LABDEX

Benchtop pH Meter

LX105PHM

Index

Sr.no	Title	Page no
1.	Safety Measures	2
2.	Introduction	4
3.	Features	4
4.	Specifications	5
5.	Applications	6
6.	Instrument Introduction	7
7.	Installation	9
8.	Operations	10
9.	Maintenance	31
10.	Troubleshooting	32

1. Safety Measures

Read the entire contents of this manual carefully before use and 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.
- Use the defaulted power adapter, **DO NOT** use it if the power cord is damaged (the wire is exposed or broken).
- **DO NOT** use it in flammable and explosive environments.
- **DO NOT** use if the user finds any abnormalities such as damage or deformation of the device.

Terms Explanation pH

- **pH Slope:** The amount of potential change generated by each 1 pH change, expressed in mV/pH or by 100% Theoretical Slope (PTS). pH = - log[H], where [H] means molar concentration (mol/L) of H ions.
- **E0 of pH:** Also known as "**zero potential**", it usually refers to the potential value at a 7 pH.
- **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.

Redox potential (ORP)

- **Redox potential:** Also known as ORP value, it refers to the potential difference between the potential difference of a measuring battery relative to a standard hydrogen electrode consisting of an indicator electrode, a reference electrode, and a solution under test. The symbol for ORP measurement is "RmV", and the unit is mV.
- **One-point calibration:** Calibration with an ORP standard solution.
- **Offset: =** ERmV-E (ERmV potential relative to the hydrogen electrode, E measured potential). At a certain temperature, when the ORP calibration solution is used for calibration, the potential value "RmV" and the potential difference between the measured system.

- **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.
- **Verification reminder (Recommended):** "**Electrode verification**" prompts on the homepage, user can start measurement without last verification.
- **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.

2. Introduction

Benchtop pH Meter LX105PHM is designed with a 7.0 touch screen. Provided with automatic and manual temperature compensation to achieve an accurate result. It offers a Multi-reading feature that allows auto-read, timed-read, and continuous-read. Featured with pH buffer group which includes DIN, NIST, USA, MERK, JIS, and GB.

3. Features

- The pH scale ranges from 2.000 to 20.000
- Designed with a 7.0-inch LCD touch screen
- Data storage (GLP-compliant) 1000 sets for each parameter
- Users can analyse, compare, and recalculate results with the aid of data analysis features
- Optimized with an intelligent operation system including calibration, method, user, and data management
- Connectivity supports RS-232 or USB port
- Electrode diagnosis automatically with pH slope and offset display
- Automatically resumes all settings back to factory default options

4. Specifications

<table>
<tr><th>Model No.</th><th>LX105PHM</th></tr>
<tr><td>Parameter</td><td>pH/Temp.(mV/ORP)</td></tr>
<tr><td>pH</td><td>
<table>
<tr><td>pH Range</td><td>-2.000 to 20.000 pH</td></tr>
<tr><td>pH Resolution</td><td>0.1, 0.01, 0.001 pH</td></tr>
<tr><td>pH Accuracy</td><td>±0.002 pH</td></tr>
<tr><td>Calibration points</td><td>Up to 6</td></tr>
<tr><td>Calibration reminder</td><td>Yes</td></tr>
<tr><td>Standard recognition</td><td>NIST, GB, DIN, USA, MERK, JIS buffers</td></tr>
</table>
</td></tr>
<tr><td>mV</td><td>
<table>
<tr><td>mV Range</td><td>-2000.00 to 2000.00 mV</td></tr>
<tr><td>mV Resolution</td><td>0.1, 0.01 mV</td></tr>
<tr><td>mV Accuracy</td><td>±0.1 mV or ±0.03%</td></tr>
<tr><td>EH ORP mode</td><td>Yes</td></tr>
<tr><td>ORP calibration points</td><td>1 custom point (relative mV)</td></tr>
</table>
</td></tr>
<tr><td>Reading mode</td><td>Auto Read (Fast, Medium, Slow), Timed, Continuous</td></tr>
<tr><td>Temp. compensation</td><td>ATC, MTC</td></tr>
<tr><td>Temperature range</td><td>-10 to 135 ºC, 14 to 275 ºF</td></tr>
<tr><td>Resolution</td><td>0.1</td></tr>
<tr><td>Accuracy</td><td>±0.1</td></tr>
<tr><td>Data storage</td><td>1000 Group</td></tr>
<tr><td>GLP features</td><td>Yes</td></tr>
<tr><td>Log management</td><td>Yes</td></tr>
<tr><td>pH electrode</td><td>BNC(Q9)</td></tr>
<tr><td>Temp. probe</td><td>4-pin aviation connector</td></tr>
<tr><td>Output RS232</td><td>USB 2.0 flash memory device, PC, Printer, Scanner, Auto-sampler</td></tr>
<tr><td>Backlight</td><td>Yes</td></tr>
<tr><td>Auto shutdown</td><td>1~60 min, off</td></tr>
<tr><td>IP rating</td><td>IP54</td></tr>
<tr><td>Date and Time</td><td>Yes</td></tr>
<tr><td>Power</td><td>AC Adapter, 100-240V AC input, DC24V output</td></tr>
</table>

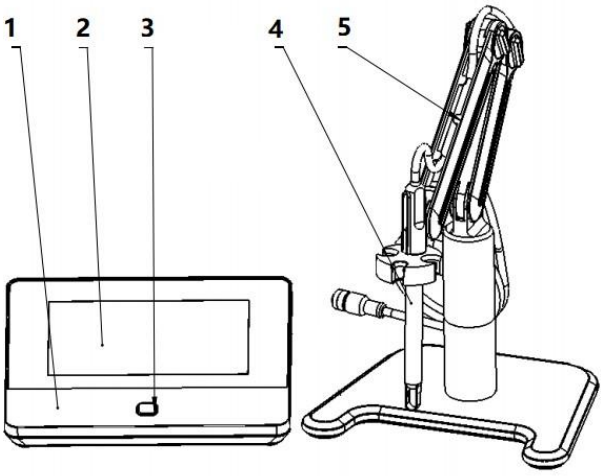
Dimension	220 x 195 x 68 mm
Net weight	950g
Packing dimension	370 x 310 x 330 mm
Gross weight	5kgs

5. Applications

Used for laboratory applications, and measurements of low ionic strength samples.

