AMTAST

EC910 Portable Multiparameter Water Quality Meter

Instruction Manual

AMTAST USA INC

CE

Introduction

Thank you for selecting the AMTAST EC910 portable multiparameter water quality meter. This manual provides a -by-step guide to help you operate the meter, please carefully read the following instructions before use.

UNPACKING THE METER:

Before unpacking, ensure that the current work environment meet following conditions.

- Relative humidity is less than 80%.
- Ambient temperature is greater than 0ºC and less than 60ºC.
- No potential electromagnetic interference.

The following list describes the standard accessories of the meter. After the unpacking, please check all accessories are complete. If any are damaged or missing, please contact nearest distributor.

ACCESSORIES:

- pH Electrode
- Conductivity Electrode
- Dissolved Oxygen Probe
- Temperature Probe
- pH Buffer Pouches (pH4.01/7.00/10.01)
- Conductivity Calibration Solutions (84μS/cm, 1413μS/cm, 12.88mS/cm)
- Electrolyte Solution
- Membrane Cap
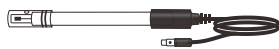
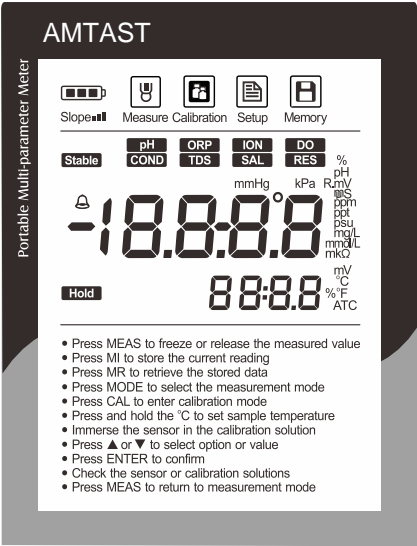|		
pH Electrode	Conductivity Electrode	Dissolved Oxygen Probe
Temperature Probe	pH Buffer Pouches	Conductivity Calibration Solutions
Membrane Cap	Electrolyte Solution	

Very Important:

If meter shows battery low, please stop use and change the battery ASAP, if you still use it, and meter power off automatically, it will lost the system and need RETURN to us for install the system again.

The LCD will be blank and display nothing!!!

Display

EC910 portable multiparameter water quality meter is equipped with a clear and bright LCD display that used to show measured values, mode indicators and help message. The following table describes the meaning of each indicator.

INDEX:

Measure	Measurement mode indicator: Indicates meter is in the measurement mode	Low Battery Alarm: When battery is depleted, the indicator will disappear	
Calibration	Calibration mode indicator: Indicates meter is in the calibration mode	Stable indicator: Indicates the measured value has stabilized	
Setup	Setup mode indicator: Indicates meter is in SETUP mode	Hold indicator: Indicates the displayed value has been frozen	
Memory	Memory mode indicator: Indicates data is stored into memory	Calibration Due Reminder: Prompts user to calibrate the meter regularly	
Slope	Electrode slope indicator: Indicates the average slope of the pH electrode	ATC — Automatic Temperature Compensation: Indicates meter is in the temperature compensation mode	

Keypad

The meter has a succinct membrane keypad, names and symbols describe the each function key controls.
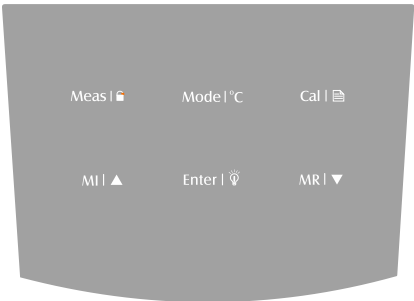
INDEX:

KEY	DESCRIPTION
MEAS | 🔒	• Power the meter ON/OFF. • Freezes the measured value on the display, press the key again to resume measuring. • In the calibration or setting mode, exits current mode and returns to measurement.
MODE | ºC	• Toggles between available measurement modes (pH, mV, ORP, Ion, Conductivity, TDS, Salinity, Resistivity, DO). • Press and hold the key to enter temperature setting mode.
CAL | 📄	• Press the key to enter the calibration mode. • Press and hold the key to enter the setup menu.
MI | ▲	• Press the key to store current measured value. • Press ▲ key in setup mode to scroll up through menu. • Press ▲ key in temperature setting mode to increase the setting value.
MR | ▼	• Press the key to view calibration report or stored data. • Press ▼ key in setup mode to scroll down through menu. • Press ▼ key in temperature setting mode to decrease the setting value.
ENTER | 💡	• Confirms the calibration, setting value or displayed option. • Press and hold the key to turn On/Off the backlight.

Connectors

EC910 portable meter provides 3 connectors for connecting the various types of sensors. Listed in the below table are the details of these connectors.
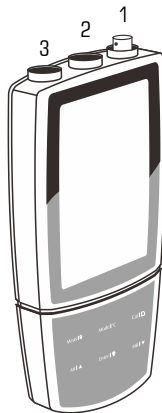
INDEX:

NO.	CONNECTOR	FUNCTION
1	BNC Connector	For connecting the pH, ORP or Ion Selective Electrodes
2	Phone Jack	For connecting the temperature probe
3	6-pin Connector	For connecting the conductivity electrode or dissolved oxygen probe

Inserting the Batteries

Before using the meter, insert three 1.5V "AA" alkaline batteries into battery compartment, follow the procedure outlined below.

1.   Remove the battery cover from meter's backside.
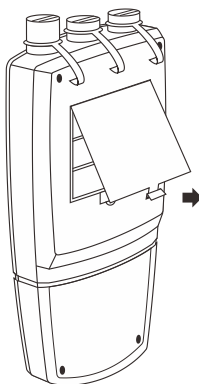
2.   Insert the batteries into the battery compartment, note polarity.
3.   Replace the battery cover into its original position. Installation is completed.

ⓘ   When batteries are depleted, the meter allows you to use the USB cable connected to computer as a temporarily power supply.

Connecting the Sensor

Take out the sensor from the carrying case.

FOR THE pH, ORP AND ION SELECTIVE ELECTRODES:

• Insert the BNC connector into corresponding connector socket. Rotate and push the connector clockwise until it locks.
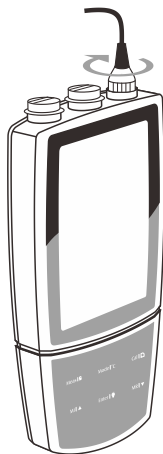
FOR THE CONDUCTIVITY AND DISSOLVED OXYGEN ELECTRODES:

• Insert the 6-pin connector into corresponding connector socket, ensure the connector is fully seated.
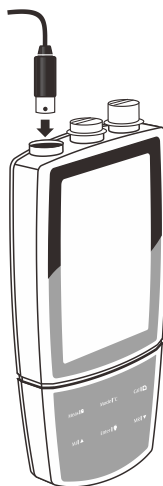
• After connection is completed, DO NOT pull on the sensor cord. Always make sure that the connector is clean and dry.

Preparing the pH Buffer Solutions

EC910   portable   multiparameter water quality meter is packaged with three pH buffer packets required for calibration.

- Open the pH7.00 buffer packet, place the powder into a 250ml volumetric flask. Pour distilled water 250ml to scale line, mix the solution until reagent is completely dissolved.
- Preparation of pH4.01 and 10.01 standard buffer solutions are the same as above.
- Prepared standard buffer solutions should be stored in hermetically sealed glass containers.

Refilling Electrolyte Solution for DO Probe

1.   Unscrew the membrane cap from the bottom of the dissolved oxygen probe.

2.   Fill the membrane cap halfway with electrolyte solution.

3.   Screw the membrane cap onto the probe, excess electrolyte will drain out.

4.   Be sure the cathode of probe makes contact with membrane cap, the electrolyte solution in membrane cap should be without an air bubble.

........Cathode

Prior to Use

Remove the protective cap from the bottom of the sensor.

- FOR THE pH ELECTRODE:
  If the glass sensitive membrane on the electrode dries out, soak the electrode in 3M KCL solution or tap water for at least 15 minutes. DO NOT use distilled or deionized water, it will shorten the life of sensor.

.... Glass Sensitive Membrane
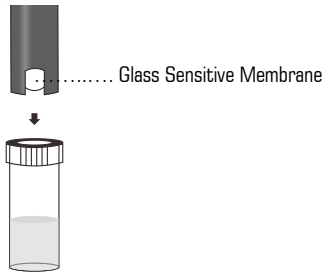
- FOR THE ORP ELECTRODE:
  Soak the electrode in 3M KCL solution or tap water for 5 minutes.

- FOR THE ION SELECTIVE ELECTRODES:
  Soak the electrode in the diluted standard solution (e.g., 100ppm) for at least 15 minutes.

- FOR THE CONDUCTIVITY ELECTRODE:
  Soak the electrode for a few minutes in tap water to remove dirt and oil stains on the electrode.

- FOR THE DISSOLVED OXYGEN PROBE:
  Connecting the probe to meter, turn on the meter 10 to 15 minutes and wait for the probe to polarize.

Power On/Off

- Press MEAS key to turn on the meter, the display shows measured values, mode indicators and help messages.
- Press and hold the MEAS key for 3 seconds, the meter will turn off.
- If you do not press any key within the specified time period, the meter will turn off automatically.

ⓘ To disable the auto-off function, please read the SETUP MENU section.

Setup Menu

EC910 portable multiparameter water quality meter contains an integrated setup menu that allows you to customize each displayed option to meet measurement requirements. In the different modes, the meter will show the corresponding options. For the general options, once it is changed that will be applied to all modes.

pH MODE:

PARAMETER	DESCRIPTION	OPTIONS	DESCRIPTION	DEFAULT
bUF	pH Buffers: Select your desired pH buffer group for calibration and auto-recognition.	USA	USA (1.68, 4.01, 7.00, 10.01, 12.45)	●
		NISt	NIST (1.68, 4.01, 6.96, 9.18, 12.45)	
		dIn	DIN (1.09, 4.65, 6.79, 9.23, 12.75)	
		USEr	User-Defined Buffer	
CAL	Calibration Points: Select the number of calibration points you intend to calibrate the meter.	1	1 point	
		2	2 points	
		3	3 points	●
		4	4 points	
		5	5 points	
rESO	Resolution: Sets the resolution for pH measurement.	0.001	0.001pH	●
		0.01	0.01pH	
		0.1	0.1pH	
UnIt	Measurement Unit: Sets the default temperature unit.	℃	Degrees Celsius	●
		℉	Degrees Fahrenheit	

ORP MODE:

PARAMETER	DESCRIPTION	OPTIONS	DESCRIPTION	DEFAULT
rESO	Resolution: Sets the resolution for ORP measurement.	0.1	0.1mV	●
		1	1mV	

ION MODE:

PARAMETER	DESCRIPTION	OPTIONS	DESCRIPTION	DEFAULT
UnIt	Measurement Unit: Sets the default ion concentration and temperature units.	ppm	Parts per million	●
		mg/L	Milligrams per liter	
		mol/L	Moles per liter	
		℃	Degrees Celsius	●
		℉	Degrees Fahrenheit	

CAL	Calibration Points: Select the number of calibration points.	2	2 points	●
		3	3 points	
		4	4 points	
		5	5 points	
ION	Ion Valence: Select the ion valence of sensor.	1	Monovalent	●
		2	Divalent	

CONDUCTIVITY/TDS/SALINITY/RESISTIVITY MODES:

PARAMETER	DESCRIPTION	OPTIONS	DESCRIPTION	DEFAULT
CELL	Cell Constant: Select the cell constant of conductivity electrode.	0.1	K=0.1	
		1	K=1	●
		10	K=10	
		USEr	User-Defined	
COE	Temperature Coefficient: Select the temperature coefficient of sample.	2.10	Setting Range: 0.0 to 10.0%/°C	2.10
CAL	Calibration Points: Select the number of calibration points.	1	1 point	●
		2	2 points	
		3	3 points	
		4	4 points	
		5	5 points	
PUrE	Pure Water Coefficient: Pure water coefficient will be calculated and applied automatically for ultra pure water measurement if enabled.	YES	Enable	
		NO	Disable	●
Std	Normalization Temperature: Sets the normalization temperature for conductivity measurement and calibration.	25°C	25°C	●
		20°C	20°C	
tdS	TDS Factor: Sets the default TDS conversion factor.	0.5	Setting Range: 0.40 to 1.00	0.5
UNIt	Measurement Unit: Sets the default temperature unit.	°C	Degrees Celsius	●
		°F	Degrees Fahrenheit	

DISSOLVED OXYGEN MODE:

PARAMETER	DESCRIPTION	OPTIONS	DESCRIPTION	DEFAULT
CAL	Calibration Points: Select the number of calibration points.	1	1 point	●
		2	2 points	
PrES	Pressure Coefficient: Select the default barometric pressure coefficient.	760	Setting Range: 450 to 850mmHg	760
SAL	Salinity Coefficient: Select the salinity coefficient of sample solution.	0.0	Setting Range: 0.0 to 50.0ppt	0.0
rESO	Resolution: Sets the resolution for DO measurement.	0.01	0.01mg/L (0.1%)	●
		0.1	0.1mg/L (1%)	
UNIt	Measurement Unit: Sets the default measurement units.	℃	Degrees Celsius	●
		℉	Degrees Fahrenheit	
		mg/L	Milligrams per liter	●
		ppm	Parts per million	
		mmHg	Pressure unit	●
		kPa	Pressure unit	

GENERAL OPTIONS:

| PARAMETER	DESCRIPTION	OPTIONS	DESCRIPTION	DEFAULT
StA	Stable Criteria: Sets the stability criteria for measurement. When the "LO" option is enabled, measuring value will stabilize quickly, but reading is less accurate. When the "HI" option is enabled, measuring value will stabilize slowly, but guarantees high accuracy.	LO	Low	●
		HI	High	
HOLd	Auto-Hold: When the auto-hold function is enabled, the meter will automatically sense a stable end-point reading and freeze it.	YES	Enable	
		NO	Disable	●
OFF	Auto-Power Off: When the auto-off power is enabled, if you do not press any key within a specified time period, the meter will automatically turn off.	10	10 minutes	
		20	20 minutes	
		30	30 minutes	
		NO	Disable	●

|				
CALL	Calibration Due: When calibration due reminder is enabled, if you do not recalibrate meter within a specified time period, the meter will automatically show ⏰ indicator.	1...31	1 to 31 days	
		OFF	Disable	●
dAtE	Date and Time: Sets the date and time of the meter.	---	---	
CLr	Clear stored data: Clear all stored data.	YES	Enable	
		NO	Disable	●
rSt	Reset: Reset function allows user to restore the meter back to factory default parameters. When this function is enabled, all calibration values and selected parameters will be lost or reset.	YES	Enable	
		NO	Disable	●

Setting the Default Parameters

1.   If necessary, press MODE key until the display shows corresponding mode indicator (e.g., pH mode).
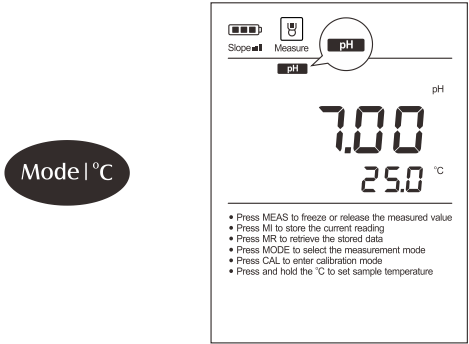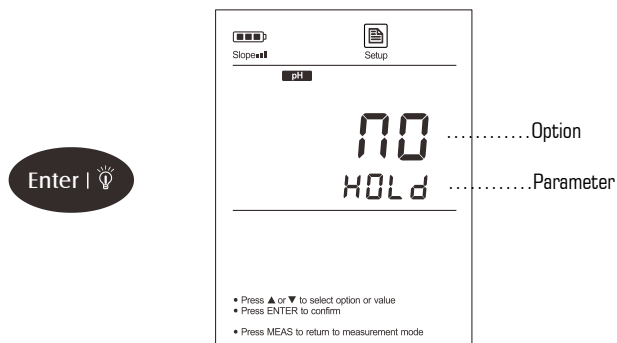

2.   Press and hold the 📄 key for 3 seconds, the meter enters setup menu, the display shows selectable parameter and page number.
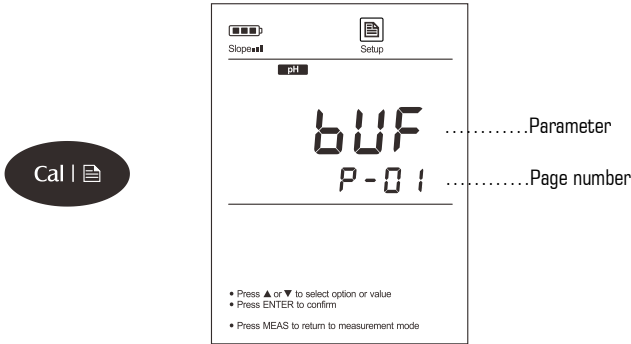
3.   Press ▲ or ▼ key to scroll through menu, select the parameter you want to set (Refer to Setup Menu section).
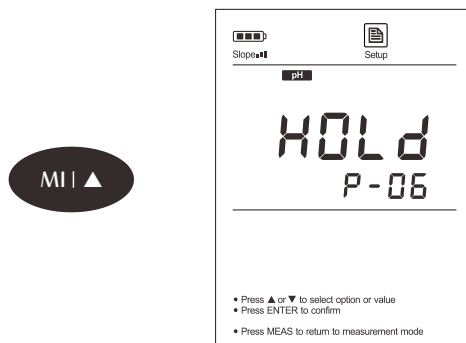
4.   Press ENTER key to confirm, the display shows an option in the submenu.


5.   Press ▲ or ▼ key to select the desired option.
6.   Press ENTER key to confirm, the meter returns to measurement mode. Setting is completed.

EXIT THE SETUP MENU:
During the setup mode, press MEAS key, the meter returns to measurement mode immediately.

Setting the Date and Time

EC910 portable meter has a real time clock that is used to time -stamp stored measured value and calibration data. Follow the steps below to set the date and time during the first use.

1.   Press and hold the 🖹 key for 3 seconds to enter the setup menu.
2.   Press ▲ or ▼ key until the display shows "DATE" option.
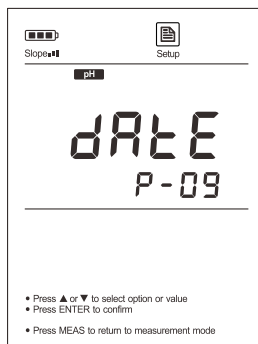
3.   Press ENTER key to confirm, the meter shows current year.
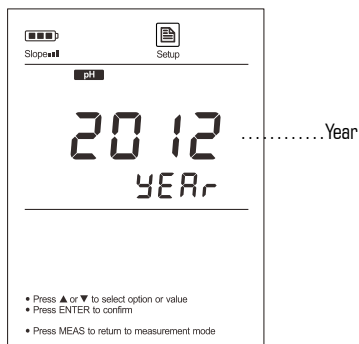
4.   Press ▲ or ▼ key to set the year.
5.   Press ENTER key to confirm, the meter shows current date and time.

6.   Press ▲ or ▼ key to set the date and time.
7.   Press ENTER key to confirm, the meter returns to measurement mode. Setting is completed.

Temperature Compensation

In order to get accurate measuring results, you need to enable the manual or automatic temperature compensation before measurement or calibration.

AUTOMATIC TEMPERATURE COMPENSATION:

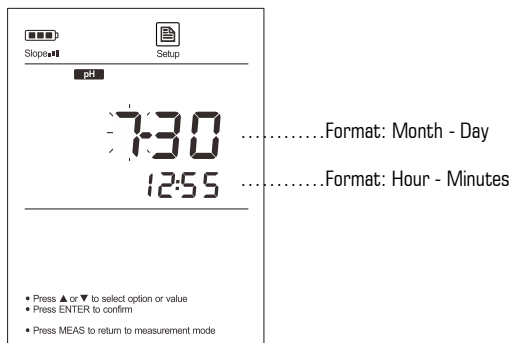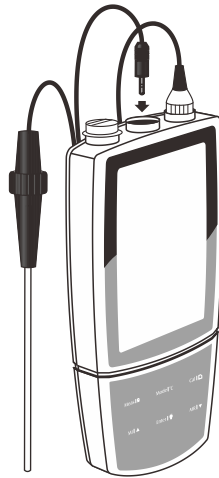●   Insert the connector of temperature probe into the meter's phone jack.

●   The "ATC" indicator will show on the display, the meter is now switched to automatic temperature compensation mode.

MANUAL TEMPERATURE COMPENSATION:
1.   DO NOT connect the temperature probe to meter.
2.   Press and hold the ℃ key for 3 seconds to enter temperature setting mode.
3.   Press ▲ or ▼ key to set the temperature value of sample.
4.   Press ENTER key to confirm, the meter returns to measurement mode. Setting is completed.

ⓘ   In the temperature setting mode, press ▲ or ▼ key once, the setting value will increase or decrease by 0.1. Press and hold the ▲ or ▼ key, the setting value will increase or decrease by 1.

In the dissolved oxygen mode, DO NOT connect the temperature probe to meter. The dissolved oxygen probe has a built-in temperature sensor.

pH Calibration

EC910 portable multiparameter water quality meter allows up to 5 points calibration in the pH mode. We recommend that you perform at least 2 points calibration for high accuracy measurement. The meter will automatically recognize and calibrate to following standard buffer values.

USA Standard Buffer Options	pH1.68, 4.01, 7.00, 10.01, 12.45
NIST Standard Buffer Options	pH1.68, 4.01, 6.86, 9.18, 12.45
DIN Standard Buffer Options	pH1.09, 4.65, 6.79, 9.23, 12.75

If you selected the user-defined option in the setup menu, the meter will allow only 2 points calibration. Single point calibration should only be carried out with pH7.00, 6.86 or 6.79, otherwise calibration will not be accepted.

Make sure to calibrate the meter when attaching a new electrode or during first use. DO NOT reuse calibration solution after calibration, contaminants in solution will affect the calibration and eventually the accuracy of the measurement.

