

M310T Multi-parameter Analyzer Operation Quick Guide

1. Specification

Parameters:

- pH/pX Module: pH, pX, ISE
- EC Module: Conductivity, Resistivity, TDS, Salinity
- DO Module: DO, Saturation
- Temperature

2. Screen Icons



2.1. Annotation

No.	Explanation
1	System time
2	Reading mode
3	Measurement parameters
4	Measurement box
5	Calibration information
6	Measurement box
7	User ID
8	Sample ID
9	Power information
10	Reading states
11	Measurement box
12	Function buttons

2.2. Symbol

Symbol	Explanation
	Reading status, display the measurement status of reading, stable, locked each indicates that the processing, stable, and reading completed.
PTS	The percentage slope of the pH electrode calibration data
BUFF	The standard buffer solution for calibration
Time	Time to Calibrate Electrodes

Symbol	Explanation
	Standard solution for pH electrode calibration
ATC	Auto Temperature compensation
MTC	Manual temperature compensation
TC	Temperature coefficient
Ref	Reference temperature
Comp	Compensation mode
CC	Cell constant
Type	Calibration type
STD	Standard solution
	Standard solution for conductivity calibration
Time	Calibration time
TDSF	TDS conversion factor
AP	Barometric compensation
SALT	Auto salt compensation
	User ID
	Sample ID
Auto Mode	Auto standard recognition
Manual Mode	Input standard



3. pH Operation Quick Guide

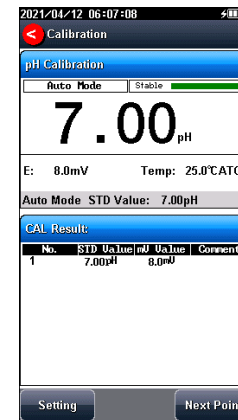
3.1. Preparation

- 1 . Install the components of the instrument and connect the electrode.
- 2 . Prepare standard buffer solutions such as pH 4.01, pH 7.00, pH 10.01 standard solutions.
- 3 . Remove the protective cap at the lower end of the pH electrode, pull down the rubber cover at the upper end of the electrode. Expose the top hole, rinse the electrode with distilled water, and dry with filter paper.
- 4 . Press the power key to turn on the instrument.


3.2. Calibration

- 1 . Setting.
 - 1) Set the parameters (e.g., pH).
 - 2) Select standard solution group (e.g., NIST pH 4.01, pH 7.00 and pH 10.01).
 - 3) Set to automatic recognition.
- 2 . Enter to calibrate the pH electrode through the "Calibrate"->"pH Calibration".

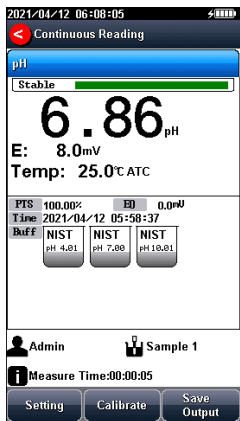
- 3 . Put the cleaned electrode into pH 4.01 standard solution, wait for the instrument to display "Auto Mode Matched", after the reading is stable, press "Start".
- 4 . If only 1-point calibration is required, after 1-point calibration is completed, press the  to complete the calibration.
- 5 . If multi-point calibration is required, please replace the pH 7.01 and pH 10.01 standard buffer solutions. After cleaning the electrode, put the electrode into the standard solution. After the instrument recognizes it successfully, the instrument reads stably, press the soft function key "Next Point" to complete the calibration.
- 6 . After completing the calibration, press the  to complete the calibration, save the calibration results and end the calibration, directly enter the start interface. If the checked standard solution group is 5, automatically end the calibration after five points of calibration.



3.3. Measurement

- 1 . Setting.
 - 1) Set the parameters (e.g., pH).
 - 2) Set the reading mode (e.g., continuous reading, auto-reading, or timed format).
- 2 . Press  to enter the measurement interface. After the reading is stable (the data is stable, the fixed mark is full), and then measure.
- 3 . Press the "Save Output" to save the measurement results and print the result.

Note: For accurate measurement, please calibrate and measure at the same temperature.



