OPERATING MANUAL

PH METER

BMET-206

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INDEX

1 Introduction

1.1 Introduction

BMET-206 portable pH meter is a newly designed functional instrument that can be widely used in universities, environmental protection, medicine, food, sanitation, geological prospecting, metallurgy, ocean exploration and other fields measurements for acid rain detection, industrial wastewater, surface water, drinking water, beverages, daily chemical products, textiles and other related industries.

• General Features

- Color High contrast LCD touchscreen, 4.3 inches.
- Intelligent operation system provides features including user management, calibration management, electrode management, method management, data management, Log Management and etc.
- Multi-reading feature allows auto-read, timed-read and continuous-read.
- Automatic/Manual temperature compensation ensures accurate results.
- Auto-hold feature senses and locks the measurement endpoint.
- Data Storage 1000 sets for each parameter (GLP-compliant).
- Data analysis feature helps user review, compare and recalculate results.
- Support for USB communication.
- Auto-power off feature effectively extends the battery service life.
- Reset feature automatically resumes all settings back to factory default options.
- IP65 waterproof. The portable meter is suitable for fields measurements and outdoor measurements.
- 1-8 points calibration with Standard Recognition.
- Selectable pH buffer groups, including USA, NIST, DIN, GB, MERK, JIS.
- User-defined pH buffer or buffer group is supported.
- Automatic electrode diagnosis with pH slope and offset display.

1.2 Technical Specification

Table 1-1 Instrument Specifications

Model		BMET-206
pH level		0.001 pH
mV	Range	(-2000.00~2000.00)mV
	Minimum resolution	0.01mV
	Electronic unit indication error	±0.03% or ±0.1mV
	Electronic unit repeatability	0.1mV
	Electronic unit input current	≤1x10-12A
	Electronic unit input impedance	≥3x1012Ω

pH	Range	(-2.000~20.000)pH
	Minimum resolution	0.001pH
	Electronic unit indication error	±0.002pH
	Electronic unit repeatability	0.001pH
	Instrument indication error	±0.01pH
	Instrument repeatability	0.005pH
Temperature	Range	(-10.0~135.0) °C/(14.0~275.0) °F
	Minimum resolution	0.1 °C/0.1°F
	Electronic unit indication error	±0.1 °C
Temperature	Instrument indication error	±0.3°C(0°C-60°C); ±1.0 °C(Other range)
Use environment		Environment temperature: (0~40)°C Relative humidity: not more than 85%
Dimensions(LxBxH), Weight(kg)		90mm x225mmx40mm, About 0.5kg
Power supply		Rechargeable lithium battery, power adapter (Input AC 100~240V; Output DC 5V)

• Equipped

1.3 Function Introduction

Table 1-2 Functions Specification

Features		Explanation
Basic Function	Backlight adjustment	•
	Automatic diagnostics	•
	Factory reset	•
	Default parameter	•
	Prompt Sound	•
	Time settings	•
	Power failure protection	•
	Firmware upgrade	•
	Anti-interference automatic recovery	•
	Automatic shutdown	•
	Protection	IP65

Reading Function	Reading balance settings	•
	Auto-lock reading	•
	Reading Mode	•
	Sample ID	•
Data Management	Storage	1000 sets of measurement parameters each
	View	•
	Delete	•
	Alarm	•
	GLP	•
Communications and external devices	U Disk	•
	Content and format customization	GLP, Standard, custom
	Connect to the PC for data collection	•
	Connect to a PC for instrument control	•
	Wireless	Bluetooth
pH/mV Measurement	pH electrode status/performance	Slope, Electrode status(Excellent, Good, Poor)
	Multipoint calibration	8 points
	Automatic standard solutions recognition	6 groups
	Standards customization	•
	Standard groups customization	1group
	Automatic temperature compensation	•
	Manual temperature compensation	•
	pH electrode diagnostics	•
	ORP Measurement	•
Temperature Measurement	Temperature units	°C, ℉
	Temperature calibration	•
Advanced Management	User management	•
	Electrode management	•
	Method management	•

• Equipped

2 Safety Notices

Please read the entire contents of this manual carefully before use, and please keep this manual properly. The user MUST use the instrument following this manual to avoid damage to the user and equipment.
Before using the meter, READ the following notes:
- DO NOT disassemble the device for inspection or repair.
- To prevent electric shock or damage to the device, do not place cables and connectors in any liquid, wet or corrosive environment.
- Please use the defaulted power adapter, Do not use it if the power cord is damaged (the wire is exposed or broken).
- Do not use in flammable and explosive environments.
- Do not use if the user finds any abnormalities such as damage or deformation of the device.
The following identifiers will be used in this manual.

3 Terms Explanation

• pH/pX
- pH/pX Slope: The amount of potential change generated by each 1 pH/pX change, expressed in mV/pH or by 100% Theoretical Slope (PTS). pX = - log[X], where [X] means molar concentration (mol/L) of X ions.
- E0 of pH: Also known as "zero potential", it usually refers to the potential value at a pH of 7.
- One-point calibration: Calibration with a standard solution.
- Two-point calibration: Calibration with two standard solutions.
- Multi-point calibration: Calibration with more than two standard solutions.
- Calibration reminder (Recommended): "Electrode calibration" prompts on the homepage, user can start measurement without last calibration.
- Calibration reminder (Mandatory): "Electrode calibration" prompts on the homepage, calibration is required for accurate measurement.
- Upper limit: The upper limit value is monitored for the measured or calibrated data, and the upper limit value must not be lower than the lower limit value.
- Lower limit: Lower limit monitoring of measured or calibrated data.