SINGLE POINT CALIBRATION:
1.1   Make sure that you have selected 1 point calibration in the setup menu.
1.2   Rinse the pH electrode with distilled water.
1.3   Press CAL key, the meter shows "pH7.00/CAL" (or "6.86/CAL", "6.79/CAL").
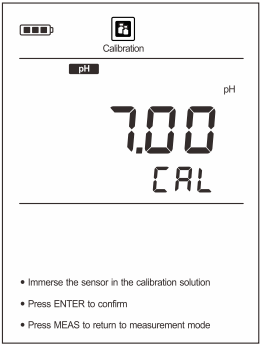
1.4   Dip the pH electrode into the pH7.00 (or 6.86, or 6.79) buffer solution, the end of the electrode must be completely immersed into the calibration solution. Stir the sensor gently to create a homogenous solution.
1.5   Press ENTER key, "Calibration" indicator begins flashing. Wait for the measured value to stabilize, the display shows "END". The meter returns to measurement mode automatically. Calibration is completed.
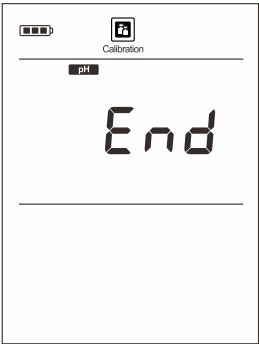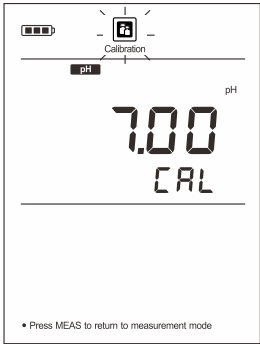
MULTI-POINT CALIBRATION:
2.1   Make sure that you have selected 2 to 5 points calibration in the setup menu.
2.2   Repeat steps 1.2 to 1.5 above. When the first calibration point is completed, the display will show "CAL2". The meter prompts you to continue with second point calibration.
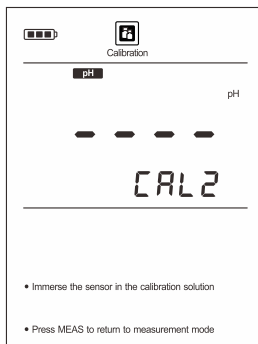

2.3   Rinse the pH electrode with distilled water. Dip the electrode into the next standard buffer solution (e.g., pH4.01). The meter automatically senses the current calibration solution and begins calibrating. "Calibration" indicator begins flashing.
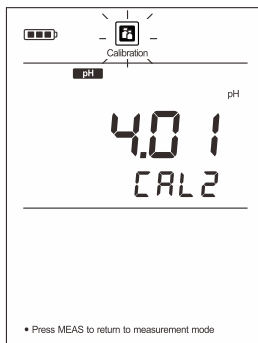
2.4   Wait for the measured value to stabilize, the display shows "CAL3". The meter prompts you to continue with third point calibration.
2.5   Repeat the steps 2.3 until the display shows "END". The meter returns to measurement mode automatically. Calibration is completed.

pH CALIBRATION WITH THE USER-DEFINED BUFFERS:
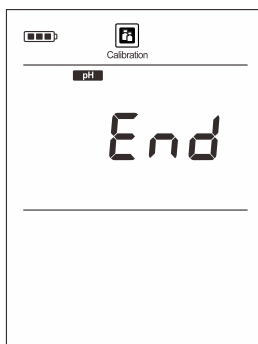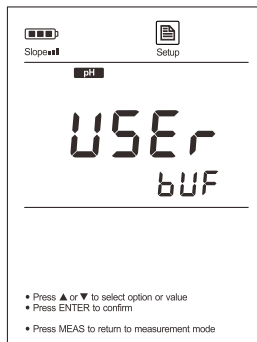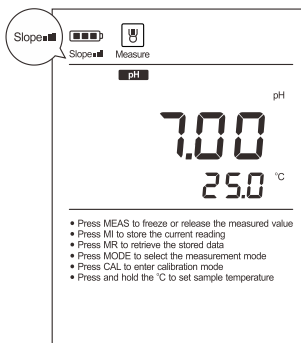
3.1   Make sure that you have selected "USER" option in the setup menu. Custom buffer solution values should be at least 1 pH unit apart from each other.

```
┌─────────────────────────────────────┐
│  ▭▭▭                  📄              │
│  Slope▪▫▫             Setup           │
│         ▭pH▭                          │
│                                       │
│       USEr                            │
│              bUF                      │
│                                       │
│                                       │
│  • Press ▲ or ▼ to select option or value │
│  • Press ENTER to confirm             │
│                                       │
│  • Press MEAS to return to measurement mode │
└─────────────────────────────────────┘
```

3.2   Rinse the pH electrode with distilled water. Dip the electrode into the custom buffer solution. Stir the sensor gently. The meter shows the current measured value.

3.3   Press ▲ or ▼ key to increase or decrease displayed value, press ENTER key to confirm. "Calibration" indicator begins flashing.

3.4   Wait for the measured value to stabilize, the display shows "CAL2". The meter prompts you to continue with second point calibration.

3.5   Rinse the pH electrode with distilled water. Dip the electrode into the next custom buffer solution.

3.6   Press ▲ or ▼ key to increase or decrease displayed value, press ENTER key to confirm. "Calibration" indicator begins flashing.

3.7   Wait for the measured value to stabilize, the display shows "END". The meter automatically returns to measurement mode. Calibration is completed.

ⓘ
- During the calibration process, if you want to exit the calibration mode, press MEAS key, the meter will return to measurement mode immediately.
- Electrode indicator shows average slope of the pH electrode after calibration. When the electrode or calibration result does not meet measurement requirements, the indicator will disappear on the display.

```
        ┌──────────────────────────────┐
  ╭────╮ │ ▭▭▭        🜊                 │
  │Slope▪▫│ Slope▪▫▫   Measure           │
  ╰────╯ │      ▭pH▭                     │
         │                          pH   │
         │      7.00                     │
         │          25.0 ℃               │
         │  • Press MEAS to freeze or release the measured value │
         │  • Press MI to store the current reading │
         │  • Press MR to retrieve the stored data │
         │  • Press MODE to select the measurement mode │
         │  • Press CAL to enter calibration mode │
         │  • Press and hold the ℃ to set sample temperature │
         │                              │
         └──────────────────────────────┘
```
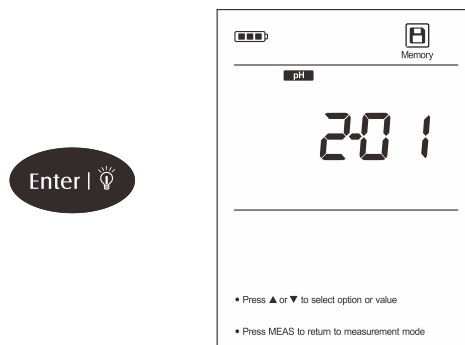
pH Calibration Report

This program lets you check the parameters of pH electrode for diagnostic purposes.
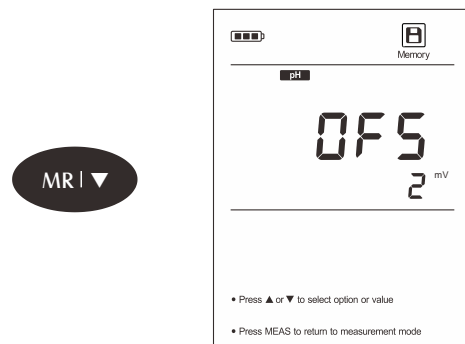
1.   Press MR key in the pH measurement mode, the display shows "LOC/P-01".
2.   Press ▲ or ▼ key until the meter shows "ELE/P-02" (Electrode Diagnosis).
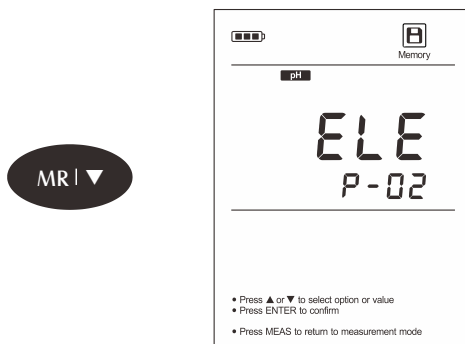
3.   Press ENTER key to confirm, the meter shows the last calibration date (Format: mm-dd).

4.   Press ▼ key, the meter shows "OFS" (zero-point offset potential).

5.   Press ▼ key again, the meter shows the slope of each pH buffer group.

..........Calibration Points

..........Slope
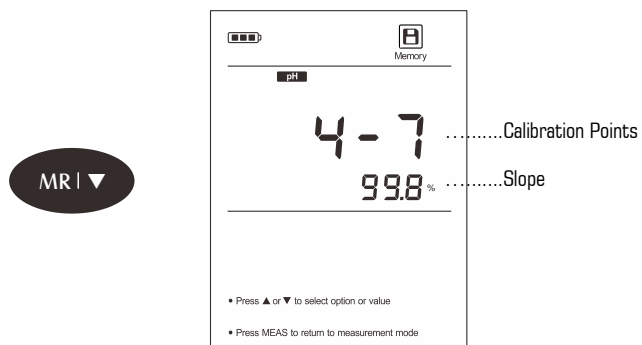
6.   After the browsing, press MEAS key to exit the currect mode.

ⓘ   If you are not calibrate the meter or calibration is not successfully, press MR key, the display will show "----" only.

ORP Calibration

EC910 portable multiparameter water quality meter allows 1 point calibration in the relative mV mode, but calibration is not necessary unless exact readout agreement with a work standard and at a specific ORP value is needed.

1.   Press MODE key until the meter shows ORP indicator.

2.   Rinse the ORP electrode with distilled water. Dip the electrode into the calibration solution. Stir the sensor gently.
3.   Press CAL key, the meter shows the current measured value.

4.   Press ▲ or ▼ key to set the displayed value, press ENTER key to confirm. "Calibration" indicator begins flashing.
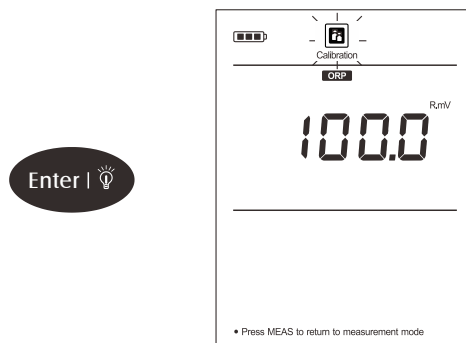
5.   Wait for the measured value to stabilize, the display shows "END". The meter returns measurement mode automatically. Calibration is completed.

ORP Calibration Report

This program lets you check the millivolt offset in the ORP mode.

1. Press MR key in the ORP measurement mode, the display shows "LOC/P-01".

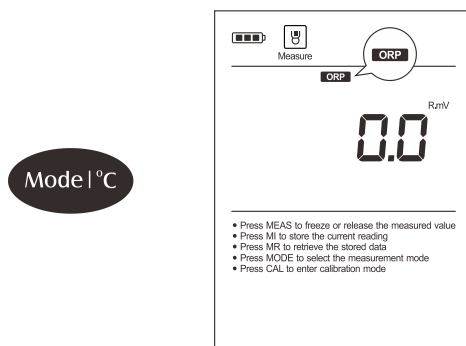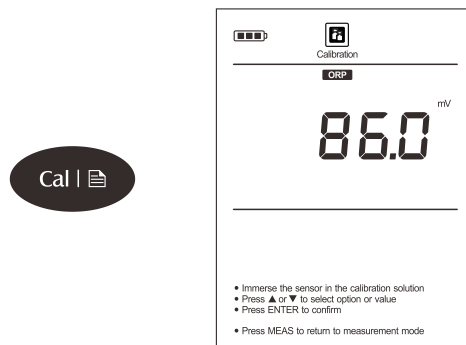2. Press ▲ or ▼ key until the meter shows "ELE/P-02" (Electrode Diagnosis).
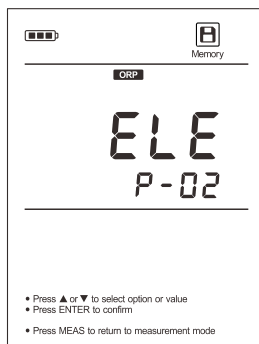
3. Press ENTER key to confirm, the meter shows the last calibration date (Format: mm-dd).
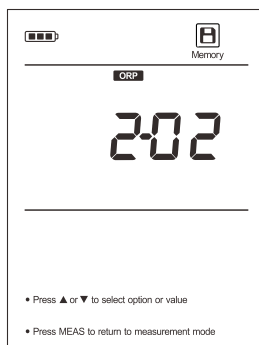
4. Press ▼ key, the meter shows "OFS" (Offset Potential).

