Benchtop PH Meter
USER'S INSTRUCTIONS

Content

Preface

Thank you for choosing the Benchtop PH Meter. For a better use experience, please read this instruction manual carefully and follow the safe operation rules!

Please keep this instruction manual for reference when necessary!

Note:

⚠ Danger!

- Please ensure that only trained personnel are allowed to operate this instrument.
- Please comply with safety regulations, personal safety and accident prevention regulations.
- Place the instrument on a smooth, clean, non-slip, dry and fire resistant surface.
- Never use wet hands to plug in or out the power plug.
- Take proper protective measures when handling toxic and volatile media.

⚠ Warning!

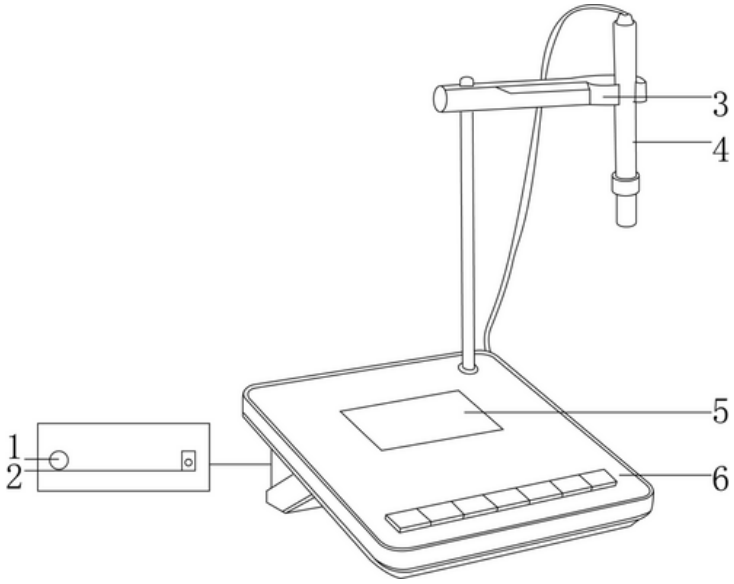
- Disconnect the power supply before assembling the accessories. Make sure that the instrument and its accessories are not damaged before turning on the instrument each time.
- Do not use the instrument in an environment with high humidity or high dust for a long time, and be careful to stay away from corrosive gases.
- Calibrating the instrument should try to choose a standard buffer solution close to the PH of the liquid being tested, so that the measurement results can be more accurate.
- Do not expose the electrode to the air for a long time, do not deliberately throw and beat the electrode, and beware of excessive force squeezing and twisting.
- Do not place directly in the sun, or place in high temperature and high humidity occasions.
- Do not disassemble or adjust the parts of the device at will. If the spare parts are damaged, replace them with the original ones.
- When the equipment fails, the power supply should be cut off in time, and contact our company for maintenance guidance or return to the factory for maintenance.
- When cleaning the instrument, please turn off the instrument and do not clean until the power is cut off.

Ⅰ. Product Overview

INS-PH5 Series Benchtop PH Meter is a laboratory routine analysis and measurement instrument, it is suitable for medicine, environmental protection, health, geological prospecting, universities and scientific research institutions of the laboratory, to measure the pH value of sample solution.