6. Instrument Introduction

6.1 Overview



1 Meter Body

2 Display

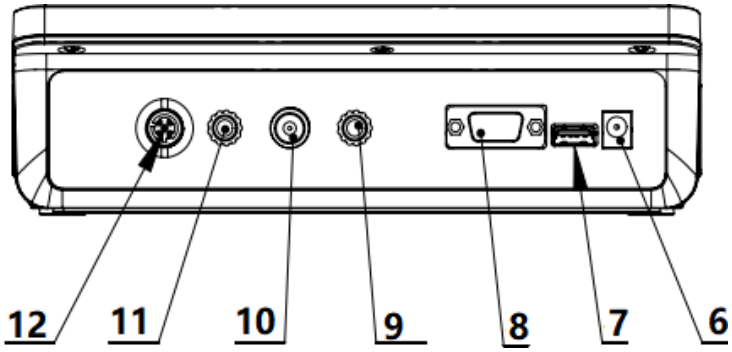
3 Power Key

4 Electrodes

5 Electrode Stand

Figure-1

6.2 Overview-Back View



6 DC24V Power socket

7 USB socket

8 RS232 socket

9 Reference electrode socket

10 pH electrode socket

11 Ground socket

12 Temperature electrode socket

Figure-2

6.3 Electrodes and connectors

13 Four-pin aviation connectors

14 pH electrode connectors

15 Electrode protection cap

16 pH electrodes

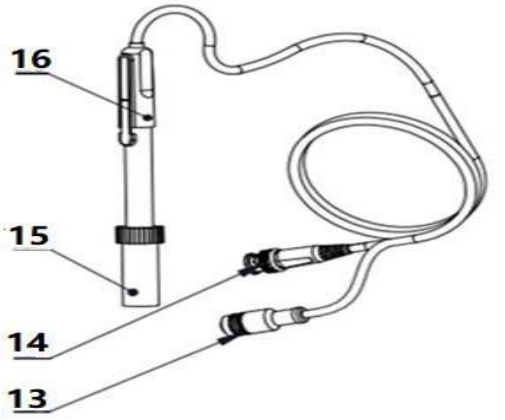


Figure-3

6.4 Connector Specifications

Connector specifications	Electrode type
BNC(Q9)	pH electrode, ORP electrode
4-pin aviation	Temperature electrode
Banana	Reference electrode

7. Installation

7.1 Electrodes Stand Installation

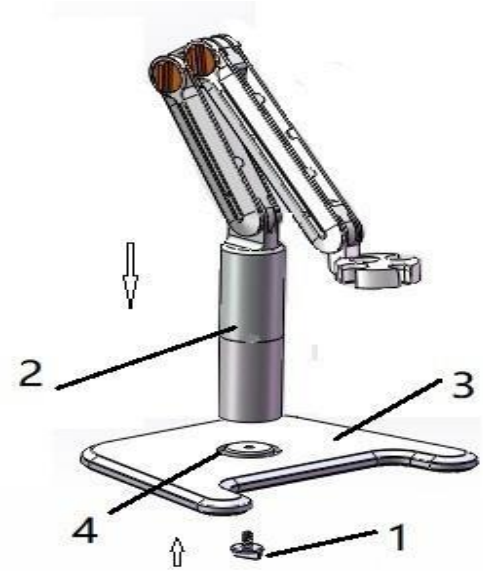


Figure-4

1 Fixed screw
2 Electrode stand
3 Electrode base
4 Fixing hole

1) Put the electrode base on the table.
2) Screw the fixed screw into the fixing hole.
3) Place the electrode holder from top to bottom to fix at the vertical shaft of the fixing screw.

7.2 Electrodes Connection

Push the pH electrode into the electrode holder. Remove the protector cap of the pH electrode. Connect the pH electrode to the right socket. If the ATC probe is applied, or ATC has been integrated into the pH probe, connect the ATC probe to the Temperature electrode socket. When using a 3 in 1 composite pH electrode, the Q9 connector can be inserted into the pH electrode socket, and at the same time, the 4-pin connector can be inserted into the temperature.

8. Operations

8.1 Switch On/Off

Press and release ⏻ to switch on the meter. The startup screen shows the software version and other related information. After the self-test program, the screen turns to the homepage and the meter is ready to measure. Users press and hold the ⏻ key for over 3 seconds and release it to shut down.

8.2 Screen Icons

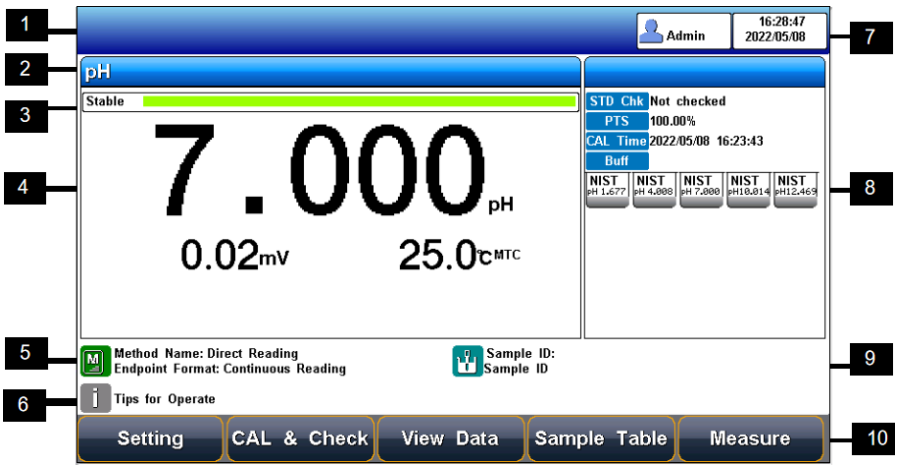


Figure-5

1 User ID

2 Measurement parameters
3 Reading states
4 Main measurement box
5 Method information
6 Tips information

7 System time
8 Calibration information
9 Sample ID
10 Function buttons.

The instrument displays symbol identification that has the following functional implications:

Symbol Explanation

No.	Symbol	Explanation
1.		Reading status displays the measurement status of reading, stable, locked, each indicates that the processing, stable, and reading completed.
2.	PTS	The percentage slope of thepH electrode calibration data.