5. After the browsing, press MEAS key, the meter returns to measurement mode.

Ion Concentration Calibration

EC910 portable multiparameter water quality meter supports ion concentration calibration up to 5 points with minimum of 2 points, available calibration points include the following options.

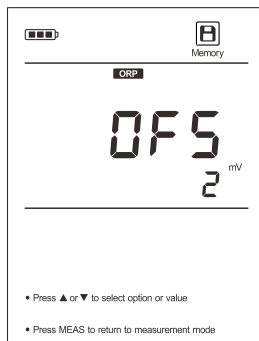| MEASUREMENT UNITS	CALIBRATION POINTS
ppm	0.001, 0.01, 0.1, 1, 10, 100, 1000, 10000
mg/L	0.001, 0.01, 0.1, 1, 10, 100, 1000, 10000
mol/L	0.001, 0.01, 0.1, 1, 10
mmol/L	0.001, 0.01, 0.1

To obtain accurate measurement results, we recommend that you perform ion calibration and measurement at same temperature. If you are not calibrate the meter or calibration is not successfully, the display will always show "0.000".

1.   Press MODE key until the meter shows **ION** indicator.
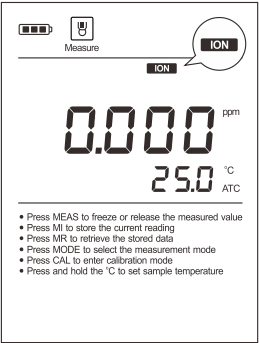
2.   If necessary, select the concentration unit and ion valence (Monovalent or Divalent) in the setup menu (Refer to Setup Menu section).
NOTE: The meter is capable of using the mg/L, ppm or mol/L as measurement unit of concentration. The factory default is ppm. If you had converted concentration unit, the display will show "CAL" and flashing uninterruptedly. Press CAL key, the meter enters the calibration mode.
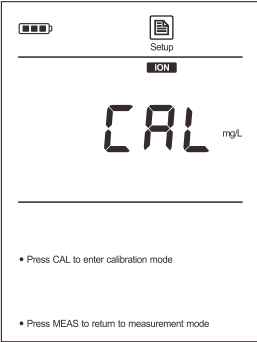
3. Press CAL key, the meter shows 0.001ppm (or mg/L, mol/L, mmol/L).

Cal | ▤

Calibration
ION
0.001 ppm
CAL 1

• Immerse the sensor in the calibration solution
• Press ▲ or ▼ to select option or value
• Press ENTER to confirm

• Press MEAS to return to measurement mode
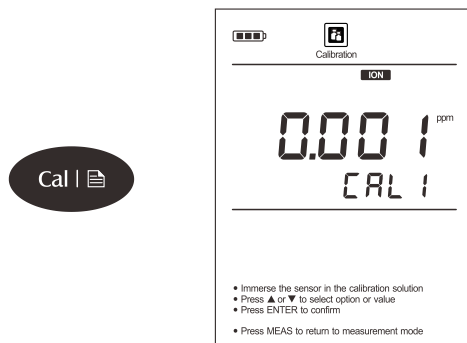
4. If necessary, press ▲ or ▼ key to select the desired calibration point (e.g., 0.01ppm).

MR | ▼

Calibration
ION
0.01 ppm
CAL 1

• Immerse the sensor in the calibration solution
• Press ▲ or ▼ to select option or value
• Press ENTER to confirm

• Press MEAS to return to measurement mode

5. Rinse the Ion Selective Electrode with distilled water, then rinse with a small amount of ion standard solution.
6. Dip the electrode into corresponding calibration solution. Stir the sensor gently to create a homogenous solution.
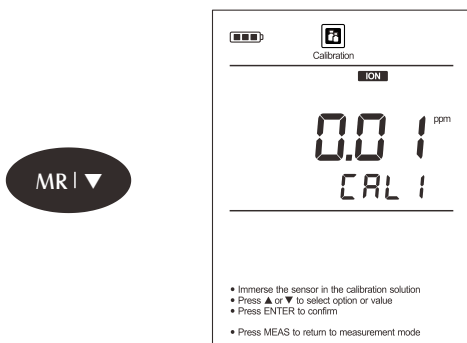7. Press ENTER key to confirm, "Calibration" indicator begins flashing. Wait for the measured value to stabilize, the display shows "0.1/CAL2". The meter prompts you to continue with second point calibration.

Enter | 💡

Calibration
ION
0.01 ppm
-20 mV

• Press MEAS to return to measurement mode

➡

Calibration
ION
0.1 ppm
CAL2

• Immerse the sensor in the calibration solution
• Press ▲ or ▼ to select option or value
• Press ENTER to confirm

• Press MEAS to return to measurement mode
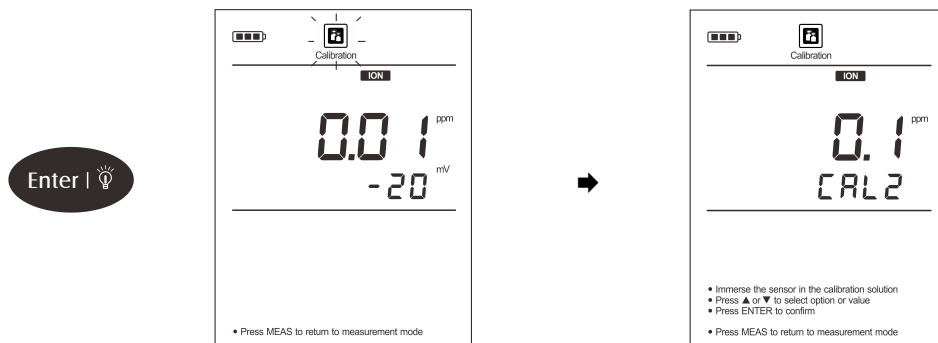
8. Rinse the Ion Selective Electrode with distilled water. Dip the electrode into corresponding calibration solution. Stir the sensor gently.

9. Press ENTER key, "Calibration" indicator begins flashing. Wait for the measured value to stabilize, the display shows "1/CAL3". The meter prompts you to continue with third point calibration.
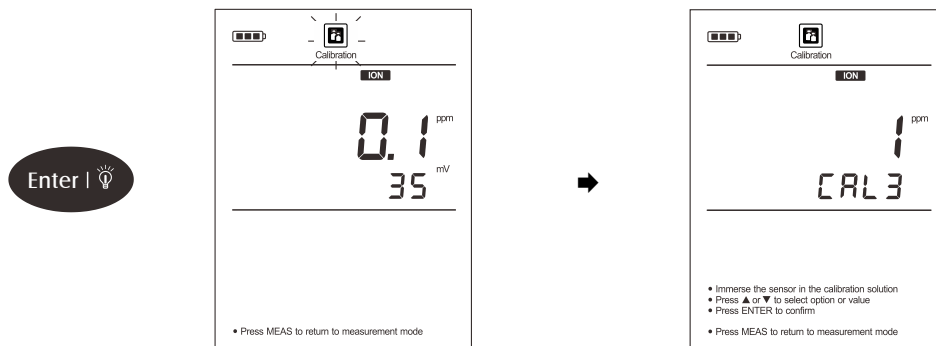
10. Repeat steps 8 to 9 above until the display shows "END", the meter returns to measurement mode automatically. Calibration is completed.
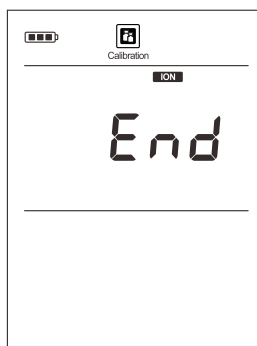
EXIT THE CALIBRATION:
During the setup mode, press MEAS key, the meter returns to measurement mode immediately.

Ion Calibration Report

This program lets you check the slope of the Ion Selective Electrode.

1.   Press MR key in the ion measurement mode, the meter shows "LOC/P-01".
2.   Press ▲ or ▼ key until the display shows "ELE/P-02" (Electrode Diagnosis).
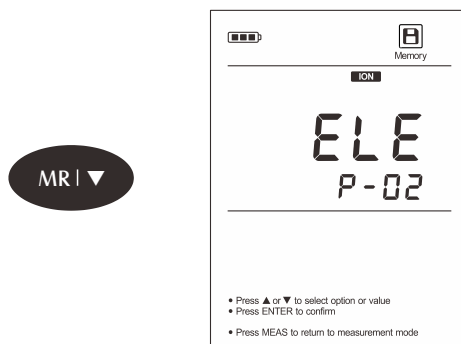
3.   Press ENTER key to confirm, the meter shows the last calibration date (Format: mm-dd).
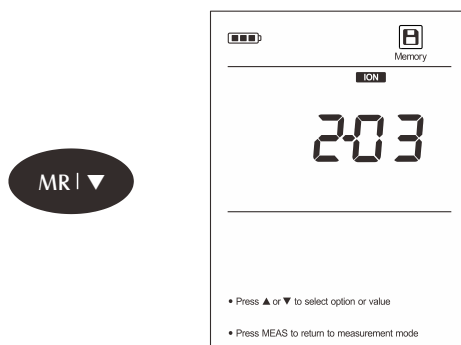
4.   Press ▼ key, the meter shows calibration point and its slope.
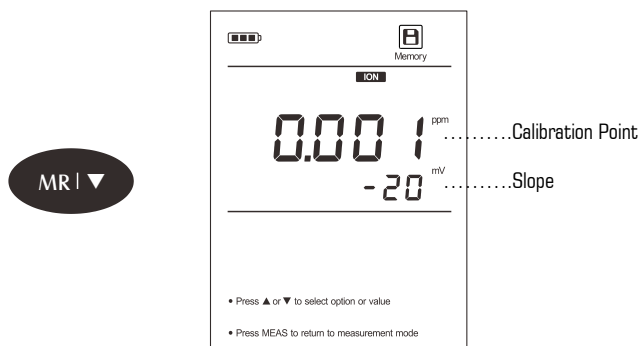
5.   After the browsing, press MEAS key to exit the current mode.

Conductivity Calibration

EC910 portable multiparameter water quality meter is capable of using the three types of conductivity electrodes. Before calibration or measurement, you need to select the different sensors as per your sample concentration. The table below shows available sensors and its effective measuring ranges.

CONDUCTIVITY ELECTRODE	MEASURING RANGES	CELL CONSTANT
CON-0.1	0.1~100μS/cm	K=0.1
CON-1	0.01~10mS/cm	K=1
CON-10	0.1~200mS/cm	K=10

Make sure that you selected the cell constant between 0.1, 1 or 10 in the setup menu. If the current option is "USER", the automatic calibration function will be disabled (Refer to Setup Menu section).

In the automatic calibration mode, the meter allows up to 5 points calibration. To ensure higher accuracy, we recommend that you perform 3 points calibration or select a standard value close to the sample value you are measuring. The meter will automatically detect these conductivity standard solutions and prompt the user to calibrate the meter. When the calibration is completed, all new calibration values will automatically override existing data.

The following table shows acceptable conductivity range of calibration solution for each measuring range.