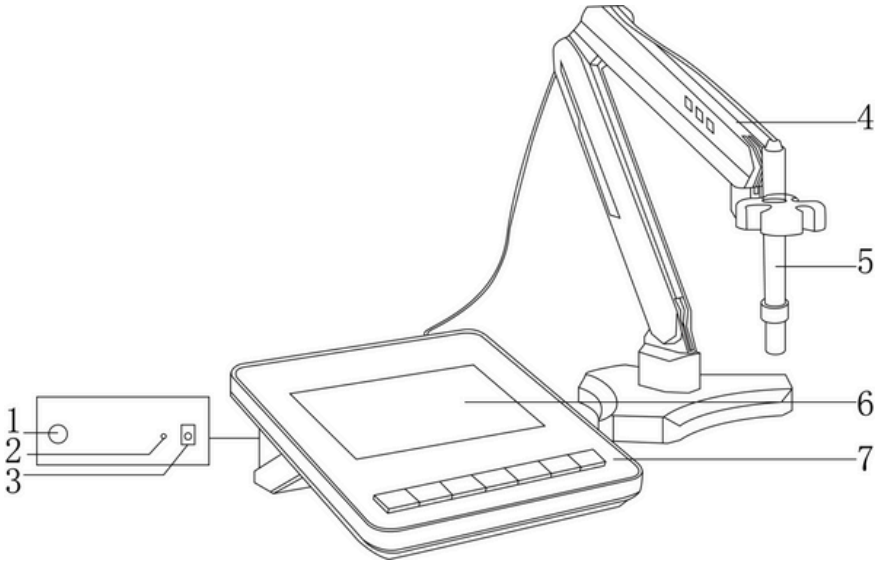
Ⅱ.ProductStructure

INS-PH5-1/2



1.Electrode interface 2.Power interface 3.Electrode bracket
4.PH electrode 5.LCD 6.Control panel

INS-PH5-3/4/5



1.Electrode interface 2.ATC interface 3.Power interface 4.Electrode bracket
5.PH electrode 6.LCD 7.Control panel

III.Product Features

1. Display calibration, measurement and data stability symbols and temperature, electrode slope;

2.Supportbacklightandfactoryrestoration,manualwarming,continuousmeasurementmode functions; 3. Support automatic identification of NIST, USA, EURO up to 5 points calibration function; 4. Support balanced measurement mode and data locking function (INS-PH5-3/4/5); 5. Support automatic shutdown (INS-PH5-3/4/5), automatic warming (INS-PH5-3/4/5);

6.Supportdatastorage,deletionandaccess(INS-PH5-3/4/5)anddataprintingandtransmission (INS-PH5-5).

IV

.Technical Parameter

1. Main functions

FunctionName		Description
Basic Function	Backlight	Support backlight switch control
	Factory data reset	Support factory Settings restoration
	Automatic shut down	Support automatic shutdown Settings(PH50-3/4/5)
	Degree of protection	Support IP54 protection level
Reading Function	The balance status identifier is displayed	Real-time display of balance status
	Terminal decision/reading mode	Support balanced/continuous measurement mode
Data Management	Data storage	Support up to 50 sets of data storage(PH50-3/4/5)
	Reference	Support data lookup(PH50-3/4/5)
	Delete	Supports user-defined data deletion(PH50-3/4/5)
PH/mV Measurement	PH electrode status/performance display	Real-time display of electrode slope
	Automatic identification of standard solutions	Automatic identification of NIST, USA and EURO standard fluids
	Manual temperature compensation	Supports0°-60°manual temperature compensation
Temperature Function	Temperature unit	SupportCelsius(℃)/Fahrenheit(℉) temperature

2. TechnicalParameter

Model		INS-PH5-1	INS-PH5-2	INS-PH5-3	INS-PH5-4	INS-PH5-5
Voltage		AC100-240VDC9V				
DisplayMode		LCD	LCD	LCD	LCD	LCD
Temperature Compensation		Manual	Manual	Manual	Automatic / Manual	Automatic / Manual
mV	Measuring Range	-1599-1599	-1800-1800	-1999-1999	-1999-1999	-2000-2000
	Resolution Ratio	1	1	1	1	0.01
	Indication Error	±1%FS	±0.1%FS	±0.1%FS	±0.1%FS	±0.03%FS
pH	Measuring Range	0.00-14.00	0.00-14.00	-2.00-18.00	-2.00-18.00	-2.00-20.000
	Resolution Ratio	0.01	0.01	0.01	0.01	0.001
	Indication Error	±0.05	±0.01	±0.01	±0.01	±0.002
Calibration Recognition						
NIST		4.00,6.86,9.18	4.00,6.86,9.18	4.00,6.86,9.18	4.00,6.86,9.18	1.68,4.00,6.86 9.18,12.46
USA		4.01,7.00, 10.01	4.01,7.00, 10.01	4.01,7.00, 10.01	4.01,7.00, 10.01	1.68,4.01,7.00, 10.01,12.46
EURO		4.01,7.01, 9.21	4.01,7.01, 9.21	4.01,7.01, 9.21	4.01,7.01, 9.21	1.68,4.01,7.01, 9.21,12.46
Multi-Point Calibration Function		2 points	2 points	3points	3points	5points
Data Storage Function		/	/	50 sets of data	50 sets of data	500 sets of data
Auto-Shut Off Function		/	/	√	√	√
Bracket Type		Simple bracket	Simple bracket	Movable bracket	Movable bracket	Movable bracket
Standard Electrode		E-201-C	E-201-C	E-201-C	E-301-C	E-301-C