4. pX Operation Quick Guide

4.1. Preparation

- 1 . Install the components of the instrument and connect the temperature electrode and the ion selection electrode consistent with the ion to be measured.
- 2 . Prepare a standard solution of the ions to be measured, such as F ion standard solution (10^{-3} mol/L, 10^{-5} mol/L).
- 3 . Remove the protective cap at the lower end of the ion electrode, rinse the electrode with distilled water, placed in blank solution.

- 4 . Press the power key to turn on the instrument and stirrer.

4.2. Calibration

- 1 . Select the "Direct Measure Method".


The method includes:

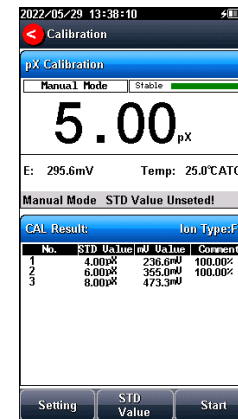
- 1) Set the parameters (e.g., pX).
- 2) Set the ion mode (e.g., F-).
- 3) Set the direct reading as ion measure mode.
- 4) Set the concentration unit (e.g., mol/L).
- 5) Set the blank concentration (e.g., 0.000 mol/L).

- 2 . Add an appropriate amount of standard solution (usually 100 ml) to the beaker, then add ionic strength adjustment buffer. Adjust the stirring speed of the solution for measurement.


- 3 . Press the "Calibrate" -"pX Calibration".
- 4 . Put the cleaned electrode into standard solution.
- 5 . Press the F2 "STD value" to input the standard value of the standard

solution (e.g., 10^{-3} mol/L, 10^{-4} mol/L, 10^{-5} mol/L)

- 6 . Wait for the reading is stable, press the "Start".
- 7 . If only 1-point calibration is required, after 1-point calibration is completed, press the  to complete the calibration.
- 8 . If choosing multi-points calibration (up to 5), press "Next" to repeat the operation.
- 9 . If the checked standard solution group is 5, automatically end the calibration after five points of calibration.

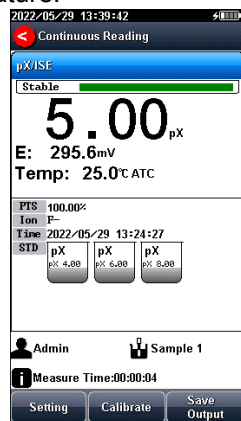


4.3. Measurement

1. Select the "Direct Measure Method". The method includes the parameter (e.g., pX), the ion type (e.g., F-), reading mode (e.g., continuous reading, auto-reading, or timed format).
2. Or Setting.
 - 1) Set the parameters (e.g., pX).
 - 2) Set the ion type (e.g., F-).
 - 3) Set the direct Reading as ion measure mode.
 - 4) Set the concentration unit (e.g., mol/L).
 - 5) Set the reading mode (e.g., continuous reading, auto-reading, or timed format).
3. Add an appropriate amount of standard solution (usually 100 ml) to the beaker, then add ionic strength adjustment buffer. Adjust the stirring speed of the solution for measurement.
4. Press  to enter into measurement status.

5. After the reading is stable, read the results.
4. Press the "Save Output" to save the measurement results and print the result.

Note: For accurate measurement, please calibrate and measure at the same temperature.



5. Conductivity Operation Quick Guide

5.1. Preparation

1. Connect the EC electrode (e.g., k=1, ATC) to the meter.
2. Take off the electrode protection cap.

3. Rinse the conductivity electrode with DI water, dry out.
 4. Switch on the meter.
- Note: The exact constant is attached to the cable in a new EC electrode.

5.2. Calibration

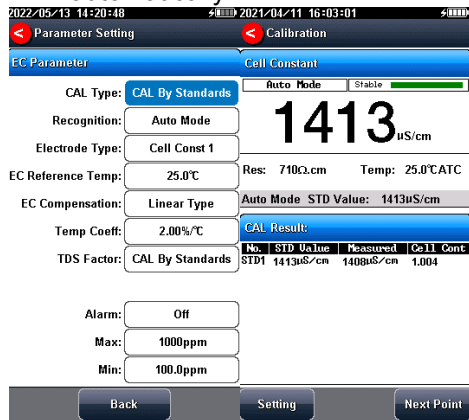
5.2.1. Cell Constant Setting

1. In the idle status, press "Parameter Setting" -"EC Parameters".
2. For the Electrode Type, select the "Cell const 1".
3. For the "Cal. Type", select the "Cal by Standards".
4. For the "Recognition", select the "Auto Mode".
5. Press "<Setting/Conductivity calibration" key to save the setting and return to the idle status.