3.	ATC	Automatic temperature compensation.
4.	MTC	Manual temperature compensation.
5.	ORP	Redox potential value, in mV.
6.	Offset	Offset potential, in mV.
7.	STDCHK	Standard Check.
8.	CAL Time	Time to Calibrate Electrodes.
9.	BUFF	Standard buffer solution for calibration.
10.		A standard buffer solution is used to calibrate the electrode.
11.		Measurement method management displays the current method information.
12.		User ID.
13.		Sample ID.
14.	Auto Mode	Auto-recognition of Standards.
15.	Manual Mode	Manual-recognition of Standards.

8.3 Methods Management

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

The method settings, support the navigation setting including the method information, parameters, reading mode, pH parameters setting, ORP parameters settings, temperature setting, and data management setting. For the first use, follow the guide to setting the measurement parameters.

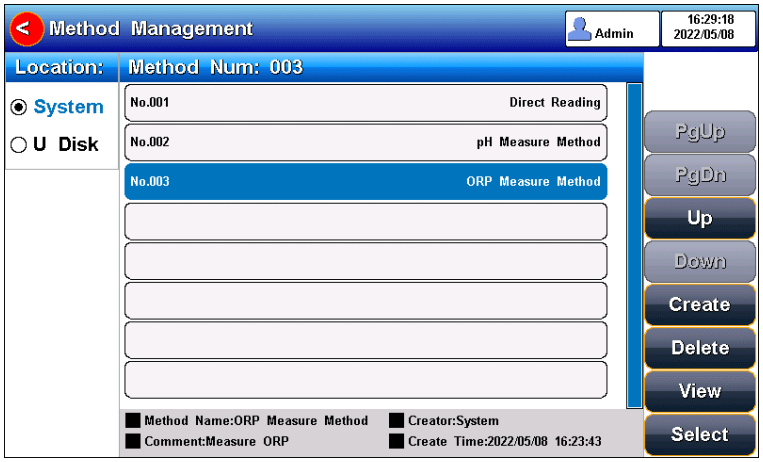


Figure-6

Update Method

When the method is revised by the setting, there is a red mark in the method management logo to remind the user that the current method is different from the method in the library.
When pressing the method in the method library, there is a system tip to give the user a choice to update or create a new method.

Create a new Method

There are three modes to create a new method: Create the 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.

Figure-7

Delete a Method

There are 3 methods saved in the meter as the default setting in the library method. The No.001-No.003 method cannot be deleted, and the others can be deleted.

Save and Load a Method

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

8.4 Parameter Settings

Press "**Setting**"- in the setting menu. It includes tutorial setting, method information, select parameters, reading mode, pH parameters, ORP parameters, Temperature parameters and data management, output option, User management, system parameters, and GMP Mode.

Figure-8

8.4.1 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.

8.4.2 Select parameters

It could select one measurement parameter from pH and ORP for every test.

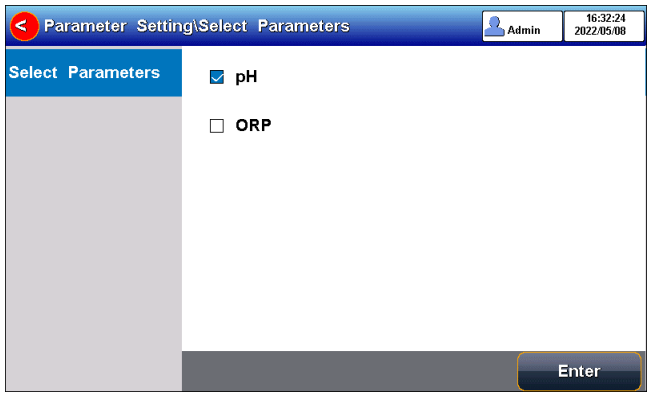


Figure-9

8.4.3 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. Users 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**" provides measurement results at interval time and "**Timed Measurement**" provides measurement results after a set time.

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

8.4.4 pH Parameter Settings

1) pH Electrode management

The electrode information includes the name, serial No., user ID, registration time, service life, calibration message, calibration number, and last calibration time. It allows the 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.

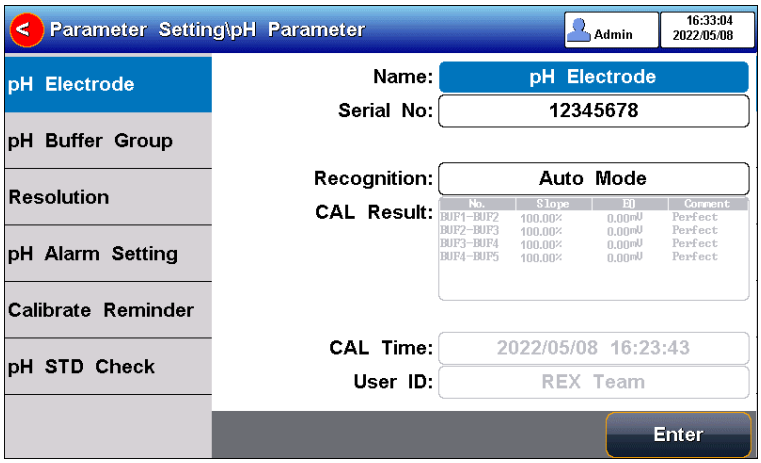


Figure-10 (EC electrode information)

2) pH standard groups

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

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-point calibrations. Neighboring standards (pH gap<2) choice in the group may be frozen for accurate calibration. For neighboring standards, choose the customization to perform calibration.