4 Overview and Installation

4.1 Overview

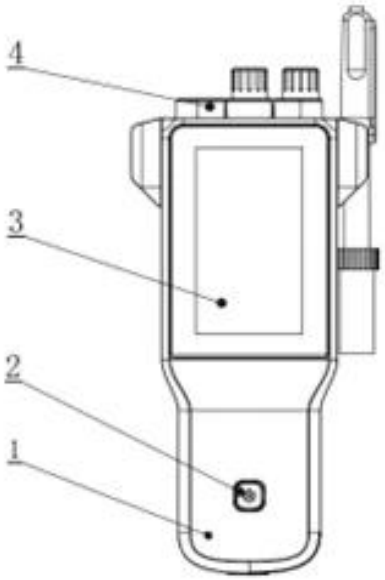


Figure 4-1 Overview-Front View

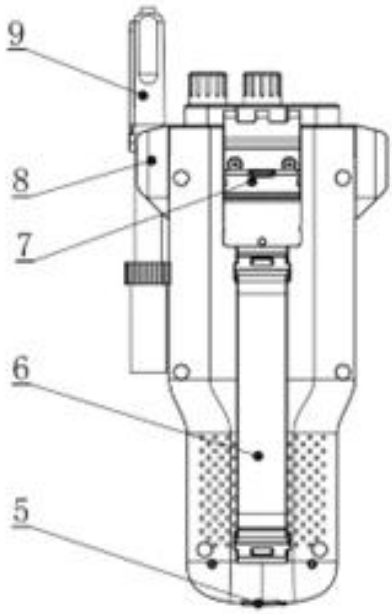
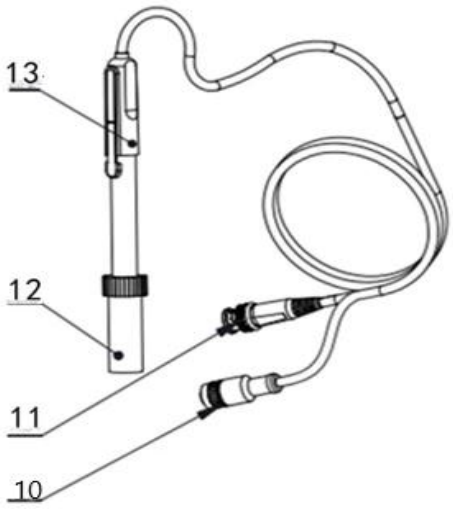


Figure 4-2 Overview- Back View



10 4-pin aviation connectors
11 pH electrode connectors
12 Electrode protection cap
13 pH electrodes

Figure 4-3 Electrodes and connector

Table 4-1 Connector Specifications

Electrode type	Connector specifications	Electrodes Connection
pH electrode	BNC(Q9)	pH electrode, ORP electrode, ISE probe
Temp electrode	4-pin aviation	ATC probe

4.2 Instrument Installation

4.2.1 Electrodes Stand Installation

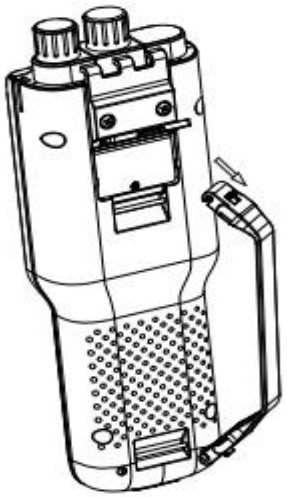


Figure 4-4 Wristband Installation

Installation:
1) Pull the wristband switch at the head of the wrist so that its closed round hole opens.
2) Snap the opened round hole card slot into the shaft of the corresponding instrument housing and close the round hole.
3) The lower wristband card slot is also operated as above.

4.2.2 Electrodes Connection
Push the pH Electrode into the electrode holder. Remove the socket protector cap of the pH electrode. Connect the pH electrode into the right socket. If the ATC probe is applied, or ATC has been integrated into the pH probe, please connect the ATC probe onto the DO/T electrode socket.

5 Instrument Operation

5.1 Switch On/Off

Press and release to switch on the meter. The startup screen shows software version and other related information. After the self-test program, the screen turns to the homepage and the meter are ready to measure. If the meter does not turn on, charge the meter for 15 minutes. Otherwise, please contact the manufacturer for further assistance.

Users press and hold the key for more than 3 seconds and release to shut down.