Electrode Interface	Q9	Q9	Q9	Q9	Q9
Net Weight(g)	1000	1000	1000	1000	1000
Dimension (mm)	193.6*189.2* 74.8	193.6*189.2* 74.8	193.6*189.2* 74.8	193.6*189.2* 74.8	193.6*189.2* 74.8

Ⅴ.Product Installation

1.The choice of working environment

The working environment should be selected according to the following requirements:

(1) Ambient temperature: 5℃-40℃;

(2) Relative humidity ≤80%;

(3) There is no vibration affecting the performance around;

(4) There is no corrosive gas in the surrounding air;

(5) In addition to the Earth's magnetic field, the surrounding environment has no other magnetic and electric fields that cause influence.

2. Equipment installation

(1) After unpacking, remove the packaging and place the host on a flat workbench surface;

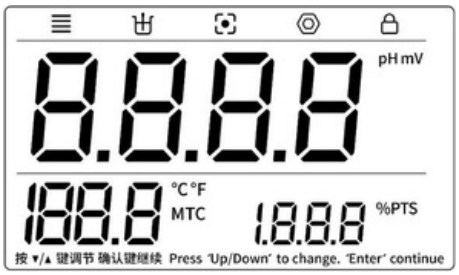
(2)Placetheelectroderackontherightsideofthehost(4inchsimpleelectrodeinstalledon the upper right side of the host), and place the electrode on the electrode rack;

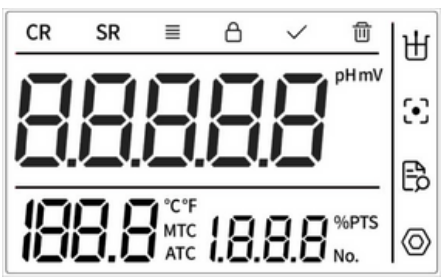
(3) Connect the electrode and temperature electrode, and then switch on the power supply.

Ⅵ.Product Usage

1. Screen identification

The instrument adopts segment code LCD LCD screen, the left side is the main function area, including measuring function, calibration function, setting function and consulting function; The status prompt area is displayed at the top; The middle is the measurement result area, including PH value and voltage value; The lower left corner is the current temperature value, and the lower right corner is the current percentage slope. (PH50-1/2 as shown on the left, PH50-3/4/5 as shown on the right)





Icon	Iconmeaning	Description
SR	Balanced measurement mode mark	Display during balanced measurement
CR	Continuous measurement mode mark	Display during continuous measurement
	Data stability mark	When all four segments are lit, it indicates a stable state
	Lock after the measurement	In the balanced measurement mode, the measurement ends after the data is stabilized and the result is locked
	Delete mark	Displays when user confirmation is required
	Confirmation mark	/
mV	Voltage value display mark	/
PH	Sign used to display pH values	/
℃	Temperature in Celsius	/
℉	Temperature in Fahrenheit	/
MTC	Manual temperature compensation	The temperature electrode is not connected
ATC	Automatic temperature compensation	Connecting temperature electrode
No.	Serial number	/
%PTS	Percentage slope value	100% indicates that the electrode is in good condition, and the lower the value, the greater the electrode consumption
	Measurementmark	/
	Calibrationmark	/
	Settingmark	/
	Referencestoragemark	Up to 50 pieces of data can be stored

2.Button function

（1）INS-PH5-1/2

No	Icon	Function Description	Operation Description
1	⏻	Power switch	Press and hold for 2 seconds to power on Press and hold for 2 seconds to shut down
2	mV/pH	Display mode key	Switch the mV/PH mode in the measurement state
3	▽	Down key	The value is reduced when setting the function
4	▽	Up key	The value increases when the function is set
5	SET	Set key	Enter the setting function in the measurement state
6	CA L /EN T	Calibration key / confirmation key	The calibration function is entered during measurement Confirm function
7	ESC	Cancel key	Exit current function

(2) INS-PH5-3/4/5

No	Icon	Function Description	Operation Description
1	⏻	Powerswitch	Press and hold for 2 seconds to power on Press and hold for 2 seconds to shut down
2	mV/pH / △	Display mode key/up key	Switch the mV/PH mode in the measurement state The value increases when the function is set
3	STO/▽	Storag key/downkey	Store measurement results The value is reduced when setting the function
4	SET	Set key	Enter the setting function in the measurement state
5	MEAS/DEL	Measure key/Delete key	When balancing the measurement, repeat the next measurement When viewing the results, delete the measurement results.
6	CA L /EN T	Calibration key/confirmationkey	The calibration function is entered during measurement. Confirm function
7	ESC	Cancelkey	Exitcurrentfunction

3. Power on and off

(1) Press the power button, the instrument first displays the instrument model, and carries out self-test, and then enters the measurement state.