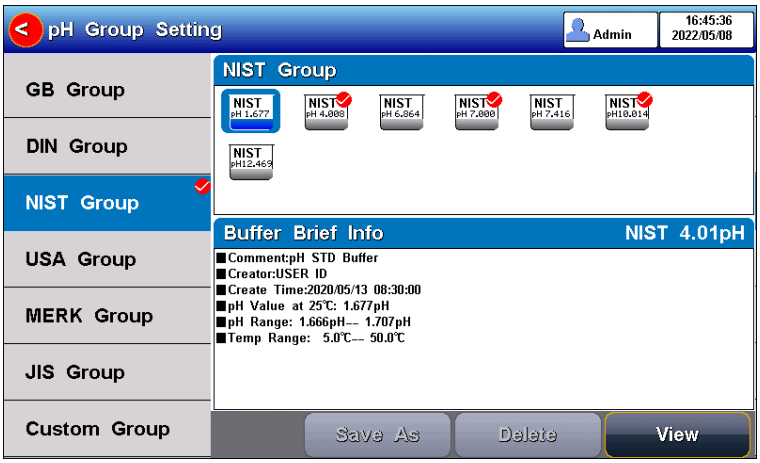


Figure-11

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.

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) Alarm setting

The meter supports pH measurement and calibration result monitoring alarm. The setting includes slope limit, potential value limit, and monitoring options. When the measurement results out of the selected range, the meter alarms.

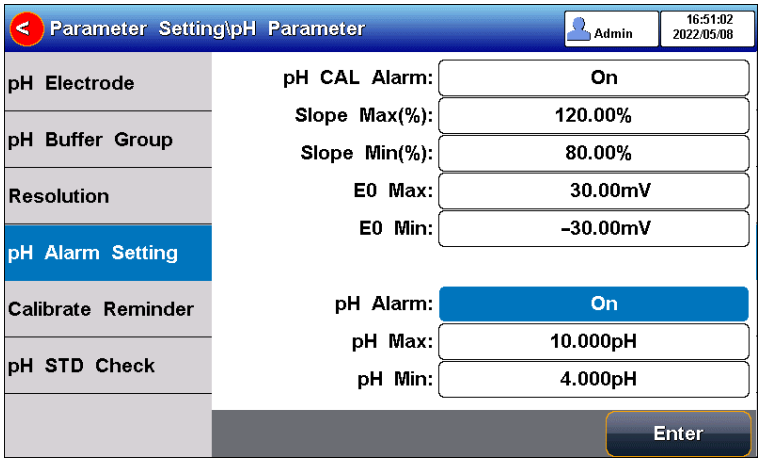


Figure-12 (Alarm setting information)

6) Calibration reminder settings

- The meter provides a calibration prompts function. From the setting, the user can select calibration reminder (recommended) and calibration reminder (mandatory) for future calibration.
- **Calibration reminder (recommended):** When enabling the calibration reminder, the instrument verifies whether the calibration data of the pH electrode is within the validity period. If calibration information expires, a striking calibration reminder will appear at "**Calibrate**" on the main interface, but it will not affect the measurement and data saved.
- **Calibration reminder (mandatory):** When enabling the required calibration, the instrument verifies whether the calibration data of the pH electrode is within the validity period. If calibration information expires, a striking calibration reminder will appear at "**Calibrate**" on the main interface, the measurement data cannot be saved and output.

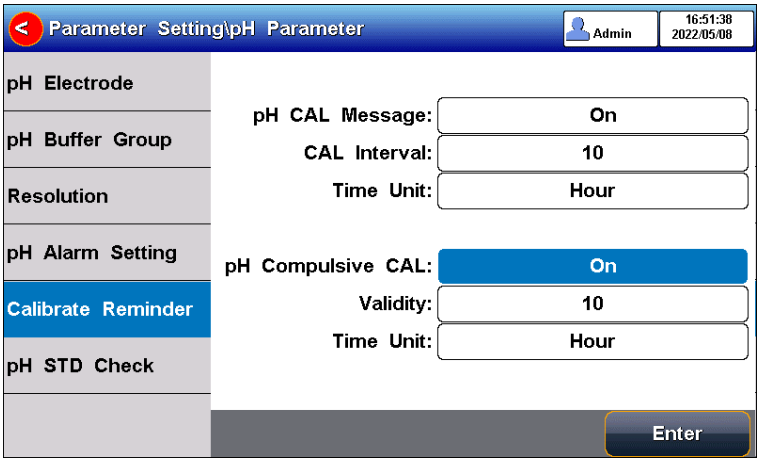


Figure-13 (Calibration reminder setting information)

7) Verification Reminder settings

- The meter provides verification prompts function. The electrode slope and zero potential of pH electrodes drift slightly over time, and this change will have a direct impact on the measurement results. So the verification of standards is important for accurate results.
- **Verification reminder (mandatory):** When enable the verification reminder, the instrument verifies whether the verification data of pH electrode is within the validity period. If verification information expires, a striking verification reminder will appear at "**Calibrate**" on the main interface, the measurement data cannot be saved and output.
- It allows the user to input the pH standard value and the allowable deviation. If the deviation amount is set to 0, it means that no verification is required.

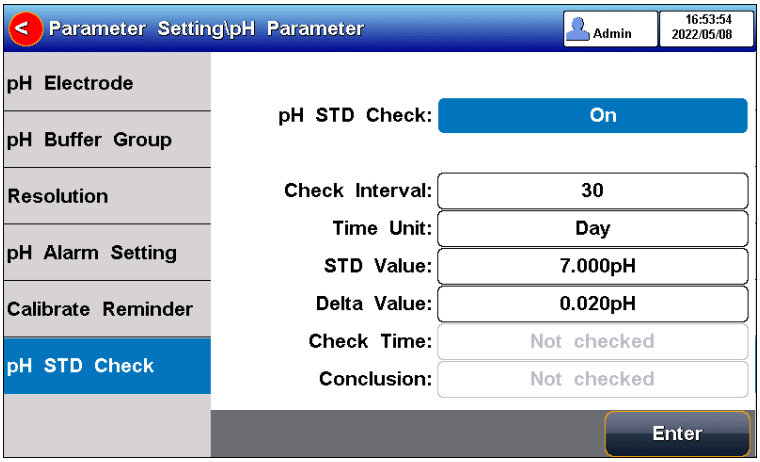


Figure-14 (pH verification information)

8.4.5 ORP Parameter Settings

1) ORP Electrode management

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 the serial number, and last calibration result. When replacing a new ORP Electrode replacement, please create an information set for the electrode.