5.2 Screen Icons

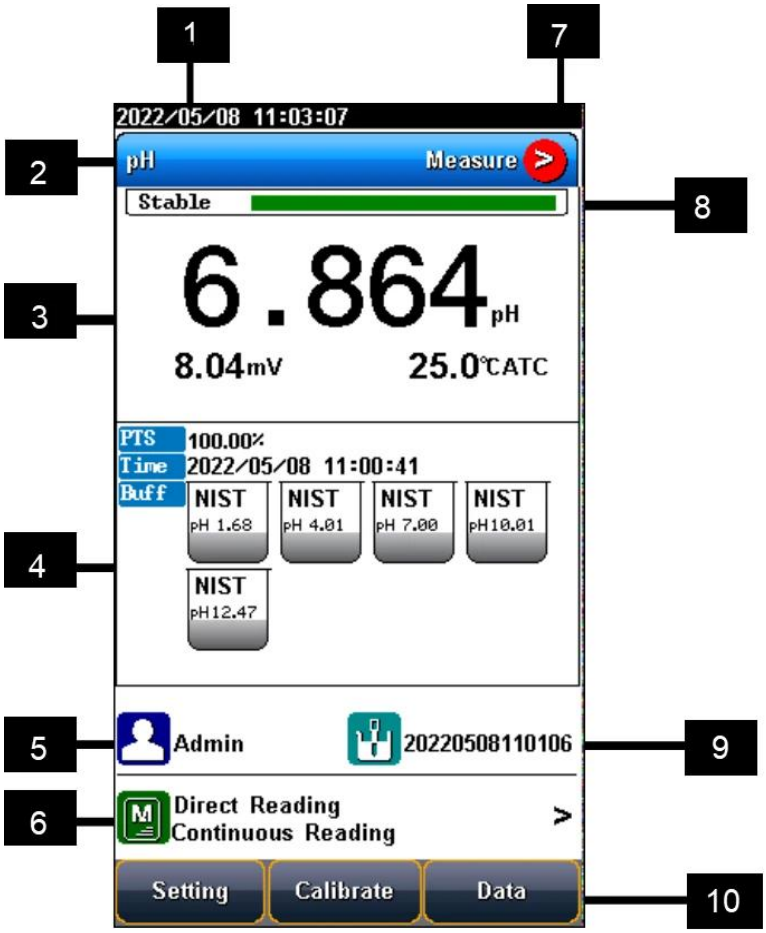


Figure 5-1 Screen icons explanation

1 System time.
2 Measurement parameters.
3 Measurement information.
4 Calibration information.
5 User ID.
6 Method management.
7 Power information.
8 Balance status.
9 Sample ID.
10 Soft function keys.
The instrument displays symbol identification that has the following functional implications:
Table 5-1 Symbol Explanation

No.	Symbol	Explanation
1		Reading status, display the measurement status of reading, stable, locked, each indicates that the processing, stable, and reading completed.
2	PTS	The percentage slope of the pH electrode calibration data
3	BUFF	The Standard buffer solution for calibration
4	Auto Mode	Auto-recognition of Standards
5	Manual Mode	Manual - recognition of Standards
6	No.	Number
7	ATC	Automatic temperature compensation
8	MTC	Manual temperature compensation
9	Temp	Temperature, unit °C and F
10	E	Measured potential in mV
11	RmV	The relative potential value (potential value relative to hydrogen potential) in mV
12	Offset	Offset potential, in mV
13		Measurement method management, display the current method information
14		Standard solution for pH calibration
15		User ID
16		Sample ID

5.3 Parameter Settings

When the meter is in the standby status or measuring status, press "Setting" to reset the instrument setting.

5.3.1 Tutorial settings

For the first use, please follow the guide to settings the measurement parameters. After all the settings, press the " 

" to return to the previous page.

5.3.2 Methods Information

The meter provides a library of built-in methods. Select the proper method to measure, system loads method's preset information, including the method name, brief overview, creator, creation date, and measurement parameters.

In the method settings, it supports the navigation setting including the method information, parameters, reading mode, conductivity setting, temperature setting and data management setting. For the first use, please follow the guide to settings the measurement parameters.

5.3.2.1 Update Method

When the method is revised by the setting, there is a red mark in the method management logo to remind user that the current method is different from the method in the library.

When press the method in the method library, there is a system tip to give user a choice to update or create a new method.

5.3.2.2 Create a new Method

There are three modes to create a new method: create method step by step in the system, save the setting as a new method in the system, and save the method with a new name, description and location. The location can be the system and U disk.

5.3.2.3 Delete a Method

There are 7 methods saved in the meter as the default setting in the library method. The No.001-No.007 method cannot be deleted, and the others can be deleted.

5.3.2.4 Save and Load a Method

It is support to store up to 50 methods in the meter, and save and load the methods in the U Disk.

5.3.3 Select parameters

Press "Setting"-"Select parameter" to select a parameter to calibrate and measure. It allows user to choose the pH or ORP.

5.3.4 Reading Mode Settings

The meter provides three reading modes, including continuous reading, auto reading, and timed reading.

- Continuous reading: The instrument displays real-time measurement results. User can end the measurement at any time and save the last result.
- Auto-reading: The measurement reached the balance, and the meter locked the reading result. The meter offers "Fast", "Medium", "Strict" and "Custom" four options for endpoint detection conditions.
- Time reading method: Timed Reading contains two kinds of timed reading methods: "Interval measurement" and "Timed measurement". "Interval Measurement" provide measurement results at interval time and timed reading provide measurement result after a set time.

Table 5-2 Reading Parameters Settings

Stability Type		pH
Fast	Stable time	4s
	Fluctuation	0.6mV

Medium	Stable time	6s
	Fluctuation	0.1mV
Strict	Stable time	8s
	Fluctuation	0.03mV
Custom (Recommended value)	Stable time	1 to 30s
	Fluctuation	0.03~1mV

5.3.5 pH Parameter Settings

5.3.5.1 pH Electrode management

The electrode information includes the name, serial No., user ID, registration time, service life, calibration message, calibration number, last calibration time. It allows user to choose one electrode to calibrate and measure samples.

The meter has one created default pH electrode, which is convenient for users. When using the built-in default electrode, the meter automatically loads the electrode serial number and the last calibration result, including calibration points, slope value, zero-point potential value, etc., and the calibration time and calibrator will also be loaded.

