

Laboratory pH Meter

User Manual

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1.Introduction

Thank you very much for your purchase of our company's high-quality pH meter, good ease of use, is our product's consistent pursuit.

1.1 Safety precautions

Operator protective measures



Do not work in an explosive environment! Because the instrument case is not airtight (May be due to spark formation or immersion in gas corrosion caused by the risk of explosion).



When using chemicals and solvents, follow the operating instructions and experiments provided by the supplier room safety procedures to operate!

Operators operate safety precautions



Do not separate the housing of the instrument, allowing only professional service personnel to repair the instrument!

Please avoid the following environmental factors:

Violent shaking

Long in the sunshine

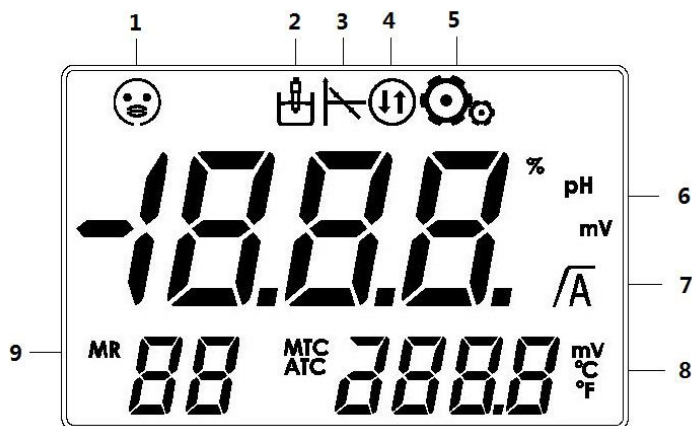
Atmospheric humidity more than 85%

The presence of corrosive gases

Ambient temperature below 5 ° C or more than 40 ° C

Strong electric field or magnetic field

1.2 Display and button



1. Electrode state (see 5.2 for electrode maintenance)



Good



Normal



Bad

2. Measurement icon

3. Electrode calibration icon

4. Print (data send out) icon

5. Parameter setting icon







6. Electrode slope or pH/mV reading

7. Read the stability icon/automatic end point icon

8. MTC manual/ATC automatic temperature compensation/measurement process temperature/Reference temperature value during calibration/electrode calibration of the zero bias voltage

9. Error Index/Storage Data Index/Calibration Point/Buffer Group

Button description:

Button	Short press	Long press (3 seconds)
 (OK)	Read Confirm setting	Set the end point
 (Calibration)	Calibration	Calibration data recall
 (ON/OFF)	Turn on/ Exit	Turn off
 (Store/Exit)	Measurement data storage /Exit	View storage data
 (Mode)	Mode switch Decrease value	-----
 (Setup)	Parameter setting Increase value	-----

2. Operation

2.1 Calibration

2.1.1 Buffer solution groups

The instrument can be calibrated for 1, 2 or 3 points. During calibration, the meter automatically recognizes the pH of the standard buffer solution. The automatic temperature compensation procedure is solidified in the meter (see appendix).

The instrument has 8 sets of buffer solution (see appendix). The settings for the buffer solution group refer to 2.4.1.

2.1.2 One point calibration

2.1.2.1 Calibration

Place the electrode in the buffer and press the "CAL" button to start the calibration. The calibration icon will be displayed. After the signal is stabilized, the instrument will automatically end according to the preselected end point or press the "OK" button.

2.1.2.2 Save the calibration results

After measuring the value is stable, press the "OK" button, the instrument shows the zero and slope, automatically returned to the measurement screen.

Note:

When performing a little calibration, only zero is adjusted. If the electrode is over-calibrated before, its slope will be saved, otherwise the theoretical slope (-59.16mV/pH) is taken. Press the "CAL" button, the meter will display the slope

and zero value, and then the instrument returns to the measurement screen.

2.1.3 Two point calibration

Step 1 Perform one point calibration as described in 2.1.2.1.

(Do not press the "OK" button after the instrument's automatic end point or manual end point, otherwise it will return to the measurement state.)