2) Alarm setting

The meter supports ORP measurement and calibration result monitoring alarm. The setting includes potential value limits and monitoring options. When the measurement results out of the selected range, the meter alarms.

3) Calibration reminder settings

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

8.4.6 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.

8.4.7 Data Management Settings

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.

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.

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.

4) Output Option

The data formats are GLP, STD Format, and Custom. It could select one data format to output the result.

5) User ID management

The meter supports hierarchical user authority management and password security management. It allows the 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 types can be system admin, method admin, and operator. The default user is system admin, and the initial password is blank. Only the system admin has permission to create all types of users.

8.4.8 System Parameter Settings

1) System Date & Time

Settings of system date and time.

2) Buzzer setting

Users can set the key sound with this setting.

3) Brightness setting

Users can adjust the screen brightness with this setting.

4) Auto Power off

The meter provides an auto shutdown function. When the meter is not using, the meter switches off automatically.

5) 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.

8.4.9 Software version

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

1) GMP Mode

The meter supports the GMP mode, to achieve strict control of the measurement process and data traceability. In this mode, the meter enables login password protection, three-level user rights, data security protection, system log and run log, and other security controls. Press the "**Setting**"- "**GMP Mode**" to set the mode.

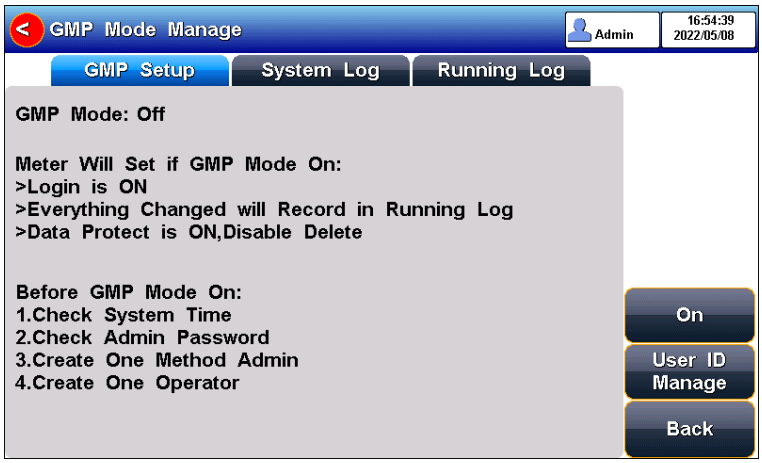


Figure-15 (GMP mode setting)

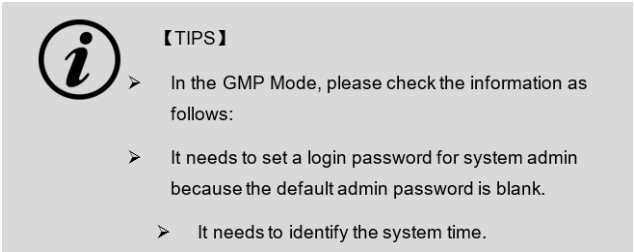


Figure-16

2) System Log

Access the System Log to view the log, such as GMP mode open log, GMP mode close log, system time modification log, and creation log.

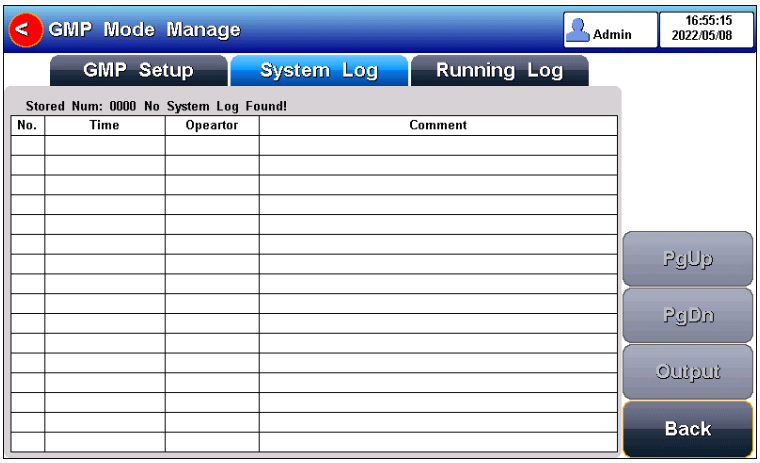


Figure-17 (System log in GMP mode)

3) Running Log

Access the Operation Log to view the log, such as the data log and calibration log, print the data log, and print the calibration log, log in or log out of an existing account.

Figure-18 (Operation log in GMP mode)

8.5 pH Measurement

8.5.1 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 1–6-point calibration.
- One-point calibration is a calibration process with a single standard solution, commonly applied in a quick test. The calibration slope is 100% here.
- Two-point calibration uses 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, prepare one or more pH standard buffer solutions.

8.5.2 Standards group selection

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

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

8.5.3 pH Calibration

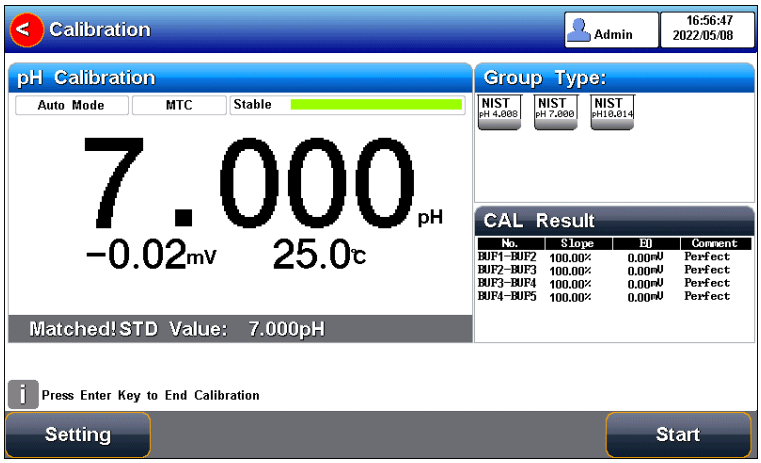


Figure-19 (pH electrode calibration information)

The calibration process is as follows:

- 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.
- Connect the ATC probe or enter the temperature manually.
- Press the "**Calibrate**"-"**pH Calibration**".
- Put the cleaned electrode into a pH 4.01 standard solution.
- Wait for the instrument to display "**Auto Mode Matched**".
- When the pH and temperature readings are stable, press the "**Start**".
- If only 1-point calibration is required, after 1-point calibration is completed, press the "**End**" key to complete the calibration.
- 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 and presses the "**Next Point**" to complete the calibration.
- After completing the calibration, press the "**Enter**" key to complete the calibration, save the calibration results, and end the calibration, directly enter the start interface.
- If the checked standard solution group is 8, automatically end the calibration after eight points of calibration.