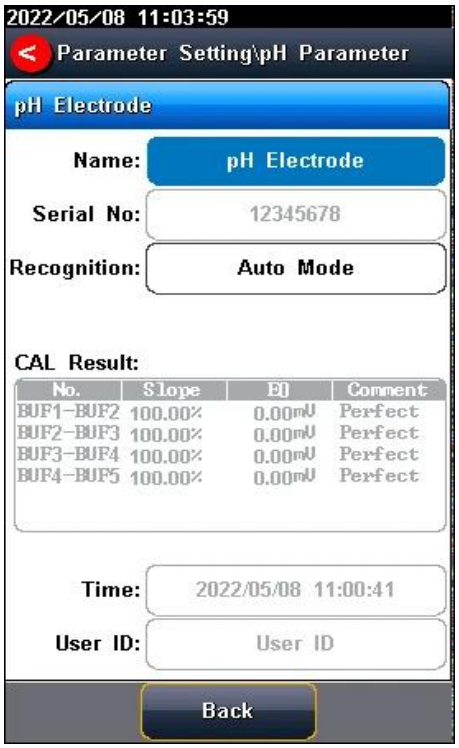


Figure 5-2 pH electrode information

The meter allows users to create and save electrodes information up to 5. The electrode information contains electrode name, electrode serial number, electrode type, registrant, registration time, shelf life, shelf life reminder, calibration No., latest calibration time etc.

Figure 5-3 Electrode management

5.3.5.2 pH standard groups

The meter provides various Standards Group including GB, DIN, NIST, USA, MERK, and JIS. And allows the user to prepare the customized Standard groups.

Table 5-3 Standard Solution Groups

Groups	Contents
NIST	1.677pH, 4.008pH, 6.864pH, 7.000pH , 7.416pH, 10.014pH, 12.469pH
USA	1.680pH, 4.010pH, 7.000pH, 10.010pH
DIN	1.680pH, 2.000pH, 3.557pH, 3.775pH, 4.008pH, 6.865pH, 7.000pH, 7.416pH , 9.184pH, 10.014pH, 12.454pH
GB	1.680pH, 3.559pH, 4.003pH, 6.864pH, 7.409pH, 9.182pH, 12.460pH
MERK	2.000pH, 4.000pH, 7.000pH, 9.000pH, 12.000pH
JIS	1.680pH, 4.008pH, 6.865pH, 7.413pH, 9.180pH, 10.010pH

The meter supports up to eight-points calibrations. Neighboring standards (pH gap<2) choice in the group may be frozen for accurate calibration. For neighboring standards, please choose the customization to perform calibration.

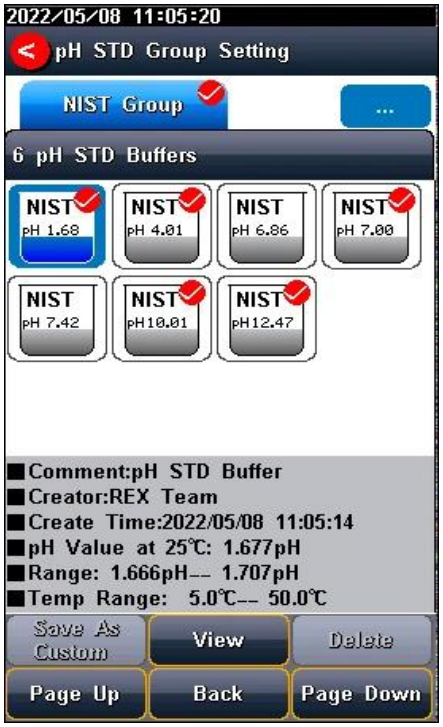


Figure 5-4 Selection of standard groups and standard solution

【TIPS】
If the selected standard solution group is different from the pH standard buffer solution used, it will lead to wrong calibration results.

5.3.5.3 Recognition
Auto Mode and Manual Mode.
In some special cases, it is necessary to use some non-standard pH buffer solutions, or use two very close pH standard buffer solutions for electrode calibration. In this case, the manual standard solution identification function can be used. When set to "Manual Mode", the pH value of the current standard solution can be input during and used for electrode calibration.
5.3.5.4 Resolution settings
The pH measurement resolution of the instrument is adjustable.
pH resolution: 0.01pH and 0.1pH.
mV resolution: 0.1 mV and 1 mV.
5.3.5.5 Alarm setting
The meter support pH measurement and calibration result monitoring alarm. The setting includes slope limit, potential value limit and monitoring options.

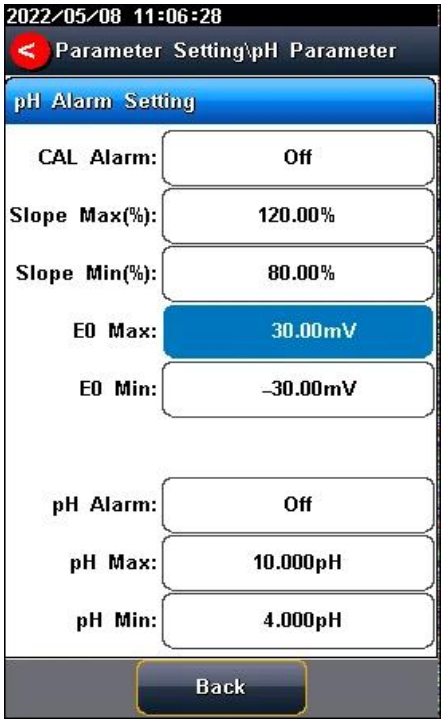


Figure 5-5 pH alarm setting information

5.3.5.6 Calibration reminder settings

The meter provides calibration prompts function. From the setting, the user can select calibration reminder (recommended) and calibration reminder (mandatory)for future calibration.