MEASURING RANGE	CALIBRATION SOLUTION RANGE	DEFAULT
0~20μS/cm	7~17μS/cm	10μS/cm
20~200μS/cm	70~170μS/cm	84μS/cm
200~2000μS/cm	700~1700μS/cm	1413μS/cm
2~20mS/cm	7~17mS/cm	12.88mS/cm
20~200mS/cm	70~170mS/cm	111.8mS/cm

SINGLE POINT CALIBRATION:

1.1   Press MODE key until the meter shows COND indicator.
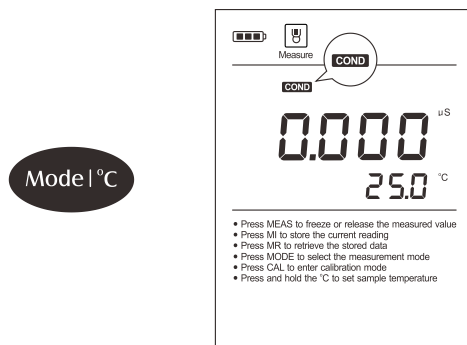
1.2   Rinse the conductivity electrode with distilled water, then rinse with a small amount of calibration solution.

1.3   Press CAL key, the meter enters the calibration mode.

1.4   Dip the conductivity electrode into the calibration solution, the meter automatically shows current calibration standard (e.g., 1413μS/cm).

Cal | 🖺

COND

1413 µS

CAL 1

• Immerse the sensor in the calibration solution
• Press ▲ or ▼ to select option or value
• Press ENTER to confirm

• Press MEAS to return to measurement mode

1.5   Press ENTER key to confirm, "Calibration" indicator begins flashing.

Enter | 💡

Calibration

COND

1413 µS

CAL 1
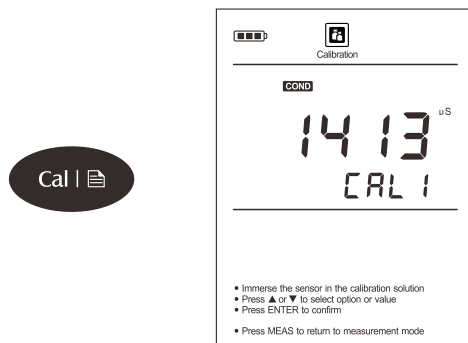
• Press MEAS to return to measurement mode
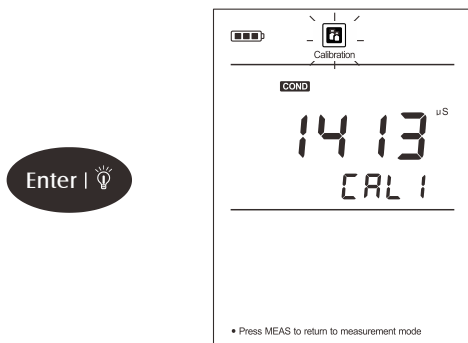
1.6   Wait for the measured value to stabilize, the display shows "END". The meter returns to measurement mode automatically. Calibration is completed.

Calibration

COND

End

MULTI-POINT CALIBRATION:

2.1   Make sure that you have selected 2 to 5 points calibration in setup menu.

2.2   Repeat steps 1.2 to 1.5 above, when the first calibration point is completed, the display will show "CAL2". The meter prompts you to continue with second point calibration.

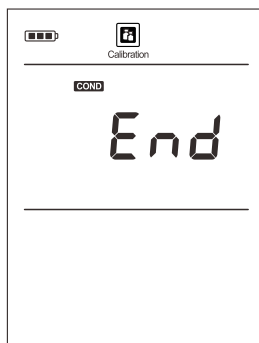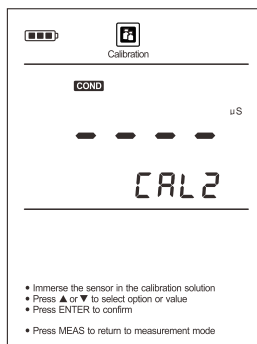2.3   Rinse the conductivity electrode with distilled water. Dip the electrode into the next calibration solution, the meter automatically shows current calibration standard (e.g., 12.88mS/cm).

2.4   Press ENTER key to confirm, "Calibration" indicator begins flashing.

2.5   Wait for the measured value to stabilize, the display shows "CAL3". The meter prompts you to continue with third point calibration.

2.6   Repeat steps 2.3 to 2.4 above until the display shows "END". The meter returns to measurement mode automatically. Calibration is completed.

MANUAL CALIBRATION:

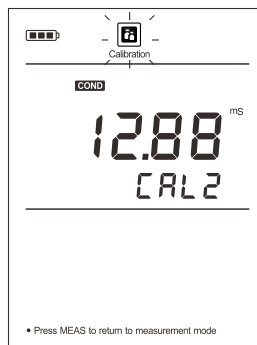EC910 portable meter provides a quick manual calibration mode that allows user to easily calibrate the meter.

3.1   Record the cell constant value on the electrode (e.g., K=1.08).
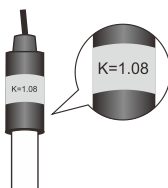
3.2   Press and hold the 🖹 key for 3 seconds to enter setup menu, the display shows "CELL" option.

Cal | 🖹

COND

CELL
P-01

• Press ▲ or ▼ to select option or value
• Press ENTER to confirm
• Press MEAS to return to measurement mode
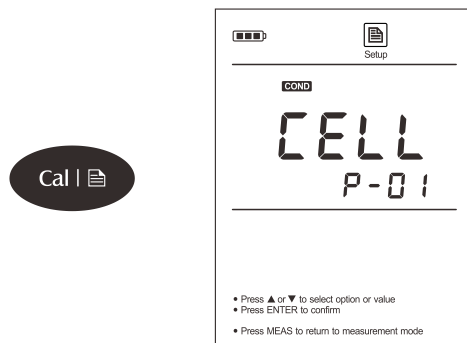
3.3   Press ENTER key to confirm, the meter enters the cell constant setting mode.

Enter | 👁

COND

1
CELL

• Press ▲ or ▼ to select option or value
• Press ENTER to confirm
• Press MEAS to return to measurement mode
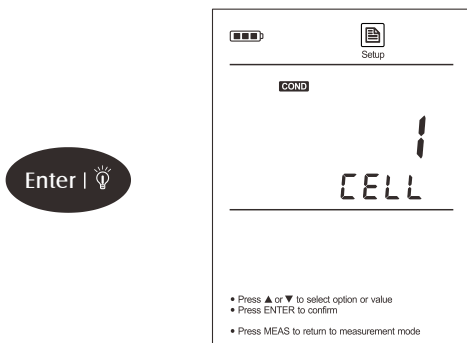
3.4   Press ▲ or ▼ key to select "USER" option.

MI | ▲

COND

USEr
CELL

• Press ▲ or ▼ to select option or value
• Press ENTER to confirm
• Press MEAS to return to measurement mode
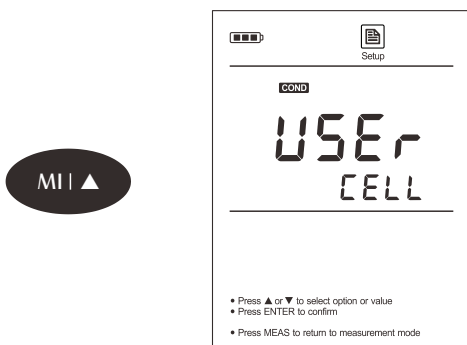
3.5   Press ENTER key to confirm, the meter enters User-Defined mode.
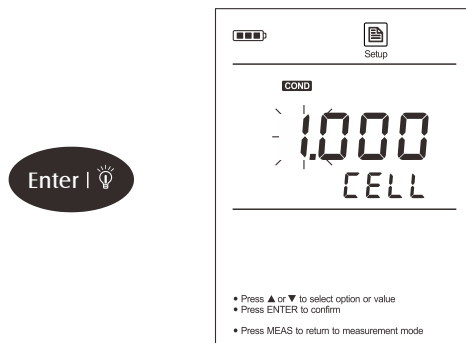
3.6   Press ▲ or ▼ key to set each digit according to previous record.
3.7   Press ENTER key to confirm until the setting values stop flashing. The meter returns to measurement mode automatically. Setting is completed.

ⓘ
- During the calibration process, if you want to exit calibration, press MEAS key, the meter will return to measurement mode immediately.
- Performing the conductivity calibration will simultaneously calibrate the corresponding TDS, salinity and resistivity value.

Conductivity Calibration Report

This program lets you check the calibration factor of the conductivity electrode.

1.   Press MR key in the conductivity measurement mode, the display shows "LOC/P-01".
2.   Press ▲ or ▼ key until the meter shows "ELE/P-02" (Electrode Diagnosis).
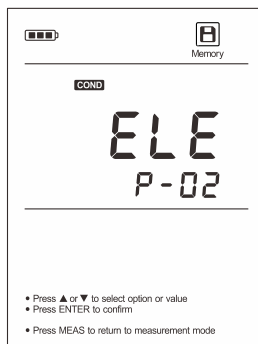
3.   Press ENTER key to confirm, the meter shows the last calibration date (Format: mm-dd).
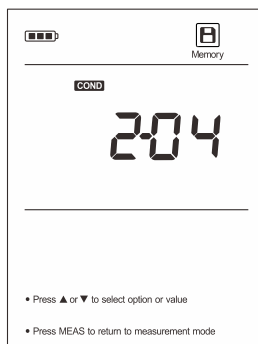
4.   Press ▼ key, the meter shows calibration point and calibration factor (e.g., K=0.998).
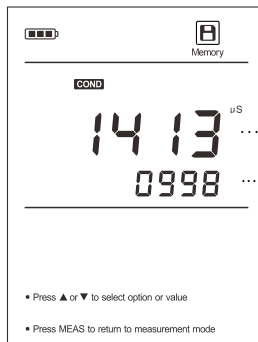
5.   After the browsing, press MEAS key to exit the current mode.

DO Calibration in % Saturation Mode

EC910 portable multiparameter water quality meter can be calibrated quickly in air. In the percentage saturation mode, the meter is able to perform either 1 or 2 points calibration. For single point calibration, we recommend that you perform 100% saturation calibration in the air. For the 2 points calibration, you need to use saturated anhydrous sodium sulfite solution (zero oxygen solution).

100% SATURATION CALIBRATION:

1.1   Press MODE key until the meter shows **DO** indicator and measurement unit "%".
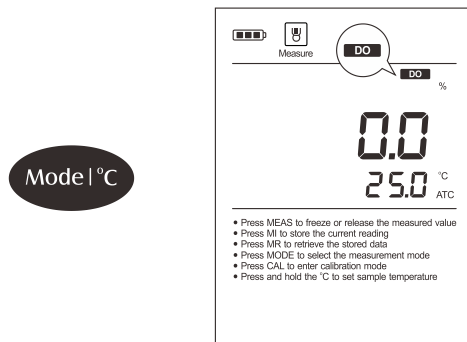
1.2   Make sure that you have selected 1 point calibration in the setup menu.
1.3   Press CAL key, the meter enters calibration mode, the display shows "100%/CAL1".
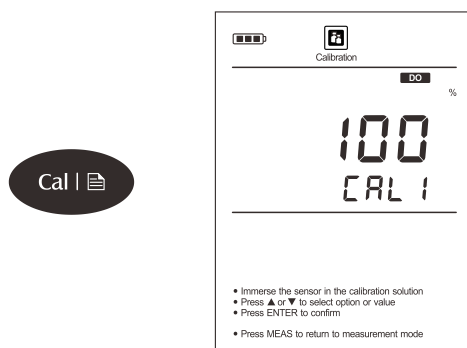
1.4   Hold the dissolved oxygen probe in the air or place the sensor into air-saturated water for 3 to 5 minutes, press ENTER key to confirm. Wait for the measured value to stabilize, the display shows "END". Single point calibration is completed.