(2) After use, long press the switch key for more than 2 seconds to shut down.

4. Calibration

(1) Unscrew the electrode protection cap, remove the electrode protection bottle and the protection bottle cap in turn, and keep it properly;

(2) PH50 series supports automatic identification of NIST4.00pH, 6.86pH, 9.18pH three standard liquids, pH4.0, 6.86, 9.18 buffer reagents are configured as standard buffers according to the packaging instructions (the solvent is generally above distilled water level);

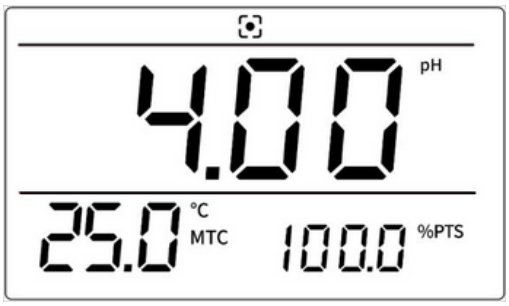
(3) Clean the electrode, rinse the electrode with distilled water, and then gently blot the water outside the electrode and the bulb with filter paper;

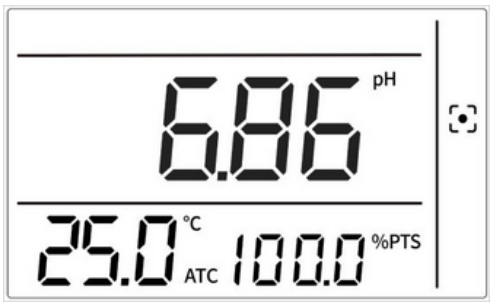
(4) Rinse with the buffer to be calibrated (to prevent residual water stains diluting the calibration liquid);

(5) PH50-1/2/3 Measure the buffer temperature with a thermometer, press the < SET > key to enter the function 1 Manual temperature compensation, set the temperature value; PH50-4/5 with automatic temperature function and standard with temperature detection electrode, aftertheinterfaceisinsertedintotheATCinterface,theinstrumentautomaticallyconvertsto automatictemperaturedetectionmode,noneedtomanuallyinputthetemperaturevalue;If you need to manually warm up, use the thermometer to measure the buffer temperature, press the < SET > key to enter the function 2 Manual temperature compensation, set the temperature value;

(6)Press the < CAL/ENT > key to enter the calibration interface, the PH electrode deep into the PH4.00 buffer, the height of the electrode into the solution shall not be lower than the measuring end, not equal to the bottom and the wall of the cup, while measuring the reference liquid level should be higher than the sample solution 10mm or more, after the reading is stable, press the < CAL/ENT > key to complete a point of calibration;

(7) Repeat the above steps to complete 6.86 calibration and 9.18 calibration; PH50-1/2 supports up to 2 point calibration; PH50-3/4 supports up to 3 point calibration; PH50-5 supports up to 5 calibration points, and the calibration interface is shown in the following figure (PH50-1/2 left picture, PH50-3/4/5 right picture) :





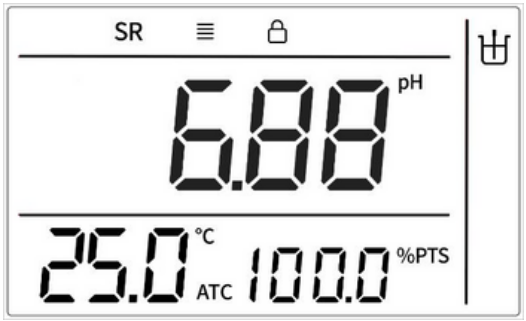
(8) After calibration, press the < ESC > key to enter the measurement mode; (9) It is recommended to calibrate the instrument once a day when it is used continuously. 5. Measurement

