



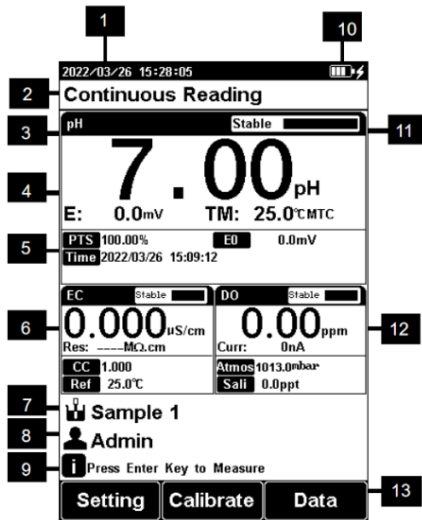
M310F Multi-parameter Analyzer Operation Quick Guide

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	No.	Explanation
1	System time	8	User ID
2	Reading mode	9	Tips information
3	Measurement parameters	10	Power information
4	Main measurement box	11	Reading State
5	Calibration information	12	Third measurement box
6	Second measurement box	13	Function buttons
7	Sample ID		

2.2. Symbol

Symbol	Explanation
ATC	Auto Temperature compensation
MTC	Manual temperature compensation

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

Symbol	Explanation
Auto Mode	Auto standard recognition
Manual Mode	Input standard
	Power information
	Charging

3. pH Operation Quick Guide

3.1. Preparation

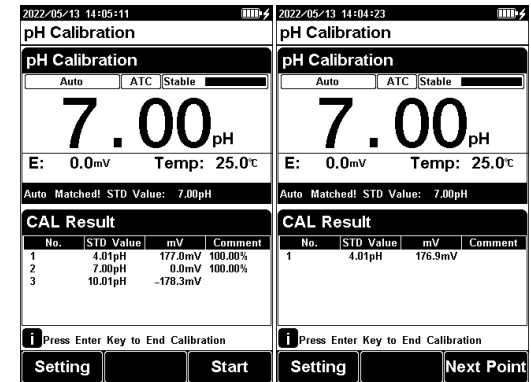
- 1 . Install the components of the instrument and connect the pH and temperature electrode.
- 2 . Prepare standard buffer solutions such as pH 4.01, pH 7.00, pH 10.01 standard solutions.
- 3 . Remove the protective cap at the lower end of the pH electrode, pull down the rubber cover at the upper end 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 F2 "Calibrate"->"pH Calibration".
- 3 . Put the cleaned electrode into pH 4.01 standard solution, wait for the instrument to display "Auto Matched", after the reading is stable, press F4 to "Start".
- 4 . If only 1-point calibration is required, after 1-point calibration is completed, press the "Enter" key to complete the calibration.
- 5 . If multi-point calibration is required, please replace the pH7.01 and pH10.01 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 "Enter" key to complete the calibration, save the calibration results and end the calibration,

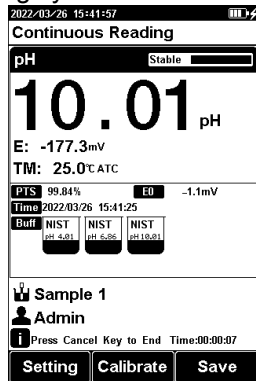
directly enter the start interface. If the checked standard solution group is 5, automatically end the calibration after five points of calibration.



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 . Rinse the pH electrode with DI water, dry out.
- 3 . Put the electrode into test solution under test.
- 4 . Put the measurement end of the electrode into the sample solution.

- 5 . In the measurement status, press "Enter" to enter into measurement status.
- 6 . When the reading is stable, read the results.
- 7 . Press the "Save" to save the measurement results and print the result.
- 8 . During measurement, stored pH electrode in distilled or deionized water.
- 9 . After measurement, rinse the pH electrode with deionized water thoroughly.