2 POINTS CALIBRATION:
2.1   Make sure that you have selected 2 points calibration in the setup menu.
2.2   Press CAL key, the meter shows "100/CAL1".
2.3   Press ▲ or ▼ key until the display shows "0/CAL1".
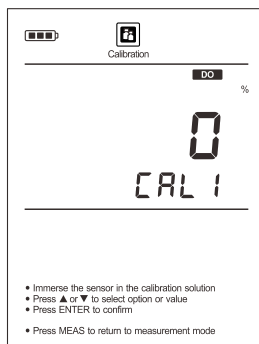
2.4   Dip the dissolved oxygen probe into the saturated anhydrous sodium sulfite solution (zero oxygen solution). Stir the probe gently.
2.5   Press ENTER key to confirm, "Calibration" indicator begins flashing.
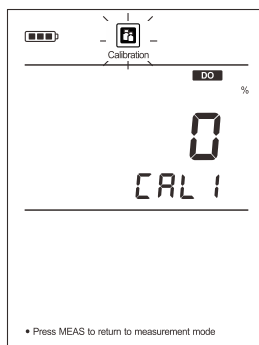
2.6   Wait for the measured value to stabilize, the display shows "100/CAL2". The meter prompts you to continue with second point calibration.
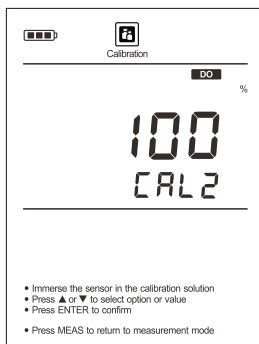
2.7   Dip the dissolved oxygen probe into air-saturated water for 3 to 5 minutes, press ENTER key to confirm. Wait for the measured value to stabilize, the display shows "END". The meter returns to measurement mode automatically. Calibration is completed.
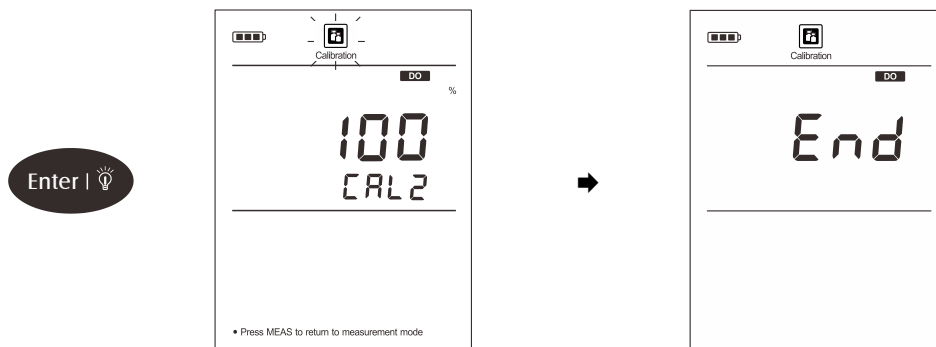
ⓘ   Performing a percentage saturation calibration will simultaneously calibrate the corresponding mg/L (or ppm) concentration value. Therefore, additional mg/L calibration isn't required in most circumstances.

DO Calibration in mg/L or ppm Mode

1.1   Press MODE key until the meter shows DO indicator and measurement unit "mg/L" or "ppm".

1.2   Make sure that you have selected 1 point calibration in the setup menu.
1.3   If necessary, set the salinity and barometric pressure coefficient in the setup menu (Refer to Setup Menu section).
1.4   Press CAL key, the display shows "8.25mg/L/CAL1" (@25ºC).

Cal | 📄

8.25 mg/L
CAL 1

- Immerse the sensor in the calibration solution
- Press ▲ or ▼ to select option or value
- Press ENTER to confirm

- Press MEAS to return to measurement mode

1.5   Dip the dissolved oxygen probe into the air-saturated water for 3 to 5 minutes.
1.6   Press ENTER key to confirm, "Calibration" indicator begins flashing.

Enter | 💡

8.25 mg/L
CAL 1

- Press MEAS to return to measurement mode
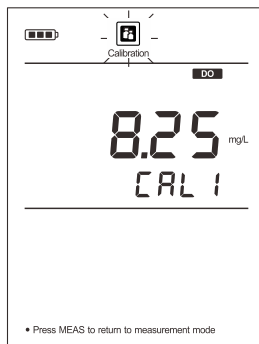
1.7   Wait for the measured value to stabilize, the display will show "END". The meter returns to measurement mode automatically. Single point calibration
        is completed.

2 POINTS CALIBRATION:
2.1   Make sure that you have selected 2 points calibration in the setup menu.
2.2   Press CAL key, the meter shows "8.25mg/L/CAL1" (@25ºC).
2.3   Press ▲ or ▼ key until the display shows "0.00mg/L/CAL1".

MI | ▲
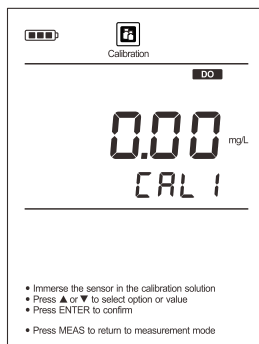
0.00 mg/L
CAL 1

- Immerse the sensor in the calibration solution
- Press ▲ or ▼ to select option or value
- Press ENTER to confirm

- Press MEAS to return to measurement mode

2.4   Dip the dissolved oxygen probe into the saturated anhydrous sodium sulfite solution (zero oxygen solution). Stir the probe gently.

2.5   Press ENTER key to confirm, "Calibration" indicator begins flashing.
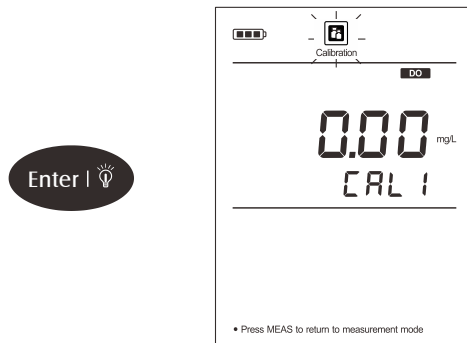
2.6   Wait for the measured value to stabilize, the display shows "8.25/CAL2". The meter prompts you to continue with second point calibration.
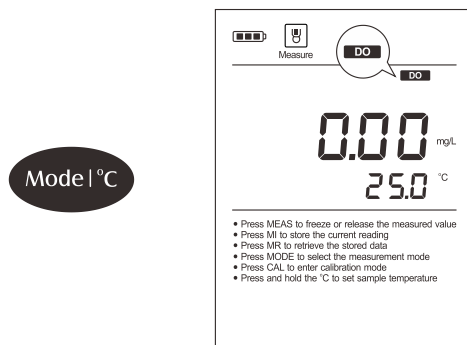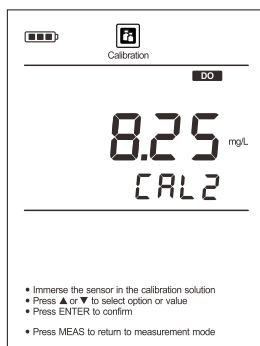

2.7   Dip the dissolved oxygen probe into air-saturated water for 3 to 5 minutes, press ENTER key to confirm. Wait for the measured value to stabilize, the display shows "END". The meter returns to measurement mode automatically. Calibration is completed.
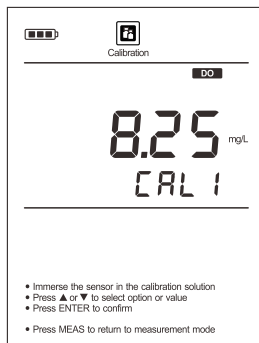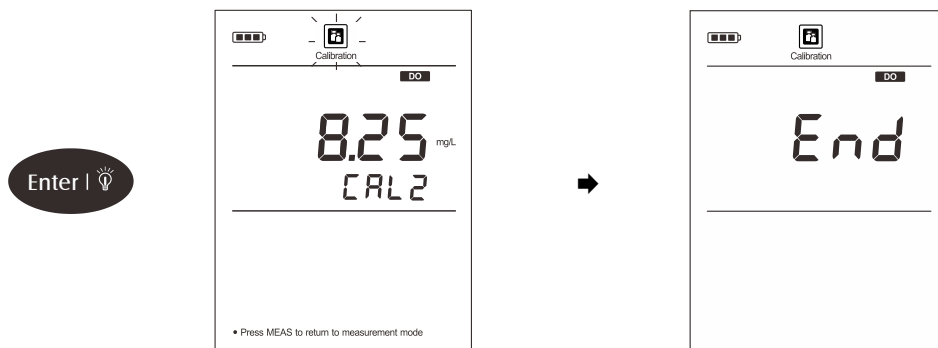

EXIT THE CALIBRATION:

During the setup mode, press MEAS key, the meter returns to measurement mode immediately.

Temperature Calibration

During the measurement, when automatic temperature compensation is enabled, if the temperature reading displayed differs from that of an accurate thermometer, you need to calibrate the meter.

1.   Press and hold the ℃ key for 3 seconds to enter temperature calibration mode, the display shows current temperature reading.
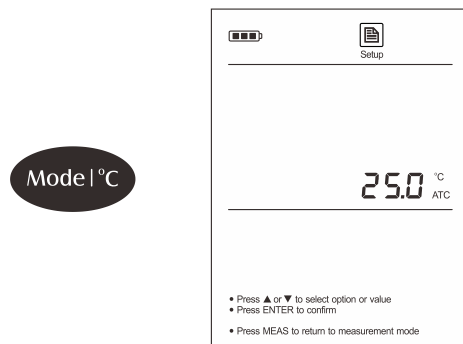
2.   Press ▲ or ▼ key to set the temperature value.
3.   Press ENTER key to confirm. Calibration is completed.

pH Measurement

1.   Press MODE key until the meter shows ▬pH▬ indicator.
2.   Rinse the pH electrode with distilled water to remove any impurities adhering to the probe body.
3.   Dip the electrode into the sample solution, stir the sensor gently.
4.   Wait for the reading to stabilize, record the measured value on the display.

ORP Measurement

EC910 portable meter contains two millivolt measurement modes.

ABSOLUTE MILLIVOLT MODE:

- Press MODE key until the display shows measurement unit "mV", the meter is now enters absolute millivolt measurement mode.
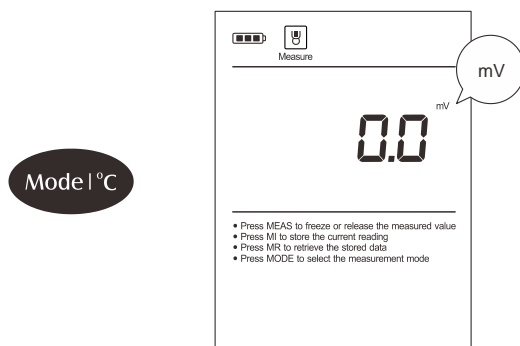
RELATIVE MILLIVOLT MODE:

- Press MODE key until the display shows ORP indicator, the meter enters relative millivolt measurement mode.
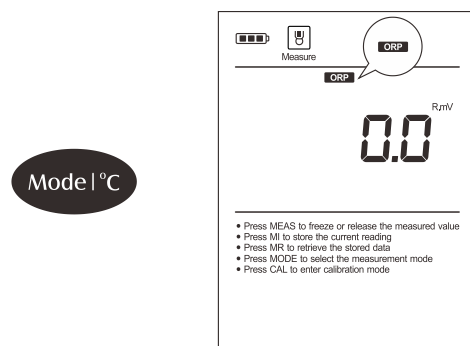
Select one of the above modes. Dip the ORP electrode into sample solution, stir the sensor gently. Wait for the reading to stabilize, record the measured value on the display.

