

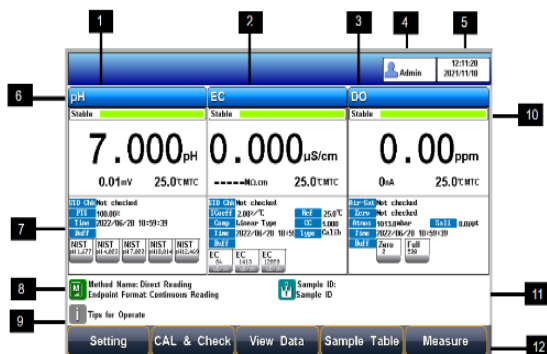
# M500T Multi-parameter Analyzer Operation Quick Guide

## 1. Specification

Parameters:

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

## 2. Screen Icons



### 2.1. Annotation

No.	Explanation
1	Measurement box
2	Measurement box
3	Measurement box

No.	Explanation
4	User ID
5	System time
6	Measurement parameters
7	Calibration information
8	Method
9	Tips information
10	Reading mode and reading states
11	Sample ID
12	Function buttons

### 2.2. Symbol

Symbol	Explanation
	Reading status
PTS	The percentage slope of the pH electrode calibration data.
ATC	Automatic temperature compensation
MTC	Manual temperature compensation
ORP	Redox potential value, in mV
Offset	Offset potential, in mV
	Measurement method management, display the current method information
	Standard solution for pH calibration
	Standard solution for ion calibration
	User ID
	Sample ID

## 3. pH Operation Quick Guide


### 3.1. Preparation

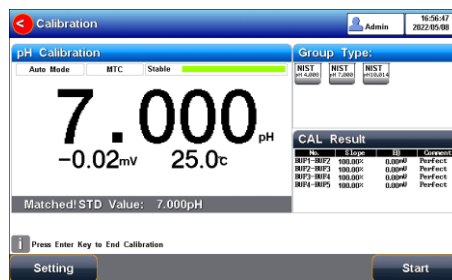
1. Install the components of the instrument and connect the pH and temperature electrode.
2. Prepare standard buffer solutions such as pH 4.01, pH 7.00, pH 10.01 standard solutions.
3. Remove the protective cap at the lower end of the pH electrode, pull down the rubber cover at the upper end of the electrode. 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.
5. Select measurement method:
  - The default measurement method of the instrument is "No.001 direct reading measurement method", pH measurement parameter, continuous reading mode, if adopting the default method for measurement, this step can be omitted.
  - Press to enter the measurement method management. You can select the method in the method list or create new methods as required.

6. The main measurement parameter settings of the instrument:
- Reading mode: supports continuous, timing and auto reading mode.
- The default is continuous reading mode, you can choose according to your requirements, press the "Enter" key to complete the setting.

### 3.2. Calibration

- Setting.
  - Set the parameters (e.g., pH).
  - Select NIST standard solution group, and check pH 4.01, pH 7.00 and pH 10.01 three standard solutions.
  - Set the Auto Mode recognition.
- After pressing the "CAL & Check"- "pH Calibration".
- Put the cleaned electrode into pH 4.01 standard solution.
- Wait for the instrument to display "Auto Mode Matched", or the instrument reading is stable, press "Start" to calibrate 1-point, after the completion of the instrument, display calibration results.

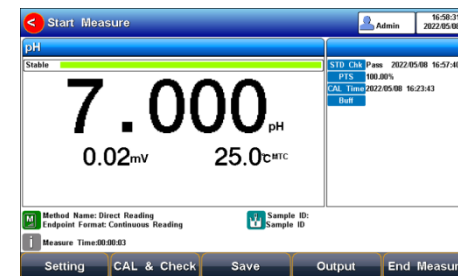
- If multi-point calibration is required, please replace the pH7.01 and pH10.01 standard buffer solutions. After cleaning the electrode, put the electrode into the standard solution. After the instrument recognizes it successfully, the instrument reads stably, press the "Next Point" to complete the calibration.
- During the calibration process, press the " Calibration" key to terminate the calibration, and the instrument will automatically display the window prompts whether to save the calibration results. After selecting, directly enter the start interface. interface. If the checked standard solution group is 6, automatically end the calibration after six points of calibration.