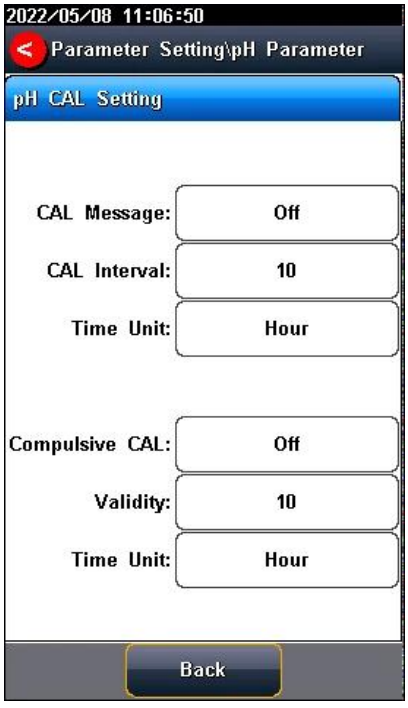


Figure 5-6 pH calibration reminder setting information

5.3.6 ORP Parameter Settings

5.3.6.1 ORP electrode information

In the meter setting, a set of ORP Electrode info is defaulted. At the measurement, the meter loads the defaulted pH electrode's info including serial number, last calibration result.
When replacing a new ORP Electrode replacement, please created information set for the electrode.
5.3.6.2 Alarm setting
The meter support ORP measurement and calibration result monitoring alarm. The setting includes potential value limit and monitoring options.
5.3.6.3 Calibration reminder settings
The meter provides calibration prompts function. From the setting, the user can select calibration reminder (recommended) and calibration reminder (mandatory)for future calibration.
5.3.7 Temperature Parameter Settings
The temperature unit of the meter is selectable in °C and °F.
Temperature compensation mode: ATC and MTC.
ATC means automatic compensation.
MTC means manual compensation. It allows user to input the temperature.
5.3.8 Data Management Settings
5.3.8.1 Sample ID type
The instrument supports three setting methods of Sample ID: number order, time order, and manual.
Number order: The sample ID No. is increasing with series number.
Time order: The sample ID No. is increasing with sample measuring time. Format: Year/Y, Month/M, Day/D, Hour/H, Minutes/M, Second/S
Manual: Manually set the sample ID No. It allows samples to manually enter the sample ID when saving or printing data.
5.3.8.2 Result Autosave
When this function is enabled, the meter saves the results when the reading is stable in the auto-reading and interval timed reading mode.
5.3.8.3 Data Overwrite
The meter provides 1000 sets of measurement results storage space. When this function is enabled, the results data that exceeds capacity will overwrite the old results data.
5.3.9 Output option
The data format is GLP, STD Format, and Custom. It could select one data format to output the result.
5.3.10 User Management
The instrument supports user management and can be divided into system administrators, method administrators, and operators. The instrument supports up to 8 users and password management, the first user defaults to the system administrator Admin. System administrators can add users, method administrators and set the permission.
5.3.11 System Parameter Settings
5.3.11.1 System Date & Time
Settings of system date and time.
5.3.11.2 Buzzer setting
Users can set the key sound by this setting.
5.3.11.3 Brightness setting
Users can adjust the screen brightness by this setting.
5.3.11.4 Auto Power off
The meter provides auto shutdown function. When the meter is not using, the meter switches off automatically.
5.3.11.5 Bluetooth settings
The instrument supports Bluetooth function.
5.3.11.6 Restore Default

The meter supports "Restore Default" and "Restore Parameters". "Restoring Default" will restore all meter parameters to the factory state. "Restoring parameters" will restore the measurement parameters to the factory state.

5.3.11.7 Software version

Users can find the software version information on the general setting page.

5.4 pH Measurement

5.4.1 Calibration Preparation

- The electrode slope and zero potential of pH electrodes drift slightly over time. To accurately measure pH, it is recommended to calibrate the pH electrode before use, the instrument supports 1-5 points calibration.
- One point calibration is a calibration process with a single standard solution, commonly applied in a quick test. The calibration slope is 100% in here.
- Two-point calibration is to use two pH standard buffer solutions to calibrate the electrode, and construct a linear calibration curve through two points. Two-point calibration is the most commonly used calibration method, and it is usually recommended that the pH value of the solution to be measured lies between the two standard buffer solutions. Two-point calibration can improve pH measurement accuracy.
- Multi-point calibration is a calibration process with more than one standard solution. It is recommended to calibrate between two standard buffer solutions at the pH of the solution to be tested. Multi-point calibration covers a wider measurement range for accurate pH measurement. Before starting calibration, please prepare one or more pH standard buffer solutions.

5.4.2 Standards group selection

Before starting calibration, please prepare one or more pH standard buffer solutions. The meter has standards recognition function. Please set the Standard Group before the measurement.

You can also set the identification type to "Manual Mode" and manually enter the nominal value during the calibration process.

5.4.3 pH Calibration

Go to pH electrode calibration by "pH Calibration". Connect the ATC probe or enter the reference temperature manually.