Ion Concentration Measurement

1.   Press MODE key until the meter shows ` ION ` indicator.
2.   Rinse the Ion Selective Electrode thoroughly with distilled water. Dip the electrode into the sample solution.
3.   If your sample is belong to low concentration liquids or some interfering ions are present in the solution, we suggest you that adding the Ionic Strength Adjuster into the sample solution.
4.   Stir the sensor gently. Wait for the reading to stabilize, record the measured value on the display.

Conductivity/TDS/Resistivity Measurement

1.   Press MODE key until the meter shows ` COND ` (Conductivity) or ` TDS ` (TDS) or ` RES ` (Resistivity) indicator.
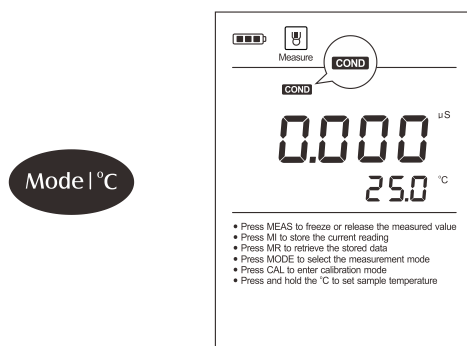
2.   Rinse the conductivity electrode thoroughly with distilled water.
3.   Dip the electrode into the sample solution, stir the sensor gently.
4.   Wait for the reading to stabilize, record the measured value on the display.

Salinity Measurement

EC910 portable meter provides two salinity measurement modes: practical salinity (unit: PSU) and natural seawater (unit: ppt).

1.   Press MODE key until display shows ` SAL ` indicator and measurement unit "PSU", the meter is now enters practical salinity measurement mode.
2.   If necessary, press MODE key again, the meter shows ` SAL ` indicator and measurement unit "ppt", the meter is now enters seawater measurement mode.
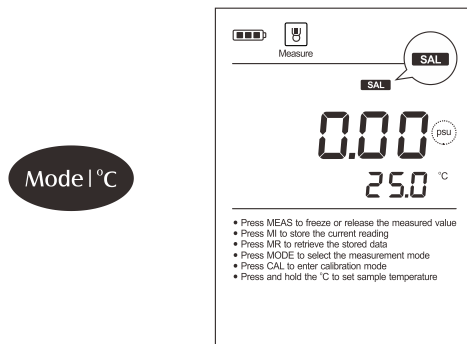
3.   Select the desired measurement mode. Dip the electrode into sample solution. Stir the sensor gently.
4.   Wait for the reading to stabilize, record the measured value on the display.

Dissolved Oxygen Measurement

EC910 portable multiparameter water quality metere is suitable for measuring the water, wastewater, brine and other liquids. If you use meter to measure seawater or other water containing large amounts of salt, please set the salinity coefficient before use.

Some gas and steam such as chloride, sulfur dioxide, sulfureted hydrogen, ammonium, carbon dioxide and iodin can permeate the membrane via diffusion. So their existence will influence the measurement of dissolved oxygen.

If the sample contains solvent, grease, sulfide and alga, the membrane on the probe will be blocked, damaged or eroded.

1.   Press MODE key until the meter shows **DO** indicator.
2.   Connecting the dissolved oxygen probe to meter, wait for 15 minutes to polarize the sensor.
3.   If necessary, to set the barometric pressure and salinity coefficient in the setup menu (Refer to "SETUP MENU" section).
4.   Submerse probe in the sample solution, make sure the temperature sensor on the probe is fully immersed.

Temperature Sensor

5.   Stir the probe gently, wait for the reading to stabilize, record the measured value on the display.

Hold Function

The meter contains two data hold modes. When the Auto-Hold function is enabled, the meter will automatically sense a stable endpoint reading and freeze it, "HOLD" indicator appears on the display. If the Auto-Hold function is disabled, press ▢ key, the meter will immediately freeze currently displayed value. Press the key again to resume measuring.
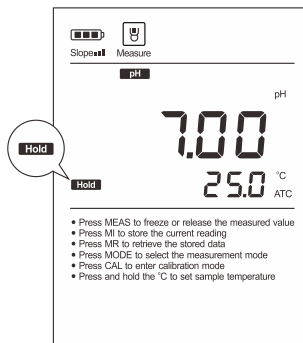
Storing and Recalling Data from Memory

EC910 portable multiparameter water quality meter allows up to 500 data sets to be stored and recalled.

MEMORY INPUT:
During the measurement process, press MI key to input measured value into the memory, "Memory" indicator appears on the display.
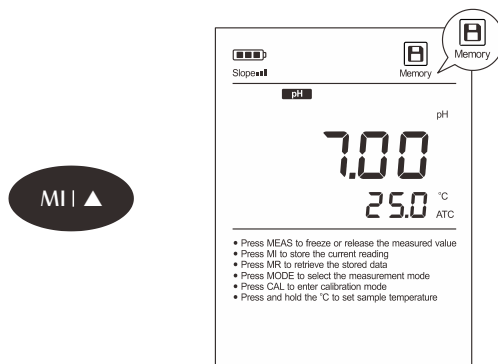
MEMORY RECALL:
1.   Press MR key in the measurement mode, the meter shows "LOC/P-01" (Data Log).
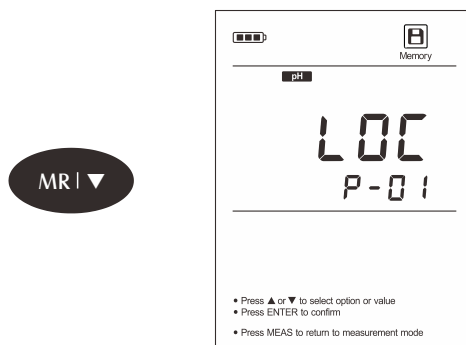
2.   Press ENTER key to confirm, the meter shows page number of the stored data.
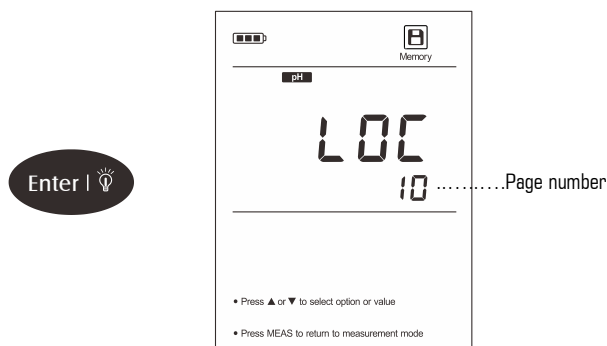
3.   Press ▼ key, the meter shows date and time of the stored data (Format: mm-dd, hh-mm).
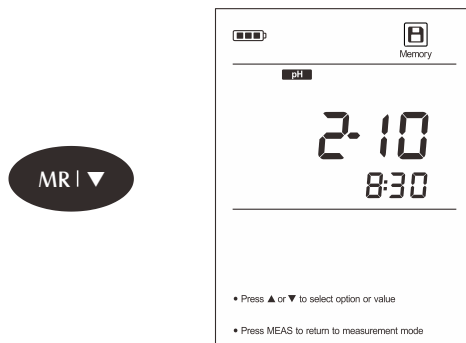
4.   Press ▼ key again, the display shows the stored data.
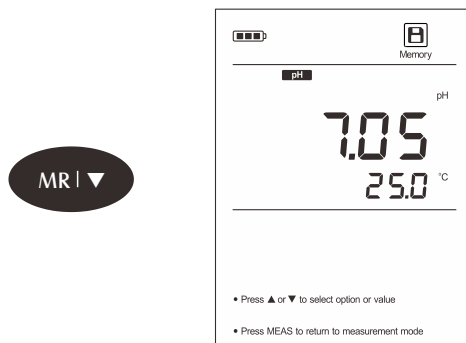
5.   After the browsing, press MEAS key to exit the current mode.

Please download software at www.amtast.com/soft/ec910.rar

Communication

AMTAST USA INC provides a free Data Acquisition System that can be used to transfer data, receive the measuring values or import the data to Excel. Before using, ensure that Windows 7/8/10 operating system has been installed on your computer.

RECEIVING DATA:

- Connect the USB cable to meter and computer. Click the DAS icon, the system will automatically scan an available communication port and show the message box " Found a port on your computer".
- Click the OK button, the application starts.
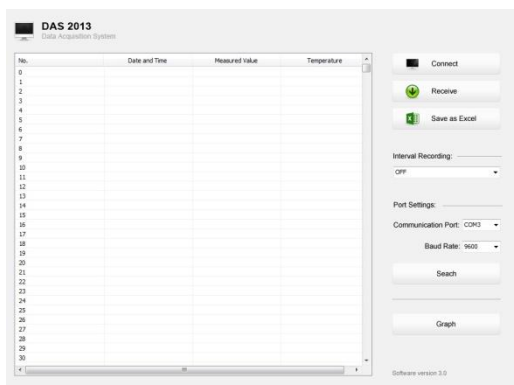
- Click the Connect button, the screen shows "Port is connected" indicate that communication between the meter and the computer has been established.
- Click the OK button to confirm.
- Click the Receive button, the stored data in meter will automatically send to computer.

INTERVAL RECORDING:

This function helps you to record the measuring value within the specify time period.

- Click the Interval Recording button and select a time option.
- Click the Receive button, the measured value will automatically send to data sheet.

ⓘ

- The first data need 1 minute to be shown on screen.
- Do not press any key on meter during the Interval Recording mode, it will cause communication interruption.

GRAPH MODE:

This function helps you to view variations of the measured parameter continuously. Click the Graph button, the screen will immediately show curve graph. If you want to quit current mode, click the Back button.

CREATE THE EXCEL FILE:

When the transfer is completed, click the "Save as Excel" button, the measured values in the data sheet will automatically convert to Excel file.

WARNING:

Once the software is closed, all received data will be lost and can not be recovered.

pH Electrode Care and Maintenance
Since pH electrode is susceptible to dirt and contamination, clean as necessary depending on the extent and condition of use.

AFTER MEASURING:
Rinse the pH electrode in distilled water, store the electrode into the electrode storage solution.

CLEANING THE ELECTRODE:
- Salt deposits: Soak the electrode in warm tap water to dissolve deposits, then thoroughly rinse with distilled water.
- Oil or Grease film: Wash the electrode bulb gently in some detergents and water. If necessary, using the alcohol to clean the electrode bulb, then rinse with distilled water. Place the sensor in the electrode storage solution for 30 minutes.
- Clogged reference junction: Heat a diluted KCl solution to 60 ℃ to 80℃. Place the sensing part of the electrode into the heated solution for about 10 minutes. Allow the electrode to cool in some unheated KCl solution.
- Protein deposits: Prepare a 1% pepsin solution in 0.1M of HCL. Place the electrode in the solution for 10 minutes. Rinse the sensor with distilled water.

REACTIVATING THE ELECTRODE:
If stored and cleaned properly, the electrode should be ready for immediate use. However, a dehydrated bulb may cause sluggish response. To rehydrate the bulb, immerse the electrode in a pH4.01 buffer solution for 10 to 30 minutes. If this fails, the electrode requires activation.
- Soak the pH electrode in 0.1M HCl for 5 minutes.
- Remove and rinse with deionized water, then place in 0.1M NaOH for 5 minutes.
- Remove and rinse again, and soak in electrode storage solution for 30 minutes.

ORP Electrode Care and Maintenance
- Ensure that the ORP electrode is thoroughly washed with distilled water after each use.
- In aggressive chemicals, dirty or viscous solutions, and solutions with heavy metals or proteins, take readings quickly and rinse electrode immediately after.
- If you do not use the electrode for long periods, please store the electrode with electrode storage solution.