Step 2 Rinse the electrode with deionized water.

Step 3 Place the electrode in the next calibration buffer and press the "CAL" button to start the next calibration.

After the signal is stabilized, the instrument will automatically end according to the preselected end point or press the "OK" button.

Step 4 Refer to 2.1.2.2

2.1.4 Three point calibration

As in 2.1.3 for 3-point calibration.

Note:

It is recommended to use a temperature probe or an electrode with a built-in temperature probe. If the MTC (manual temperature compensation) mode is used, all buffers and sample solutions should be kept at the same set temperature.

In order to ensure accurate pH readings, calibration should be performed periodically.

2.2 Sample measurement

Place the electrode in the sample solution and press the "OK" button to start the measurement, and the decimal point on the screen flashes. The automatic

measurement end point A is the default setting for the instrument. When the electrode output is stable, the display is automatically fixed and the pH of the sample solution is displayed.

Press and hold the "OK" button, can switch between automatic and manual measurement mode end. To manually measure an end point, press the "OK" button to display the value.

pH and mV measurement stability based on: If the signal changes within 6 seconds is not greater than 0.1mV, the instrument will reach the end of the measurement.

To view the mV value during the pH measurement, simply press the "Mode" button to execute the mV (ORP) measurement, according to the same steps as the pH measurement.

2.3 Temperature measurement

To improve accuracy, we recommend using a temperature probe or an electrode with a built-in temperature probe. When using the temperature probe, the screen displays the ATC symbol and the sample temperature.

Note: This instrument uses only the NTC30k temperature probe.

2.4 Parameter setting

Press the "Setup" key to enter the parameter setting mode, press "Setup"/"Mode" to select the desired setting parameters,

Press "Exit" to exit the parameter setting mode, return to the measurement mode;

Press "OK" to enter the corresponding parameter setting page, press the

"Setup"/"Mode" to adjust the parameters,

Press "Exit" to exit the corresponding parameter setting page, return to the parameter setting mode;

2.4.1 Set the buffer solution group

Appears "bUF", press "OK" to enter the set buffer solution group mode

Note: Appendix 5.1 is a built-in buffer solution group.

bUF 2

Default: 1

2.4.2 Manual temperature compensation setting

"MTC" appears, press "OK" to enter the manual temperature compensation setting mode

MTC 25.9 °C

Note: When the instrument does not detect the temperature probe, it will automatically switch to manual temperature compensation mode, and display MTC.

Default: 25 °C

2.4.3 Temperature unit setting

"TU" appears, press "OK" to enter the temperature unit setting mode

TU °C

Default: °C

2.4.4 Voice prompt setting

"BUZ" appears, press "OK" to enter the voice prompt setting mode

BUZ on

Default: ON (with voice prompt).

2.4.5 Print setting

"Prt" appears, press "OK" to enter the printout setting mode

Prt on

Note: the automatic end, manual end or calibration is completed, the data is printed from the set;

The following conditions are not affected by this setting

1. Boot, automatic test print output
2. Print storage data

Default: ON (automatic printout)

2.4.6 Clear storage data

Appears "MR CLr", press "OK" to enter the clear storage data mode,

MR CLr

Press "read" to confirm, there "MR nUL", said the removal was successful,

MR nUL

Automatically exit this setting.

2.4.7 LCD backlight setting

Appears "LEd", press "OK" to enter the LCD backlight setting mode,

LEd on

Default: ON

2.5 Restore factory setting

Instrument in the boot state,

Press the "OK", "CAL" and "On/Off" keys at the same time,

rST

Long press until the instrument displays "rST", the factory settings are successfully restored.

2.6 Data storage

2.6.1 Store the reading

The instrument can store pH/mV of 99 measurement result. When the measurement is finished, short press the "Store" key to store the data and store the information at the display location to indicate the current storage index.

If "M99" is displayed, press "Store" again, "FUL" will be displayed on the display, indicating that the memory is full and you need to clear the memory. Please refer to 2.4.6 for operation.

Note: Each measurement data can only be stored once, and if stored again, the index does not increase.