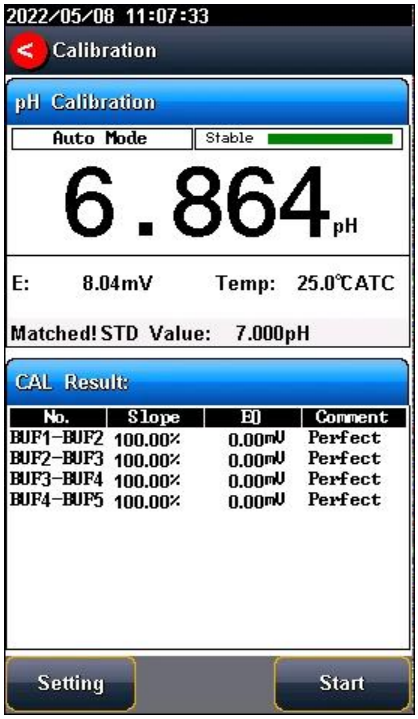


Figure 5-7 pH electrode calibration information

The calibration process is as follows:

1. Select a method. The method includes the parameter (e.g. pH), NIST standard solution group, pH 4.01, pH 7.00 and pH 10.01, auto Mode recognition.
2. Connect the ATC probe or enter the temperature manually.
3. Press the "Calibrate"-"pH Calibration".
4. Put the cleaned electrode into pH 4.01 standard solution.
5. Wait for the instrument to display "Auto Mode Matched".
6. When the pH and temperature reading are stable, press the "Start".
7. If only 1-point calibration is required, after 1-point calibration is completed, press the " Calibration " key to complete the calibration.
8. If multi-point calibration is required, please replace the pH7.00 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.
9. After completing the calibration, press the " Calibration " 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 8, automatically end the calibration after eight points of calibration.

【TIPS】
The meter will not save the date if the calibration results are not confirmed.

5.4.4 pH Measurement

The measurement process is as follows:

1. Select a method. The method includes the parameter (e.g., pH), reading mode (e.g., continuous reading, auto-reading, or timed format).
2. Connect the ATC probe or enter the temperature manually.
3. Rinse the pH electrode with DI water, dry out.

4. Put the electrode into test solution under test.
5. Put the measurement end of the electrode into the sample solution.
6. In the measurement status, press "" to enter into measurement status.
7. When the reading is stable, read the results.
8. Press the "Save" to save the measurement results and print the result.
9. Between measurements, stored pH electrode in distilled or deionized water.
10. After measurement, rinse the pH electrode with deionized water thoroughly.

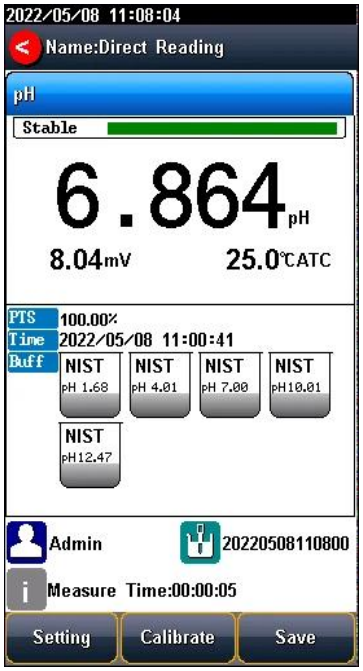


Figure 5-8 pH measurement information

【TIPS】
The measurement end of the electrode should well be immersed into the sample solution.
For high accuracy measurement, make sure the measurement is carried out at the lab with constant temperature and pressure.

5.5 ORP Measurements

5.5.1 Calibration Preparation
In general, ORP electrodes need few calibrations. When the electrode is used for the first time or has not been used for a long time, a calibration is needed.
The instrument supports ORP 1-point calibration, the electrode can be calibrated using the ORP calibration solution. The instrument automatically calculates the offset and compensates for the measurement.
Before the calibration, prepare the ORP calibration standard solution.
5.5.2 ORP Calibration
The calibration process is as follows:

1. Select a method. The method includes the parameter (e.g. ORP).
2. Connect the ATC probe or enter the temperature manually.
3. Press the "Calibrate"-"ORP Calibration".
4. Put the cleaned electrode into ORP standard solution (e.g., 462mV ORP standard).
5. Press the "STD value" to input the ORP standard value.
6. When the reading is stable, press the "Start" to complete the first point calibration, and the instrument displays and stores the calibration results.
7. Press the " Calibration " key to complete the calibration.

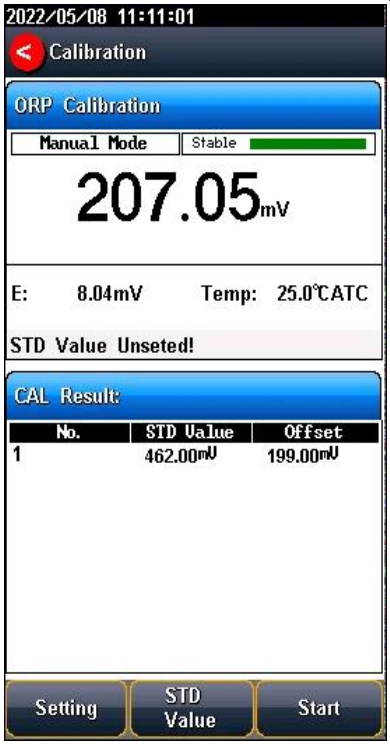


Figure 5-9 ORP electrode calibration information

5.5.3 ORP Measurement

•The measurement process is as follows:

1. Select a method. The method includes the parameter (e.g., pH), reading mode (e.g., continuous reading, auto-reading, or timed format).
2. Connect the ATC probe or enter the temperature manually.
3. Rinse the pH electrode with DI water, dry out.
4. Put the electrode into test solution under test.
5. Put the measurement end of the electrode into the sample solution.
6. In the measurement status, press "" to enter into measurement status.
7. When the reading is stable, read the results.
8. Press the "Save" to save the measurement results and print the result.
9. Between measurements, stored pH electrode in distilled or deionized water.