### 3.3. Measurement


- Setting.
  - Set the parameters (e.g., pH).
  - Set the reading mode (e.g., continuous reading, auto-reading, or timed format).
- Press "Measure" to enter the measurement interface, after the reading is stabilized (the data stability mark is full), then measure.
- Press the "Save" to save the measurement results. Press the "Output" to print the measurement result when connect to the printer.

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



## 4. pX Operation Quick Guide


### 4.1. Preparation

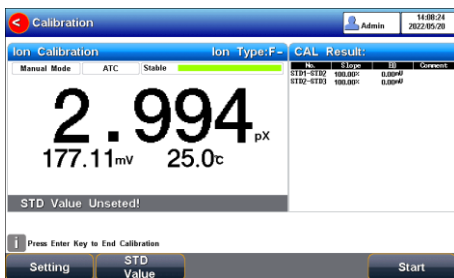
- 1 . Install the components of the instrument.
- 2 . Prepare a standard solution of the ions to be measured, such as F ion standard solution ( $10^{-3}$  mol/L,  $10^{-5}$  mol/L).
- 3 . Remove the protective cap at the lower end of the ion electrode, rinse the electrode with distilled water, placed in blank solution.
- 4 . Press the power key to turn on the instrument and stirrer.
- 5 . Select measurement method:
  - The default measurement method of the instrument is "No.001 direct reading measurement method", pX measurement parameter, continuous reading mode, if adopting the default method for measurement, this step can be omitted.
  - Press  to enter the measurement method management. You can select the method in the method list or create new methods as required.
6. The main measurement parameter settings of the instrument:

- Reading mode: support continuous, timed and auto reading mode.  
The default is continuous reading mode, which can be selected according to your requirements, and press the "Enter" key to complete the setting.
- pX parameters: ion mode, ion measurement mode, resolution and result unit, etc.  
Note: Set the same ion mode as the ion to be measured, such as "F-", ion measurement mode such as "Direct reading concentration method", the unit of measurement result is "pX, mol/L, g/L, ppm, ppb", etc.

### 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 6), press "Next" to repeat the operation.
  1. If the checked standard solution group is 6, automatically end the calibration after six points of calibration.



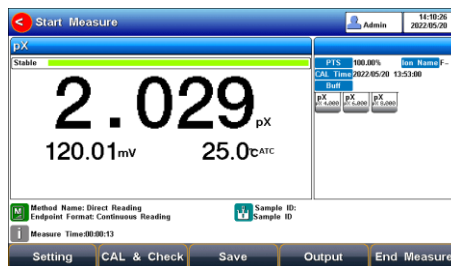
### 4.3. Measurement

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 measure to enter into measurement status.
5. When the reading is stable, read the results.
6. Press the "Save" to save the measurement results.
7. Press the "Output" to print the measurement result when connect to the printer.

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



## 5. ORP Operation Quick Guide

### 5.1. Preparation

- 1 . Install the components of the instrument.
- 2 . Prepare a standard solution of ORP 462 mV solution.
- 3 . Remove the protective cap at the lower end of the ORP electrode, rinse the electrode with distilled water and dry out.
- 4 . Press the power key to turn on the instrument.
- 5 . Select measurement method:
  - The default measurement method of the instrument is "No.001 direct reading measurement method". Please choose the ORP measurement parameter in the parameter setting.
  - Press **M** to enter the measurement method management. You can select the "No. 004 ORP measure method".
6. The main measurement parameter settings of the instrument:
  - Reading mode: support continuous, timing and auto reading mode.