8.5.4 pH Verification

The verification process is as follows:

- Select a method. The method includes the parameter (e.g. pH),
- Set the verification pH standard value (e.g. pH 4.01) and auto Mode recognition.
- Connect the ATC probe or enter the temperature manually.
- Press the "**Calibrate**"-"**pH Verification**".
- Put the cleaned electrode into a pH 4.01 standard solution.
- Wait for the instrument to display "**Auto Mode Matched**".
- When the pH and temperature readings are stable, press the "**Start**".
- If the pH standard value is in the allowable range, the verification result shows a pass.
- If the pH standard value is not in the allowable range, the verification result shows no pass.
- Press the "**Save**" key to save the verification results. Press the "**End**" key to complete the verification.

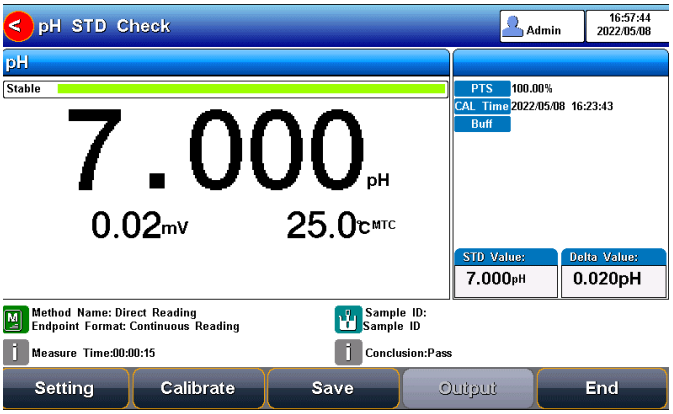


Figure-20 (pH verification information)

8.5.5 pH Measurement

The measurement process is as follows:

- Select a method; the method includes the parameter (e.g. pH), and reading mode (e.g. continuous reading, auto-reading, or time format).
- Connect the ATC probe or enter the temperature manually.
- Rinse the pH electrode with DI water and dry it out.
- Put the electrode into the test solution under test.
- Put the measurement end of the electrode into the sample solution.
- Press "**Measure**" to enter into measurement status.
- When the reading is stable, read the results.
- Press the "**Save**" to save the measurement results and press the "**Output**" to print the result.
- Between measurements, store the pH electrode in distilled or deionized water.
- After measurement, rinse the pH electrode with deionized water thoroughly.

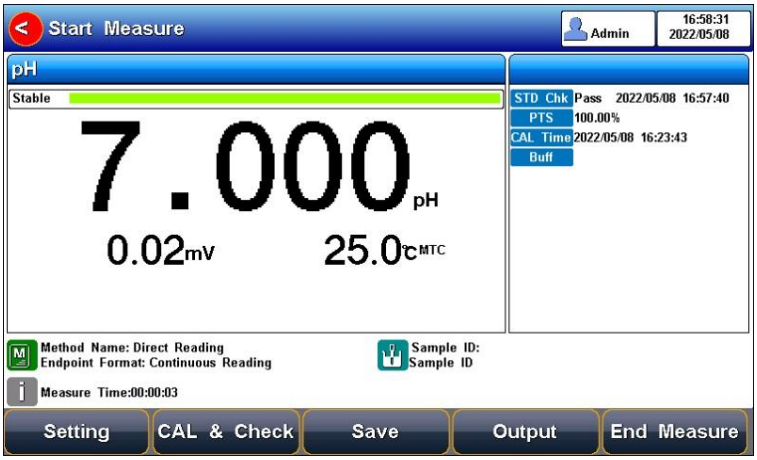


Figure-21 (pH measurement information)

8.6 ORP Measurements

8.6.1 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.

8.6.2 ORP Calibration

The calibration process is as follows:

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

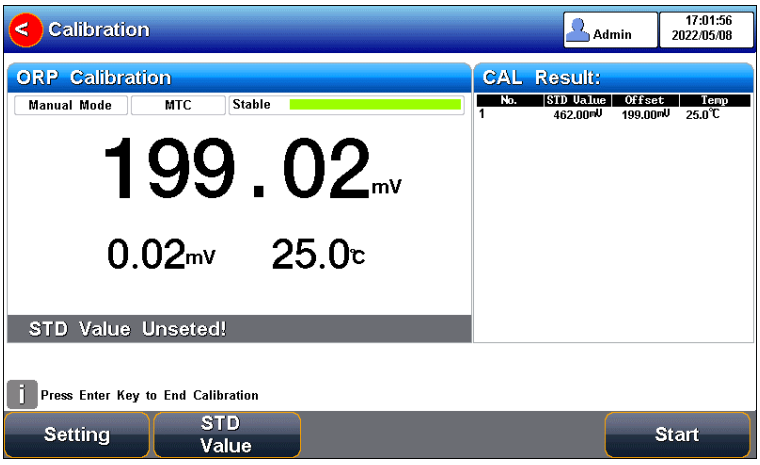


Figure-22 (ORP electrode calibration information)

8.6.3 ORP Measurement

The measurement process is as follows:

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

- Put the electrode into the test solution under test.
- Put the measurement end of the electrode into the sample solution.
- Press "**Measure**" to enter into measurement status.
- When the reading is stable, read the results.
- Press the "**Save**" to save the measurement results and press the "**Output**" to print the result.
- Between measurements, store the ORP electrode in distilled or deionized water.
- After measurement, rinse the ORP electrode with deionized water thoroughly.