After measurement, rinse the pH electrode with deionized water thoroughly.

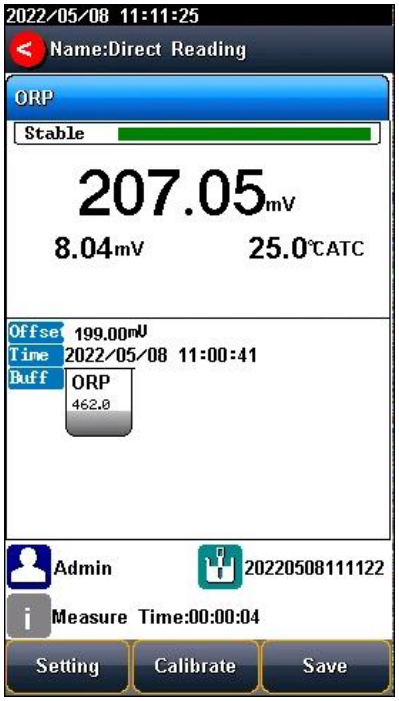


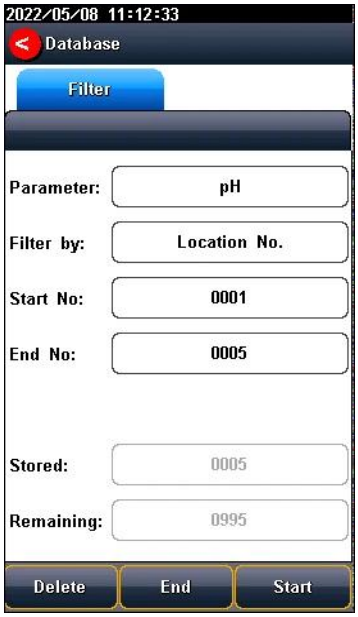
Figure 5-10 ORP measurement information

5.6 User ID management

The meter supports hierarchical user authority management and password security management. It allows user to revise the user ID, user type and password, and create a new account. A maximum of eight users can be created, and user type can be system admin, method admin, and operator. The default user is system admin and the initial password is blank. Only system admin has the permission to create all type of users.

5.7 Data Management

5.7.1 Data Base
Press "Data" to view the detail of results.
The meter stores the measurement results independently according to the measured parameters. The meter provides data Storage 1000 sets for each parameter (pH/mV/ORP).
The user can press "Delete" into the delete menu. It allows users to select the parameter data or all data to delete.
The user can view the data filter by storage number, time, operator, method name, sample ID and electrode ID. By the filter setting, press "Start" to look up the data. The filter data shows in a graph. Press "<<" and">>" to choose data. User can choose one and press "Detail" to see the detail result. User can choose one and press "Output" to output the current result, output matched result and output all result. Users can press "Operate" to the setting menu. In the operation menu, it allows to select the output type.
5.7.2 Statistic
The meter supports the statistical analysis function. By pressing "Statistic", the meter calculates basic statistical results, including maximum, minimum, average, standard deviation, relative standard deviation, and related statistical information of the results.



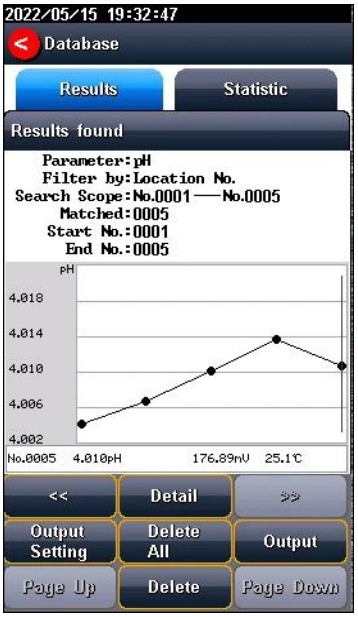


Figure 5-11 Results setting view Figure 5-12 Results data graph

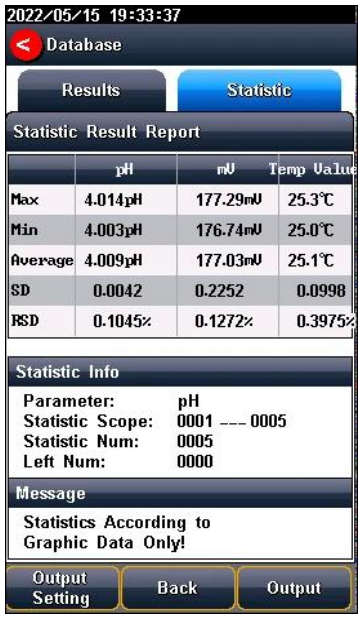
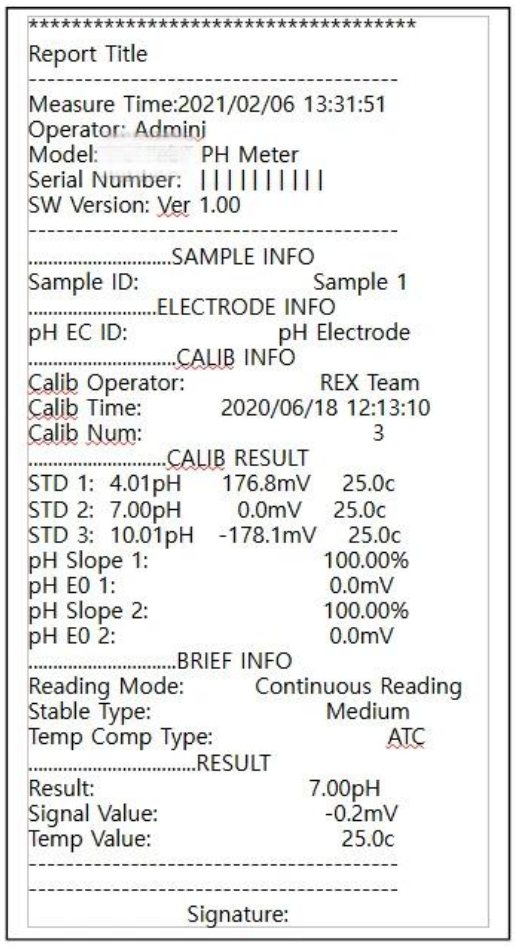


