech. The sender is responsible for shipping charges, freight, insurance and proper packaging to prevent damage in transit. This warranty does not apply to defects resulting from action of the user such as misuse, improper wiring, operation outside of specification, improper maintenance or repair, or unauthorized modification. Extech specifically disclaims any implied warranties or merchantability or fitness for a specific purpose and will not be liable for any direct, indirect, incidental or consequential damages. Extech's total liability is limited to repair or replacement of the product. The warranty set forth above is inclusive and no other warranty, whether written or oral, is expressed or implied.



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Product specifications subject to change without notice

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