CLEANING THE ELECTRODE:
Contamination of the sensing element often results in slow response and inaccurate readings. If necessary, clean the element by one of the following procedures.

Inorganic Deposits:
- Soak the ORP electrode in 0.1M HCl for 10 minutes.
- Remove and rinse with distilled water, then place in alcohol for 5 minutes.
- Remove and rinse again, and soak in pH4.01 buffer solution for 15 minutes.

Oil and Grease Films:
- Wash the electrode gently in some detergents and water.
- Dip the electrode in the electrode storage solution for at least 30 minutes.

Ion Selective Electrode Care and Maintenance
- Ensure that the electrode is thoroughly washed with distilled water after each use.
- DO NOT scratch the sensitive membrane on electrode during the measurement or calibration.
- If you do not use the electrode for long periods, please store the electrode in a dry, cool and well-ventilated area.

Conductivity Electrode Care and Maintenance

- Ensure that the conductivity electrode is thoroughly washed with distilled water after each use.
- If there is a build-up of solids inside the measurement area of the cell, these should be removed very carefully with a cotton bud soaked in solvent, taking care not to touch the metal parts of the inner cell.

DO Probe Care and Maintenance

- Please always keep probe's membrane moist.
- If you do not use the dissolved oxygen probe for long periods, please screw off membrane cap and rinse the probe's cathode, anode and the membrane with deionized water, then soak up residual water on them with filter paper, and install the probe.

Cathode and Anode   Membrane cap
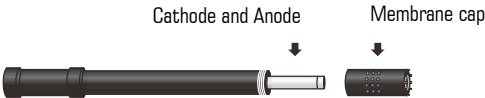
Troubleshooting

LCD DISPLAY	CAUSE	CORRECTIVE ACTION
- - -	Electrode dried out	Soak the pH electrode in 3M KCL solution for 15 minutes
		Soak the Ion Selective Electrode in the diluted standard solution
		Soak the conductivity electrode in tap water for a few minutes
	Measured value is out of range	Check the electrode whether clogged, dirty or broken
Err	Incorrect calibration solutions	Using the fresh calibration solutions for calibration
	Setting value does not match calibration solution	Reset the calibration value
	DO electrolyte solution is depleted	Refilling electrolyte solution
	Zero oxygen solution is contaminated	Replace the calibration solution
	pH electrode is out of service life	Replace the pH electrode
	Keypad is not working properly	Replace the batteries

Specifications

pH	Model	EC910
	Range	-2.000~20.000pH
	Accuracy	±0.002pH
	Resolution	0.1, 0.01, 0.001pH
	Calibration Points	1 to 5 points
	Calibration Solutions	USA, NIST, DIN, User-Defined Buffer
	Temperature Compensation	0~100℃, 32~212℉, Manual or Automatic
mV	Range	-1999.9~1999.9mV
	Accuracy	±0.2mV
	Resolution	0.1, 1mV
	Calibration Points	1 point (Only for Relative mV mode)
	Calibration Range	±200mV
Ion	Range	0.001~19999ppm, mg/L, mol/L (Depending on range of ISE)
	Accuracy	±0.5% F.S (Monovalent), ±1% F.S (Divalent)
	Resolution	0.001, 0.01, 0.1, 1
	Calibration Points	2 to 5 points
	Calibration Solutions	0.001, 0.01, 0.1, 1, 10, 100, 1000, 10000ppm, mol/L, mg/L
Conductivity	Range	0~20.00, 200.0, 2000μS/cm, 20.00, 200.0mS/cm
	Accuracy	±0.5% F.S
	Calibration Points	1 to 5 points
	Calibration Solutions	10μS/cm, 84μS/cm,1413μS/cm,12.88mS/cm,111.8mS/cm
	Temperature Compensation	0~100℃, 32~212℉, Manual or Automatic
	Temperature Coefficient	0.0~10.0%/℃
	Compensation Modes	Linear or Pure Water
	Cell Constant	K=0.1, 1, 10
	Normalization Temperature	20℃ or 25℃
TDS	Range	0~100ppt (Max. 200ppt, depending on factor setting)
	Accuracy	±1% F.S
	TDS Factor	0.1~1.0 (Default 0.5)
Salinity	Range	0~10ppt (Max. 80ppt)
	Accuracy	±1% F.S
	Measurement Modes	Seawater or Practical Salinity

Resistivity	Range	0~100MΩ
	Accuracy	±1% F.S
	Resolution	0.01, 0.1, 1
Dissolved Oxygen	Range	0.00~20.00mg/L (or ppm)
	Accuracy	±0.2mg/L
	Resolution	0.01mg/L
	Calibration Points	1 or 2 points
	Temperature Compensation	0~50℃, 32~122°F
	Pressure Correction	60.0~112.5kPa, 450~850mmHg
	Salinity Correction	0~50g/L
% Saturation of Oxygen	Range	0.0~200.0%
	Accuracy	±2.0%
	Resolution	0.1%
Temperature	Range	0~105℃, 32~221°F
	Accuracy	±0.5℃, ±0.9°F
	Resolution	0.1℃
	Calibration Points	1 point, Measured value ±10℃
Others	Hold Function	Manual or Automatic
	Stability Conditions	Low or High
	Calibration Due	0 to 31 days
	Power Off	Manual or Automatic (10, 20, 30 minutes)
	Reset Function	Yes
	Memory	Stores up to 500 data sets
	Output	USB Communication Interface
	Connector	BNC
	Display	LCD
	Power Requirements	3×1.5V "AA" Batteries
	Dimensions	170(L)×85(W)×30(H)mm
	Weight	300g

Addendum 1: Optional pH Electrodes

EC910 portable multiparameter water quality meter is equipped with a general purpose pH electrode, if it can not fully meet your measurement requirements, please refer to the table below to select an applicable sensor.

SAMPLE TYPE	P11	P12	P13	P14	P16	P17	P18	P19	P20	P21
Agar						●				
Beer	●	●	●	●		●			●	●
Blood Products	●	●	●			●				●
Bread, Dough							●	●		
Cement	●									
Cosmetics	●	●	●	●		●				●
Dairy Products	●	●	●			●		●		
Education	●			●		●			●	
Fats/Cream								●		
Field Use				●		●	●		●	
Fish Products						●		●		
Lab Flasks		●								
Low Ionic	●									●
Meat, Cheese						●		●		
Micro Samples			●							
Paint		●	●			●				
Photographic										
Soil							●	●		
Surface						●				
Test Tubes		●			●					
Tris Buffer					●					
Viscose Samples						●				

Addendum 2: Optional Ion Selective Electrodes

The meter is capable of connecting a variety of composite ion selective electrodes. The following list shows the selectable sensors and its range.

MODEL	ION	RANGE
F-US	Fluoride	1×10^{-6} M$\sim$ Saturation
CL-US	Chloride	$5\times10^{-5} \sim$1M
Br-US	Bromide	$5\times10^{-7} \sim$1M
Cn-US	Cyanide	$8\times10^{-6} \sim$0.01M
Na-US	Sodium	$4\times10^{-6} \sim$1M
NO3-US	Nitrate	$7\times10^{-6} \sim$1M
Ca-US	Calcium	$5\times10^{-7} \sim$1M
NH4-US	Ammonium	$5\times10^{-6} \sim$0.1M
Cd-US	Cadmium	$1\times10^{-6} \sim$0.1M
NH3-US	Ammonia	$1\times10^{-6} \sim$1M
Cu-US	Cupric	$1\times10^{-6} \sim$0.1M
I-US	Iodide	$5\times10^{-8} \sim$1M
Pb-US	Lead	$1\times10^{-6} \sim$1M
K-US	Potassium	$7\times10^{-6} \sim$1M
Ag-US	Silver	$1\times10^{-7} \sim$1M
S-US	Sulphide	$1\times10^{-7} \sim$1M

Addendum 3: How to prepare the electrode storage solution

Dissolve 22.365 grams of potassium chloride reagent (KCL) in the 100mL distilled water. Stir the solution until the solution has thoroughly mixed.

Addendum 4: How to prepare the conductivity standard solutions

Place AR potassium chloride reagent in a 50mL beaker and dry in an oven for 3 to 5 hours at 105°C, then cool to room temperature in desiccator.

CALIBRATION SOLUTIONS	REAGENT
84μS/cm	Accurately weigh out 42.35mg of KCL and dissolve in 1000mL de-ionised water
1413μS/cm	Accurately weigh out 745.9mg of KCL and dissolve in 1000mL de-ionised water
12.88mS/cm	Accurately weigh out 7.45g of KCL and dissolve in 1000mL de-ionised water
111.8mS/cm	Accurately weigh out 74.5g of KCL and dissolve in 1000mL de-ionised water

Stir the solution until the reagent has thoroughly mixed.

Addendum 5: How to calculate the temperature coefficient

To determine the temperature coefficient of sample solution use this formula:

$$T_c = \frac{C_{TB}-C_{TA}}{C_{TA}(T_B-25)-C_{TB}(T_A-25)} \times 100\%$$

Where:

T_c＝Temperature coefficient

C_{TA}＝Conductivity at Temperature A

C_{TB}＝Conductivity at Temperature B

T_A＝Temperature A

T_B＝Temperature B

1.   Press and hold the ºC key for 3 seconds to enter temperature setting mode.
2.   Press ▲ or ▼ key to set the temperature at 25ºC.
3.   Dip the electrode into sample solution A.
4.   Record the temperature value T_A and conductivity value C_{TA}.
5.   Repeat the steps above, dip the electrode into same sample solution B. Make sure both sample solutions have about 5ºC to 10ºC difference.
6.   Record the temperature value T_B and conductivity value C_{TB}.
7.   Calculate the temperature coefficient of sample solution according to the formula shown above.
8.   Enter the calculated temperature coefficient into the meter.

Addendum 6: How to calculate the TDS conversion factor

To determine the TDS conversion factor use the following formula:

$$Factor = \frac{Actual\ TDS}{Actual\ Conductivity\ @\ 25ºC}$$

Where:

Actual TDS: value from the high purity water and precisely weighed NaCl or KCL reagent.

Actual Conductivity: the meter measured conductivity value.

For example: Dissolve 64g of potassium chloride reagent in 1L distilled water. If its conductivity value is 100mS/cm, then TDS conversion factor is 0.64.

Addendum 7: Pressure VS Altitude Table

ALTITUDE (m)	kPa	mmHg
0	101.3	760
100	100.1	750
200	98.8	741
300	97.6	732
400	96.4	723
500	95.2	714
600	94.0	705
700	92.8	696
800	91.7	688
900	90.5	679
1000	89.4	671
1100	88.3	662
1200	87.2	654
1300	86.1	646
1400	85.0	638
1500	84.0	630
1600	82.9	622
1700	81.9	614
1800	80.9	607
1900	79.9	599
2000	78.9	592

Addendum 8: How to prepare the zero oxygen solution

Dissolve 500mg of sodium sulfite reagent and a small amount of cobalt(II) chloride hexahydrate ($CoCl_2 \bullet 6H_2O$) in the 250mL distilled water, mix the solution until reagent is completely dissolved.

Hazardous Substance Statement

AMTAST USA INC is committed to the reduction and eventual elimination of all hazardous substances in both the manufacturing process and finished products we supply. We have an active manufacturing and procurement program to minimize and eliminate the use of harmful heavy metals such as cadmium, lead, mercury and the like. New technologies and design parameters are also promoting these efforts and we expect to have little or no such materials in our product in the coming years. We welcome our customer suggestions on how to speed up these efforts.

Warranty

The warranty period for meter is one year from the date of shipment. Above warranty does not cover sensor and calibration solutions. For more information, please contact nearest authorized distributor.