Figure 5-13 Output settings Figure 5-14 Statistical analysis

【TIPS】
Please connect the meter with printer when the meter is switch off.
The Brad rate is 9600bps for printer connecting. The default setting is 8 data bits, one start bit, one stop bit, and no parity.

The output format is as follows:



```
**********************************
Report Title
----------------------------------------
Measure Time:2021/02/06 13:31:51
Operator: Adminj
Model:        PH Meter
Serial Number: ||||||||||
SW Version: Ver 1.00
----------------------------------------
.....SAMPLE INFO
Sample ID:                Sample 1
.....ELECTRODE INFO
pH EC ID:              pH Electrode
.....CALIB INFO
Calib Operator:           REX Team
Calib Time:      2020/06/18 12:13:10
Calib Num:                      3
.....CALIB RESULT
STD 1:  4.01pH   176.8mV   25.0c
STD 2:  7.00pH     0.0mV   25.0c
STD 3:  10.01pH  -178.1mV   25.0c
pH Slope 1:              100.00%
pH E0 1:                   0.0mV
pH Slope 2:              100.00%
pH E0 2:                   0.0mV
.....BRIEF INFO
Reading Mode:    Continuous Reading
Stable Type:            Medium
Temp Comp Type:            ATC
.....RESULT
Result:                 7.00pH
Signal Value:           -0.2mV
Temp Value:              25.0c
----------------------------------------
----------------------------------------
              Signature:
```

6 Maintenance/Troubleshooting

6.1 Meter Maintenance

The correct use and maintenance of the instrument can ensure the accurate and reliable performance of the instrument. Additionally, exposure to chemicals or harsh use environments can affect performance. The pH electrode socket has a protective plug, when the meter is not in use, please insert the protective plug into the pH socket.

- If the meter is not used for a long time, please disconnect the power supply.
- The electrode socket of the instrument must be kept clean and dry, and should not be in contact with acid, alkali, and salt solutions.
- Keep the meter and accessories clean and away from acids, alkalis, and any corrosive solutions/gases.
- Users can clean the meter surface with clean waters and detergent.
- When the meter is transported, please follow the instructions:

please remove all connected cables.
Please remove the electrode holder.
Please use original packaging in the long-distance transport to avoid damage.

6.2 Electrodes Maintenance

For more detailed information, please refer to the electrode instruction manual.

6.3 Battery Maintenance

• The instrument uses a built-in lithium battery. The battery takes 6 hours to fully charge. Follow the below instruction to maintain battery:
- When the meter is turned on and not charged, the power light flashes four times when the power flashes once when the power is 25% and is 100%.
- When the meter switches off, the power light keeps the lighting for a full charge.
- Precautions for the use of lithium batteries:

- Keep the meter away from the high-temperature environment.
- Keep away from water.
- Keep away from flammable and explosive substances.
- Please charge for 15 minutes if not in use for a long time.
- Please stop charging in time after fully charged.
- Continuous charging may result in decreased battery life.
- Please charge and discharge it every 3 months to extend the life of the lithium battery.

6.4 Troubleshooting

Table 6-1 Troubleshooting

Phenomenon	Probable reasons	Solutions
1. No Display	Damage to the meter.	Replace or repair as required.
2. Incorrect mV measurement is	1. The electrode is out of service life. 2. The electrode plug is in poor contact.	1. Replace the electrodes. 2. Connect the protection plug, if the potential is not 0mV, please contact the after-sales service.
3. Incorrect pH measurement	1. Refer to as 2.2. 2. Refer to as 2.2. 3. The electrodes are not calibrated or are calibrated incorrectly.	1. Refer to as 2.2. 2. Refer to as 2.2. 3. Recalibrate the electrode or replace the standard solution.

If the meter still does not work, please contact your local dealer for further assistance.

7 Technical Supports

Accessories
Please refer to the accessories table for purchasing recommendations.
Table 7-1 Meter accessories

Name	Description
E-301-QC 3 in 1 pH composite electrode	pH Measurement Probe
Standard pH buffer solution 4.01/7.00/10.01	Standard solution

8 Appendixes

Appendix 1
pH-Temperature Relationship Table of pH Standard Solutions

Temperature(°C)	1.68	4.01	7.00	10.01
5	1.67	4.00	7.09	10.25
10	1.67	4.00	7.06	10.18
15	1.67	4.00	7.04	10.12
20	1.68	4.00	7.02	10.06
25	1.68	4.01	7.00	10.01
30	1.68	4.01	6.99	9.97
35	1.69	4.02	6.98	9.93
40	1.69	4.03	6.97	9.89
45	1.7	4.04	6.97	9.86
50	1.71	4.06	6.97	9.83

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