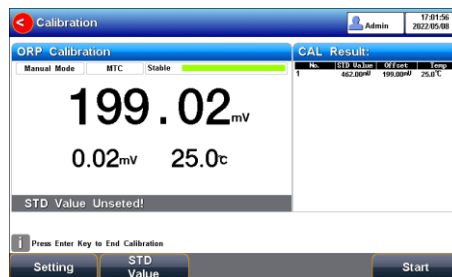
The default is continuous reading mode, which can be selected according to your requirements, and press the "Enter" key to complete the setting.

- ORP parameters: ORP electrode information, mV resolution, alarm setting and calibration reminder setting.

## 5.2. Calibration

1. Select "CAL & Check" -"ORP Calibration" to enter the ORP electrode calibration interface. If you need to change the calibration parameters, in the calibration state, you can select "Setting" to modify the mV resolution, alarm limit, calibration reminder.
2. Put the cleaned electrode into ORP standard solution (e.g., 462mV ORP standard).
3. Press the "STD value" to input the ORP standard value (e.g., 462mV ORP standard).
4. After the reading is stable, press the "Start" to complete the first point calibration, and the instrument displays and stores the calibration results.

Note: The ORP supports one point calibration. After one calibration, the analyzer saves the calibration information and end the calibration and back to main interface.

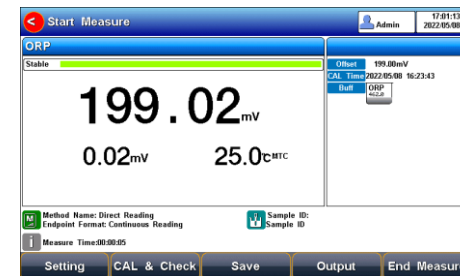


## 5.3. Measurement

1. Select the "ORP Measure Method".
2. The method includes:
  - 1) Set the parameters (e.g., ORP).
  - 2) Set the reading mode (e.g., continuous reading, auto-reading, or timed format).
3. Connect the ATC probe or enter the temperature manually.
4. Rinse the pH electrode with DI water, dry out.
5. Put the electrode into test solution under test.
6. Put the measurement end of the electrode into the sample solution.

7. Press "Measure" to enter into measurement status.
8. After the reading is stable, read the results.
9. Press the "Save" to save the measurement results and press the "Output" to print the result.

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



## 6. Conductivity Operation Quick Guide

### 6.1. Preparation

- 1 . Connect the EC electrode (e.g., k=1, with 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.

### 6.2. Calibration

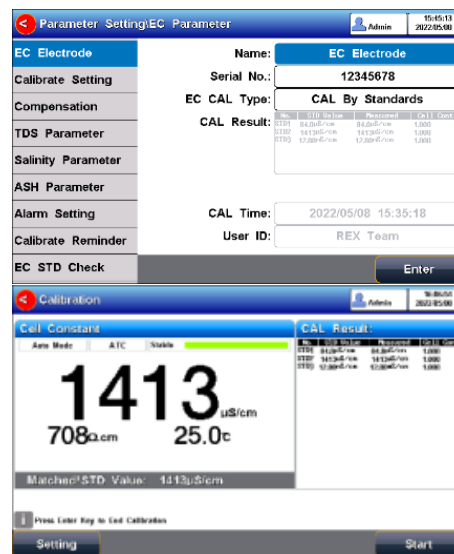
#### 6.2.1. Cell Constant Setting

- 1 . In the idle status, press "Setting"- "Parameters" to select the "Conductivity".
- 2 . Press "Setting" -"EC Electrode", select the "Input Manually".
- 3 . Press "Setting" -"EC Calibration", select the "Cell const 1"for the "Electrode Type" and edit the constant manually for the "Set Cell Constant".
- 4 . Press "<Setting/Conductivity calibration" key to save the setting and return to the idle status.