5.2.2. Manual Calibration

1. Prepare one or more standard conductivity solution (e.g., 1413 $\mu\text{S/cm}$ conductivity solution).
2. Prepare a thermostatic bath, and set the temperature to $(25.0 \pm 0.1) ^\circ\text{C}$.
3. Place a standard conductivity solution in a thermostatic bath, and set the temperature to $(25.0 \pm 0.1) ^\circ\text{C}$.

4. Place the conductivity electrode into a standard solution.
5. Press the "Calibrate" and enter into the calibration status.
6. Wait for the conductivity and temperature reading (e.g., 1413 $\mu\text{S}/\text{cm}$, 25.0°C) are stable, press "Start".
7. If choosing one-point calibration, press "**Calibration**" to end the calibration.
8. If choosing multi-points calibration (up to 3), press "Next" to calibrate the next standard solution.
9. The meter saves calibration data automatically.



5.3. Measurement

1. Setting.
 - 1) Set the parameters (e.g., conductivity).
 - 2) Set the reading mode (e.g., continuous reading, auto-reading, and timed format).
 - 3) Set the temperature compensation (e.g., Linear compensation, temperature compensation coefficient 2.00%/°C).
 - 4) Set the reference temperature (e.g., 25°C).
 - 5) Set the alarm.
2. Rinse the conductivity electrode with DI water, dry out.
3. Put the measurement end of the electrode into the sample solution.
4. In the idle status, press "**Measure**" to enter into measurement status.
5. When the reading is stable, read the results.
5. Press the "Save Output" to save the measurement results and print the result.
6. During measurement, stored EC electrode in distilled or deionized water.

7. After measurement, rinse the EC electrode with deionized water thoroughly and put on the electrode protection cap.

Note: For accurate measurement, please calibrate and measure at the same temperature.



6. Dissolved Oxygen Meter Operation Quick Guide

6.1. Preparation

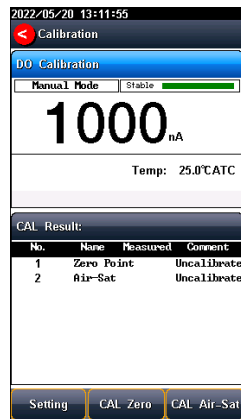
1. Install the DO electrode follow the steps:
 - 1) Take the cap off the electrodes, rinse the cap with DI water and dry out.

- 2) Rinse the inner electrode with DI water and dry the electrode.
- 3) Add the filling solution (electrolyte) into the membrane cap up to 3/4.
- 4) Install the cap onto the electrode.
2. Polarographic DO electrodes need to be polarized before use:
 - 1) Connect the DO electrode to the meter.
 - 2) Turn on the meter, wait for 1 hour and the electrode are auto polarized.
 - 3) When the electrodes are unplugged from the meter for no more than 1 hour, measurements are allowed after 25 minutes of polarization.
3. Prepare the samples and standards.
4. Select the measurement methods.

6.2. Calibration


1. Press "Calibrate" to electrode calibration.
2. Press "Setting" to set the salinity and the atmosphere pressure.
3. Rinse the electrode with DI water, place it into oxygen-free solution.
4. when the reading is stable, press the "CAL Zero" to complete the zero calibration.

5. Rinse the electrode with DI water again, place the probe in the upper part of a bottle filled with air-saturated (well shaken) water.
6. After the reading is stable, press the "CAL Air-Sat" to complete the air calibration.



6.3. Measurement

1. Select a method or create a new method (e.g., DO measure method).
2. Or Set the parameter.
 - 1) Set the parameters (e.g., DO).
 - 2) Set the reading mode (e.g., continuous reading, auto-reading, and timed format).
 - 3) Set the DO salinity compensation.

- 4) Set the DO barometric compensation.
 - 5) Set the alarm setting.
 3. Press  to measure. When the reading is stable, record the results.
 4. Press the "Save" to save the measurement results.
- Note: Please calibrate and polarized the electrode before the measurement for an accurate measurement.