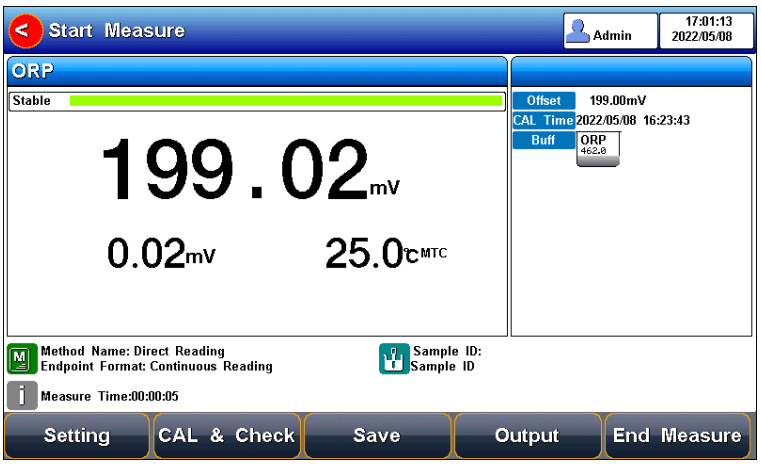


Figure-23 (ORP measurement information)

8.7 Batch Sample Measurement

Batch sample measurement is suitable for multiple sample measurements to improve work efficiency. This function needs to match the automatic sampler to achieve multi-sample measurement. Enter the batch sample measurement function by "**Sample List**".

8.8 Data Management

Press "**Data**" to view the details of the results. The meter stores the measurement results independently according to the measured parameters. The meter provides data Storage of 1000 sets for each parameter (pH/mV/ORP/Temp),100 sets of calibration data, and 1000 sets of verification data.

8.8.1 Filter

The data type includes measurement data verification data, and calibration data. The parameter can be selected by pH and ORP. With the lookup filter, the user can view the result data by storage number, time, operator, method name, sample ID, and electrode Name. The filter data is shown in a graph or curve. By the filter setting, press "**Start Search**" to look up the data.

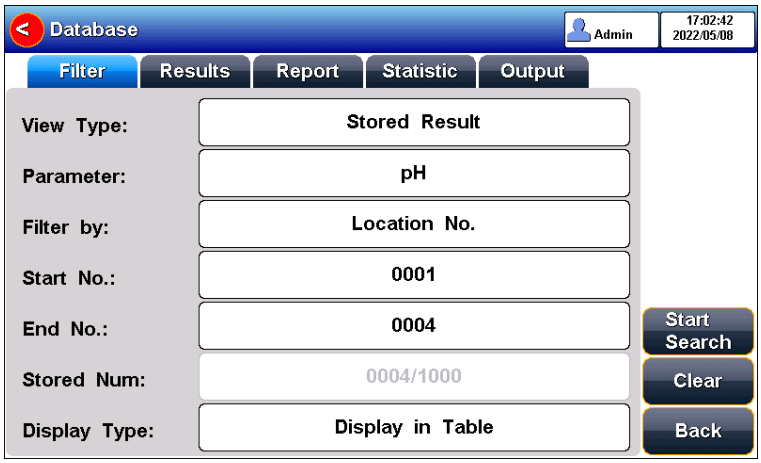


Figure-24 (Data setting view)

8.8.2 Result

On the result page, press "**Page Up**", "**Page Down**", "<<" and">>" to choose data. Users can press "Delete" to delete the current result.

1) Measurement Data

In the measurement data, the result is displayed as a graph or a sheet, and the coordinates correspond to the relevant information.

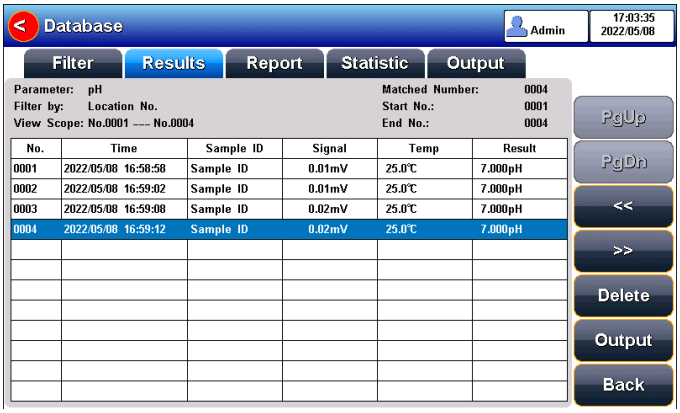


Figure-25 (Matched measurement data in a sheet)

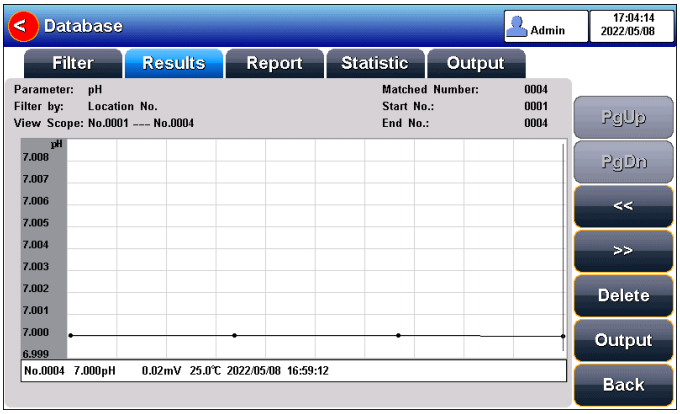


Figure-26 (Matched result data results in a graph)

2) Verification Data

In the verification data, the pH verification result is displayed as a sheet, the coordinates correspond to the relevant information.