2.6.2 View storage data

In the measurement mode, long press the "Store" button to view the stored data from the memory. Press "Setup"/"Mode" to scroll through the stored results. Press the "Exit" button to exit.

Note: Only pH measurements can be viewed in pH measurement mode;

Similarly, in mV mode, view the mV measurement results.

2.7 Data printing

The instrument can connect the printer to print the measurement results, calibration results and the stored data.

It is recommended to use a specified printer to avoid compatibility issues.

2.8 Error message

When an error occurs, an error code is displayed in the display area 8 (see 1.2)

E2

Error code 2 (Err2).

Err1	The measured value (pH / mV) is out of range pH: <-2.00 or >16.00 mV: <-1999 or >1999	Check that the electrode cap is removed and that the electrode is connected correctly and placed in the solution to be tested. If the instrument does not connect the electrode, insert the shorting plug into the socket.
Err2	Measure the temperature out of range Cal: [°C] <5.0 or > 40.0 Meas: [°C] <-5.0 or >105.0	Keep the temperature of the solution to be measured within the specified range
Err3	Electrode zero potential is out of range Offset >60mV	Make sure you use the buffer correctly and within the validity period. Clean or replace the electrode.
Err4	Electrode slope is out of range Slope <70% or > 120%	Make sure you use the buffer correctly and within the validity period. Clean or replace the electrode.
Err5	The instrument does not recognize the buffer ΔEref <10mV	Make sure you use the buffer correctly and within the validity period. Check whether the same buffer is reused during calibration.

3. Maintenance

3.1 Meter maintenance

It is forbidden to separate the housing of the instrument.

In addition to the occasional need to use a damp cloth to wipe, the instrument does not need to do other maintenance. The shell is made of plastic and is subject to erosion by some organic solvents such as toluene, xylene and butanone. If this is the case, immediately wipe the spill onto the shell of such solvents.

3.2 Electrode maintenance

Ensure that the electrode is always stored in the appropriate storage solution.

In order to obtain maximum accuracy, any filled or coagulated in the electrode outside the filling liquid are used to remove the distilled water in time. Always store the electrode according to the manufacturer's regulations and do not dry it. If the slope of the electrode drops rapidly, or if the corresponding speed is slow, the following steps can be used. Depending on the sample, try the following:

1. For grease, remove the dirt from the surface of the electrode with raw cotton dipped in acetone or soapy water.
2. If the electrode film is dry, immerse the electrode tip in 0.1M HCl solution and allow to stand overnight.
3. If protein is accumulated in the membrane, immerse the electrode in the HCl/pepsin solution to remove the deposit.

4. If the electrode is contaminated with silver sulfide, immerse the electrode in the thiourea solution to remove the deposit. After the electrode is processed, recalibrate.

CAUTION: Dispose of the cleaning solution or fill solution according to the handling regulations for toxic or corrosive substances.

4. Technical indexes

Instrument level: 0.01 level

Measuring range	pH	-2.00...16.00
	mV	-1999...1999
	Temperature	-5°C---105°C
Resolution	pH	0.01pH
	mV	1mV
	Temperature	0.1°C
Electronic unit measurement error	pH	±0.01pH
	mV	±1mV
	Temperature	±0.3°C
pH calibration	Up to 3 points	
Isoelectric point	pH 7.00	
Buffer group	8 groups	
Power supply	DC5V-1W	
Size/Weight	200×210×70mm/0.5kg	
Monitor	LCD display	
pH input	BNC, impedance >10e+12Ω	
Temperature input	RCA(Cinch), NTC30 k Ω	
Data storage	Calibration data	
	198 measurements data (pH, mV each 99)	
Print function	Measurement results	
	Calibration results	
	Data storage	
Use environmental conditions	Temperature	5...40°C
	Relative humidity	5%...80%(Not condensate)
	Installation category	II
	Pollution level	2
	Altitude	<=2000 meters

5. Buffer solution groups

-1 USA group (NIST)

Temp (°C)	pH value			
5	1.67	4.01	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	1.70	4.04	6.97	9.86
50	1.71	4.06	6.96	9.83