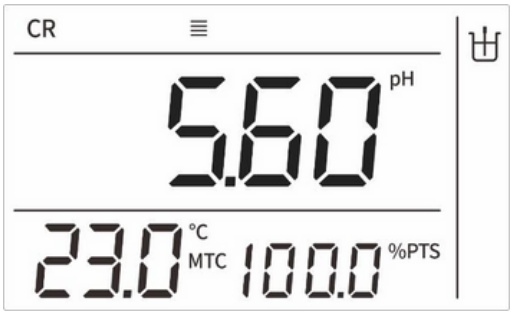
(1)Beforemeasurement,theusershouldunderstandthenature,propertiesandroutinetest methods of the substance (sample) to be measured; Understand the basic operation and application of the instrument; Understand the use and maintenance of conventional electrodes. Users need to prepare samples, or need to re-calibrate the electrode of the standard solution. (2) Select the appropriate measurement mode before measuring the sample; ① Balanced reading mode (only PH50-3/4/5) : After the data is stable, the instrument will

automatically lock the measurement result (display the lock sign, the measurement result will no longer change); The user can press the < MEAS/DEL> key to start the next measurement (left);

②Continuousmeasurementmode:ContinuouslymonitorthePHvalueandmVvalueofthe solution, and the continuous measurement mode should be used to measure the PH value ofthesolutioninrealtime.Automaticallycontinuemeasuringdataafterthedatastabilization

icon is displayed (right).





(3) Input the temperature of the solution to be measured through the manual temperature compensation function. This step can be skipped with the automatic temperature compensation function.

(4) After cleaning the electrode, put the electrode into the sample to be tested, press the

< mV/pH/△> key to switch mV and pH measurement interface, after the reading is stable, youcanreadthemeasuredvalue,pressthe<STO/▽>keytosavethereading(INS-PH5-3/4/5 has data storage function)

(5)Ifaccuratemeasurementisrequired,itisrecommendedthattheuserconductcalibration and measurement at the same temperature.

6. Setup

(1) INS-PH5-1/2 Parameter setting: Under the test interface, press the < SET > key to enter the parameter setting function, and set different function parameters by the up and down keys. The functions are described as follows:

① Function 1: temperature unit ° C / ° F setting and manual temperature input. Press the < CAL/ENT > key to enter the setting screen, press the < SET > key to switch the temperature unit, enter the temperature through the up or down key, press the < CAL/ENT > key again to save the setting parameters, and enter the test screen.

② Function 2: Switch of the backlight function, press the < CAL/ENT > key to enter the setting screen, press the up or down key to turn off or enable the backlight function, press the

< CAL/ENT >key again to save the Settings and return to the test screen. Note: Press the button to turn off/on the backlight function.

③ Function 3: Buzzer function on/off Settings. Press the < CAL/ENT > key to enter the setting screen. Press the up or down key to disable or enable the buzzer function.

④ Function 4: Restore factory Settings, press the < CAL/ENT > key to enter the setting screen, press the < CAL/ENT > key again to restore factory Settings.

⑤ Function 5: Calibrate the solution standard Settings (including NIST, USA, EURO, NIST by default), press the < CAL/ENT > key to enter the setting screen, select the option by the up or down key, press the < CAL/ENT > key again to save and return to the test screen. ⑥ Function 6: View the current software version. (2) INS-PH5-3/4/5 Parameter setting: Under the test interface, press the < SET > key to enter

the parameter setting function, and set different function parameters by the up and down keys. The functions are described as follows: ① Function 1: To switch the measurement mode, press the < CAL/ENT > key to enter the

setting screen, press the up or down key to select the measurement mode, CR is

continuousmeasurementmode,SRisbalancedmeasurementmode,pressthe<CAL/ENT > key again to save the setting and exit.

② Function 2: Temperature unit ° C / ° F setting and manual temperature input. Press the <CAL/ENT > key to enter the setting screen, press the < SET > key to switch the temperature unit, enter the temperature through the up and down keys, press the< CAL/ENT > key again to save the setting parameters, and enter the test screen.

③ Function 3: Data query function, press the < CAL/ENT > key to enter the data query interface,presstheupordownkeytoquerydata,pressthe<MEAS/DEL>keytodeletethe current interface data, press the< CAL/ENT > key again to confirm the deleted data, press the < ESC > key to return to the test interface.

④ Function 4: Automatic shutdown setting, short press the < CAL/ENT > key to enter the setting screen, select the automatic shutdown time by the up or down key, press the < CAL/ENT >key again to save the setting and exit.