4. pX Operation Quick Guide

4.1. Preparation

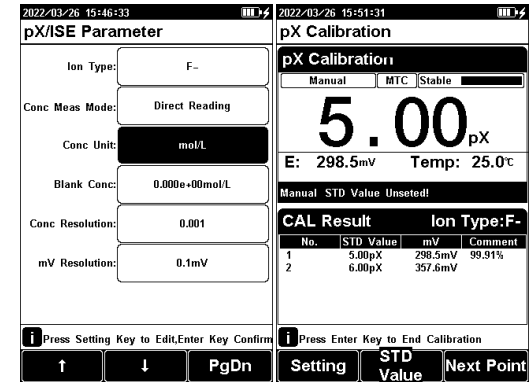
- 1 . Install the components of the instrument and connect the ISE and temperature electrode.

- 2 . Prepare standard solutions.
- 3 . Rinse the electrode with distilled water, and dry with filter paper.
- 4 . Press the power key to turn on the instrument and the stir.

4.2. Calibration

- 1 . Setting.
 - 1) Set the parameters (e.g. pX).
 - 2) Set the ion mode (e.g. F⁻).
 - 3) Set the concentration unit (e.g. ppm).
 - 4) Set the ion measurement mode (e.g. direct measurement)
- 2 . Enter to calibrate the ISE electrode through the soft function key F2 "Electrode calibration".
- 3 . Put the cleaned electrode into standard solution.
- 4 . Press the soft function key F2 "Standard" to input the standard value of the standard solution.
- 5 . Wait for the reading is stable, press the soft function key F3 to "Start".
- 6 . If only 1-point calibration is required, after 1-point calibration is completed, press the "Enter" key to complete the calibration.

- 7 . If choosing multi-points calibration (up to 3), press "Next" to repeat the operation.
- 8 . If the checked standard solution group is 5, automatically end the calibration after five points of calibration.



4.3. Measurement

- 1 . Setting.
 - 1) Set the parameters (e.g., pX).
 - 2) Set the ion mode (e.g. F⁻).
 - 3) Set the reading mode (e.g., continuous reading, auto-reading, or timed format).
- 2 . Put the electrode into test solution under test and shake the electrode gently in a circle, in a circular motion,

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.

5.2. Calibration

5.2.1. Cell Constant Setting

- 1 . In the idle status, press soft button F1 "Setting" -"Conductivity calibration".
- 2 . Press the "Constant type" to select the "1".
- 3 . Press "Cal. Type" to select the "Input Manually".
- 4 . Enter the constant manually.
- 5 . Press "Enter" key to save the setting and return to the idle status.

5.2.2. Manual Calibration

- 1 . In the idle status, press soft button F1 "Setting" -"Conductivity calibration".
- 2 . Press the "Constant type" to select the "1".

- 3 . Press "Cal. Type" to select the "Cal by Standards".
- 4 . Prepare one or more standard conductivity solution(e.g.1413 μ S/cm conductivity solution).
- 5 . Prepare a thermostatic bath, and set the temperature to (25.0 \pm 0.1) $^{\circ}$ C.
- 6 . Place a standard conductivity solutionin a thermostatic bath, and set the temperature to (25.0 \pm 0.1) $^{\circ}$ C.
- 7 . Place the conductivity electrode into a standard solution.
- 8 . In the idle status, press the soft button F2 "Calibrate" and enter into the calibration status.
- 9 . When the conductivity and temperature reading (e.g.1413 μ S/cm, 25.0 $^{\circ}$ C) are stable.
- 10 . If choosing one-point calibration, press "Enter" to end the calibration.
- 11 . If choosing multi-points calibration (up to 3), press "Next" to repeat the operation.
- 12 . The meter saves calibration data automatically and turn to idle status.

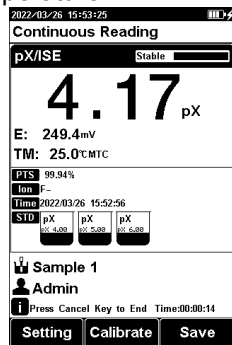
or use a stirrer to avoid air bubbles during the process.