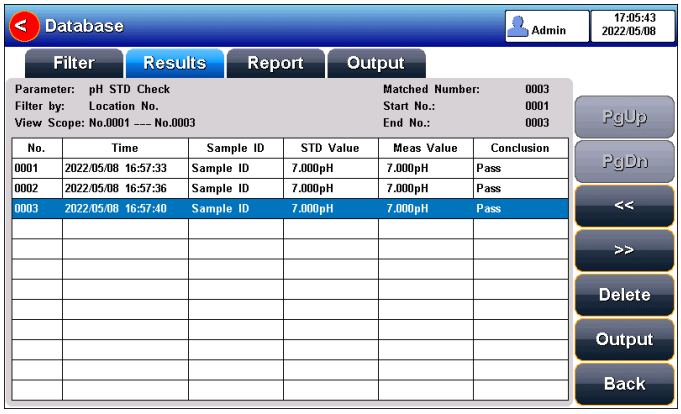


Figure-27 (Matched verification data results in a sheet)

3) Calibration Data

In the calibration data, the pH calibration result or ORP calibration result is displayed as a sheet, and the coordinates correspond to the relevant information.

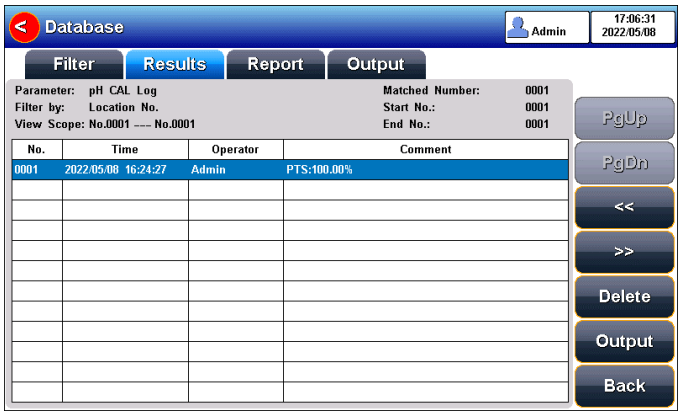


Figure-26 (Matched calibration data results in a sheet)

8.8.3 Report

The report shows relevant information in detail. It includes the result, calibration result, and basic information.

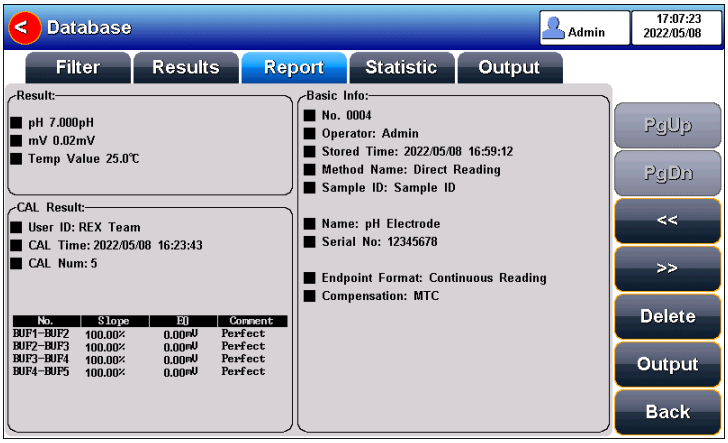


Figure-27 (Measurement result report)

8.8.4 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.

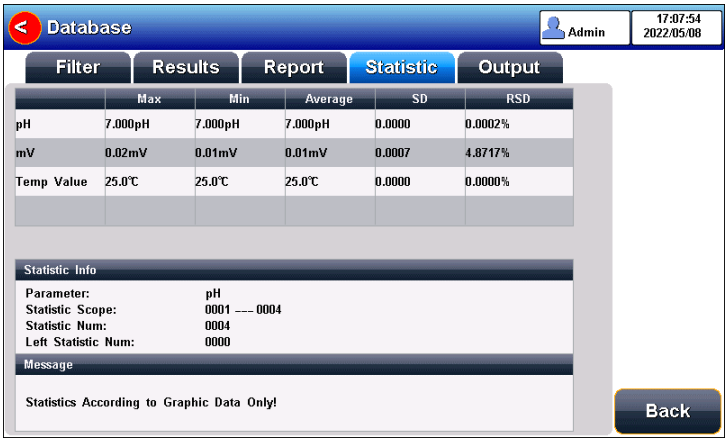


Figure-28 (Statistical analysis)

8.8.5 Output Settings

- It is the same as the output setting.
- The output device can be a printer or U disk.
- Output the measurement results by selecting the data format. Format: Standard, GLP, and custom.

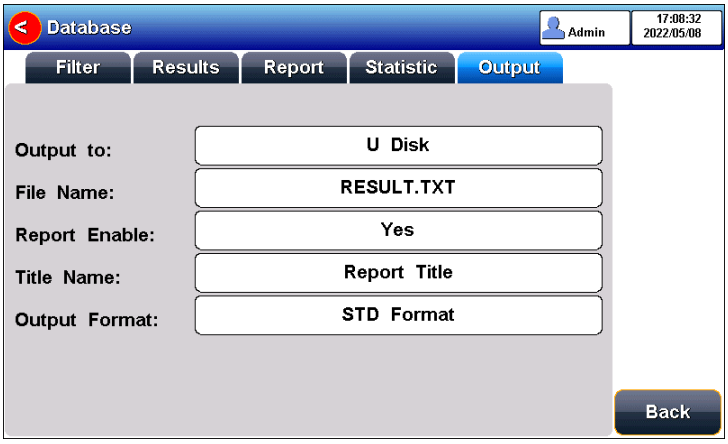


Figure-29 (Output settings)

9. Maintenance

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.

- 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 water and detergent.
- When the meter is transported, follow the instructions:
  - Remove all connected cables.
  - Remove the electrode holder.
  - Use original packaging in the long-distance transport to avoid damage.

10. Troubleshooting

Phenomenon	Probable reasons	Solutions
No Display.	Damage to the meter.	Connect the adapter and press the power key to turn it on, replace or repair as required.
Incorrect mV measurement.	• The electrode is out of service life. • The electrode plug is in poor contact.	• Replace the electrodes • Connect the protection plug.
Incorrect pH measurement.	The electrodes are not calibrated or are calibrated incorrectly.	Recalibrate the electrode or replace the standard solution.