-2 China group (JJG)

Temp (°C)	pH value				
5	1.67	4.00	6.95	9.39	13.21
10	1.67	4.00	6.92	9.33	13.01
15	1.67	4.00	6.90	9.28	12.82
20	1.68	4.00	6.88	9.23	12.64
25	1.68	4.00	6.86	9.18	12.46
30	1.68	4.01	6.85	9.14	12.29
35	1.69	4.02	6.84	9.11	12.13
40	1.69	4.03	6.84	9.07	11.98
45	1.70	4.04	6.83	9.04	11.83
50	1.71	4.06	6.83	9.02	11.70

-3 European group

Temp (°C)	pH value				
5	2.02	4.01	7.09	9.45	11.72
10	2.01	4.00	7.06	9.38	11.54
15	2.00	4.00	7.04	9.32	11.36
20	2.00	4.00	7.02	9.26	11.18
25	2.00	4.01	7.00	9.21	11.00
30	1.99	4.01	6.99	9.16	10.82
35	1.99	4.02	6.98	9.11	10.64
40	1.98	4.03	6.97	9.06	10.46
45	1.98	4.04	6.97	9.03	10.28
50	1.98	4.06	6.97	8.99	10.10

-4 Japan group (JIS)

Temp (°C)	pH value			
5	1.67	4.00	6.95	9.40
10	1.67	4.00	6.92	9.33
15	1.67	4.00	6.90	9.28
20	1.68	4.00	6.88	9.23
25	1.68	4.01	6.87	9.18
30	1.68	4.02	6.85	9.14
35	1.69	4.02	6.84	9.10
40	1.69	4.04	6.84	9.07
45	1.70	4.05	6.83	9.04
50	1.70	4.06	6.83	9.01

-5 Merck group

Temp (°C)	pH value				
5	2.01	4.04	7.07	9.16	12.41
10	2.01	4.02	7.05	9.11	12.26
15	2.00	4.01	7.02	9.05	12.10
20	2.00	4.00	7.00	9.00	12.00
25	2.00	4.01	6.98	8.95	11.88
30	2.00	4.01	6.98	8.91	11.72
35	2.00	4.01	6.96	8.88	11.67
40	2.00	4.01	6.95	8.85	11.54
45	2.00	4.01	6.95	8.82	11.44
50	2.00	4.00	6.95	8.79	11.33

-6 DIN (19266) group

Temp (°C)	pH value			
5	1.67	4.00	6.95	9.40
10	1.67	4.00	6.92	9.33
15	1.67	4.00	6.90	9.28
20	1.68	4.00	6.88	9.22
25	1.68	4.01	6.86	9.18
30	1.68	4.02	6.85	9.14
35	1.69	4.02	6.84	9.10
40	1.69	4.04	6.84	9.07
45	1.70	4.05	6.83	9.04
50	1.71	4.06	6.83	9.01

-7 DIN (19267) group

Temp (°C)	pH value				
5	1.08	4.67	6.87	9.43	13.63
10	1.09	4.67	6.84	9.37	13.37
15	1.09	4.66	6.82	9.32	13.16
20	1.09	4.66	6.80	9.27	12.96
25	1.09	4.65	6.79	9.23	12.75
30	1.10	4.65	6.78	9.18	12.61
35	1.10	4.65	6.77	9.13	12.45
40	1.10	4.66	6.76	9.09	12.29
45	1.10	4.67	6.76	9.04	12.09
50	1.11	4.68	6.76	9.00	11.98

-8 Technical group

Temp (°C)	pH value			
5	2.02	4.01	7.09	10.65
10	2.01	4.00	7.06	10.39
15	2.00	4.00	7.04	10.26
20	2.00	4.00	7.02	10.13
25	2.00	4.01	7.00	10.00
30	1.99	4.02	6.99	9.87
35	1.99	4.02	6.98	9.74
40	1.98	4.03	6.97	9.61
45	1.98	4.04	6.97	9.48
50	1.98	4.06	6.97	9.35