#### 6.2.2. Manual Calibration

- 1 . In the idle status, press "Setting"- "Parameters" to select the "Conductivity".
- 2 . Press "Setting" -"EC Electrode" and select the "Cal by Standards".
- 3 . Press "Setting" -"EC Calibration" and select the "Cell const 1"for the "Electrode Type", select the "Auto Mode" for the "Recognition", select the "Universal Group" for "EC Standards Group", and select the standard solutions.
- 4 . Prepare one or more standard conductivity solutions (e.g., 1413  $\mu\text{S/cm}$  conductivity solution).
- 5 . Prepare a thermostatic bath, and set the temperature to  $(25.0\pm 0.1)^\circ\text{C}$ .
- 6 . Place a standard conductivity solution in a thermostatic bath, and set the temperature to  $(25.0\pm 0.1)^\circ\text{C}$ .
- 7 . Place the conductivity electrode into a standard solution.
- 8 . In the idle status, press the "Calibrate" and enter into the calibration status.

- 9 . When the conductivity and temperature reading are stable, press the "Start".
- 10 . If choosing one-point calibration, press "< Calibration " to end the calibration.
- 11 . If choosing multi-points calibration (up to 5), press "Next Point" to calibrate the next standard solution.
- 12 . The meter saves calibration data automatically and turn to idle status.

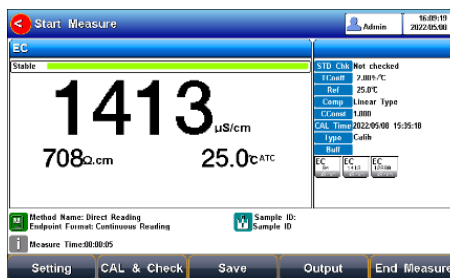


### 6.3. Measurement

- 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).
- 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 measuring status.
- 5 . When the reading is stable, read the results.
- 6 . Press the "Save" to save the measurement results.
- 7 . Press the "Output" to print the measurement result when connect to the printer.
- 8 . Press the "End measurement" to end the measurement and turn to the idle status.

- 9 . During measurement, stored EC electrode in distilled or deionized water.
- 10 . 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. For accurate measurement, the meter may be need to do the STD Check before measurement.



## 7. Dissolved Oxygen Meter Operation Quick Guide

### 7.1. Preparation

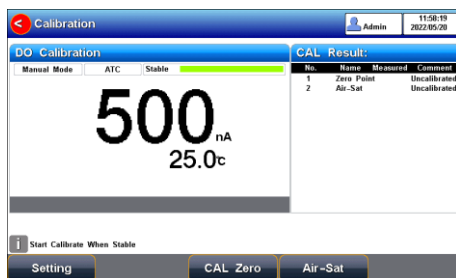
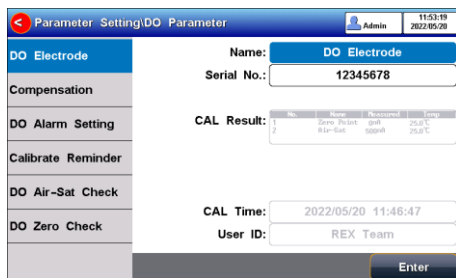
1. Install the DO electrode follow the steps:

- 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:
- 5) Connect the DO electrode to the meter.
- 6) Turn on the meter, wait for 1 hour and the electrode are auto polarized.
- 7) 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.
5. Select the reading mode to process measurement.

### 7.2. Calibration

1. Press "CAL & Check" to electrode calibration.

2. Place the electrode into oxygen-free solution.
3. After the reading is stable, press the "CAL Zero" to complete the zero calibration.
4. Rinse the electrode with DI water again, place the probe in the upper part of a bottle filled with air-saturated (well shaken) water.
5. After the reading is stable, press the "Air-Sat" to complete the air calibration.



### 7.3. 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.
3. Press "Measure" to measure.
4. 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.
5. When the reading is stable, record the results.
6. Press the "Save" to save the measurement results.
7. Press "End Measure" to end the measurement.
8. Note 1: Please calibrate and polarized the electrode before the

measurement for an accurate measurement.

9. Note 2: Before the measurement, select "CAL & Check" - "DO Air-Sat check" or "DO Zero check" to check.