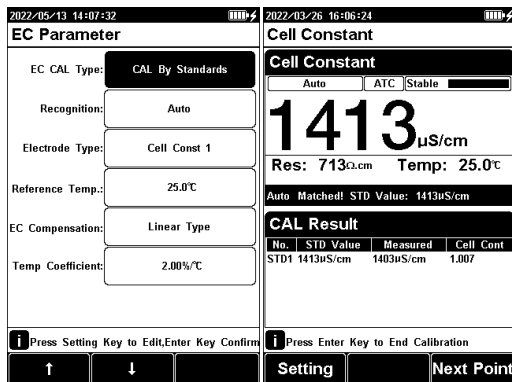
- 3 . In the measurement status, press "Enter" to enter into measurement status.
- 4 . When the reading is stable, read the results.



- 5 . Press the "Save" to save the measurement results and print the result.
- 6 . During measurement, stored ISE electrode in distilled or deionized water.
- 7 . After measurement, rinse the ISE electrode with deionized water thoroughly.

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





5.3. Measurement

1 . Setting.

- 1) Set the parameters (e.g. conductivity).
- 2) Set the reading mode (e.g., continuous reading, auto-reading, or 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).

2 . Rinse the conductivity electrode with DI water, dry out.

3 . Put the measurement end of the electrode into the sample solution.

M310F Multi-parameter Analyzer Operation Quick Guide

4 . In the measurement status, press "Enter" to enter into measurement status.

5 . When the reading is stable, read the results.

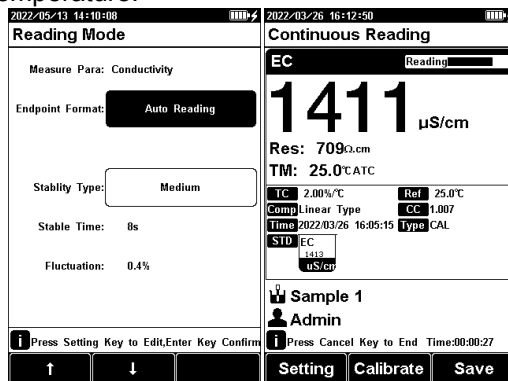


6 . Press the "Save" to save the measurement results and print the result.

7 . During measurement, stored EC electrode in distilled or deionized water.

8 . 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.

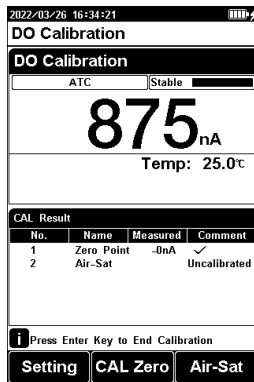
2 . Polarographic DO electrodes need to be polarized before use:

- 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.

6.2. Calibration

- 1 . Place the electrode into oxygen-free solution. Press "Calibration" to select "DO Calibrate".
- 2 . Press "Zero" to do zero oxygen calibration. After reading is stable, press "Enter" to complete.
- 3 . Rinse the electrode with DI water again, place the probe in the upper part of a bottle filled with air-saturated (well shaken) water.
- 4 . Press "Full" to do full oxygen calibration. After reading is stable, press "Enter" to complete.



6.3. Measurement

- 1 . Setting.
 - 1) Set the parameters (e.g. DO).

- 2) Set the reading mode (e.g., continuous reading, auto-reading, or timed format).
 - 3) Set the salt compensation (e.g., 0.00ppm).
 - 4) Set the Barometric compensation (e.g. 1.013bar).
- 2 . Put the electrode into test solution under test and shake the electrode gently in a circle, in a circular motion, or use a stirrer to avoid air bubbles during the process.
 - 3 . In the measurement status, press "Enter" to enter into measurement status.
 - 4 . When the reading is stable, read the results.
 - 5 . Press the "Save" to save the measurement results.
 - 6 . Press the "Output" to print the measurement result when connect to the printer.
 - 7 . During measurement, stored DO electrode in distilled or deionized water.
 - 8 . After measurement, rinse the DO electrode with deionized water thoroughly. Add the filling solution (electrolyte) into the membrane cap

up to 3/4, and Install the cap onto the electrode.

Note 1: Please calibrate and polarized the electrode before the measurement for an accurate measurement.

Note 2: The air press is set at 1.013 bar and the salinity is set as 0mg/L. See the manual for details on changes to these parameters.