⑤Function 5: Restore factory Settings. Press the < CAL/ENT > key to enter the setting screen. Press the < CAL/ENT > key again to restore factory Settings.

⑥ Function 6: Switch on the backlight function. Press the < CAL/ENT > key to enter the setting screen. Press the up or down key to disable or enable the backlight function. NotePressthe ⏻ buttontoturnoff/onthebacklightfunction.

⑦ Function 7: Buzzer function on/off Settings. Press the< CAL/ENT > key to enter the setting screen. Press the up or down key to disable or enable the buzzer function

⑧ Function 8: Calibrate the solution standard Settings (including NIST, USA, EURO, NIST by default), press the < CAL/ENT > key to enter the setting screen, press the up or down key to select the option, press the < CAL/ENT > key again to save and return to the test screen.

⑨ Function 9: Displays the current software version.

Ⅶ.Maintaining

1. Maintenance of instruments

(1) The instrument comes with a metal Q9 short-circuit plug. When the instrument Q9 interface is not connected to the electrode, please insert the Q9 short-circuit plug. In case of instrument damage.

(2) The short-circuit plug should be placed in a dry and clean environment to prevent the short-circuit plug from being corroded and affecting the short-circuit effect; If instrument

If not used for a long time, please disconnect the power supply.

(3) The electrode socket of the instrument should be kept clean and dry, and should not be in contact with acid, alkali and salt solution;

(4) The instrument housing material is sensitive to some organic solvents (such as toluene, xylene and methyl ethyl ketone (MEK)). If solution

Body into the housing, may damage the meter. If you need to clean the case of the instrument, please wipe it gently with a towel soaked with water and mild detergent;

(5) During the use of the instrument, please cover the dust cover as far as possible to play a dustproof and waterproof role.

2.Electrode maintenance

(1) After removing the electrode protection bottle, the sensitive glass bubble of the electrode should be avoided from contact with hard objects, and any damage or rubbing will make the electrode became invalid;

(2) After the measurement, the electrode protection bottle should be covered in time, and a small amount of external reference supplement liquid should be placed in the protective bottle to keep the electrode bulb moist. Do not immerse the electrode in distilled water for a long time.

(3) The Q9 short-circuit plug of the electrode should be kept clean and dry to prevent corrosion and short-circuit, otherwise it will lead to measurement misalignment or failure;

(4) The electrode should avoid long-term immersion in protein solution and acid fluoride solution, and should avoid contact with organic silicone oil;

(5) Due to the different electrode materials, please choose the appropriate electrode according to the actual use of the customer to avoid electrode damage;

(6) Repair of PH electrode: After long-term use of the electrode, if the slope is found to be slightly reduced, the lower end of the electrode can be soaked in 4%HF(hydrogen)

Fluoric acid) for 3-5s, washed with distilled water, and then soaked in 0.1mol/L hydrochloric acid solution to rejuvenate;

(7) Cleaning of PH electrodes: If the tested solution contains substances that are easy to pollute sensitive bubbles or block liquid connections, the electrodes are passivated.

The slope will decrease, the display reading is inaccurate, and so on. If this phenomenon occurs, it should be cleaned with appropriate solution according to the nature of the pollutant, so that the electrode is renewed.

Ⅷ.Fault Analysis

No	Fault Symptom	Solution
1	Unable to boot	Please check whether the power supply is too low or reconnect the power adapter to check again.
2	Miscalibration	The standard PH buffer solution is formulated inaccurately or the electrode is damaged.
3	Reading jitter	Whether the connection between the test instrument and the electrode is reliable, and whether there are interference devices around, please stay away from the interference devices or do a good shield.
4	Mismeasurement	To check whether the standard PH buffer solution is contaminated, the standard PH buffer solution should be replaced and re-calibrated; Electrode contaminated or blocked liquid connection, clean electrode.
5	The measurement time is too long	Clean the electrode; Low temperature or rapid temperature change is a normal phenomenon.

Ⅸ.Packing List

No	Name	Qty
1	Main machine	1
2	Bracket	1
3	PH electrode (Composite electrode/three-in-one electrode)	1
4	Silicone dust jacket	1
5	Power adapter	1
6	Instruction	1

N ote:
Consumables: Calibration buffer
Wearing parts: Electrodes
Optional accessories: External printing

Your Water Quality Analysis Manager