T-713 Ion Meter

User Manual

PEAK INSTRUMENTS
Version 1801

CONTENTS

I. General Information

Thanks for using T-713 ion meter. In order to help you operate and maintain the instrument properly, please read the user manual before using it. We reserve the rights to update the manual and its parts subject to the purpose of improving the instrument's performance.

This instrument combines the technologies of advanced electronics, sensors and software design, which can be used to test the pH value, temperature and other parameters of water solutions. This model is very suitable for industrial and mining enterprises, power plant, environment protection, etc.

This ion meter has built-in ARM32 microprocessor chip with beautiful design, variable functions and the following features:

1. Built-in microprocessor chip, with automatic calibration, automatic / manual temperature compensation, data storage, and other function settings. Easy to use.

2. Digital filtering and slip techniques are used to improve meter's response speed and data accuracy.

3. Equipped with new type of ion electrode and temperature probe and have automatic temperature compensation functions, which make the measurement more accurate and operation easier.

5. The circuit board adopts Surface Mounted Technology to improve the reliability of product processing.

6. 7-inch TFT colored capacitive touch screen with resolution 1024*600, much easier for operations.

7. Equipped with wireless Bluetooth and can be connected to cell phone APP and Bluetooth printer.

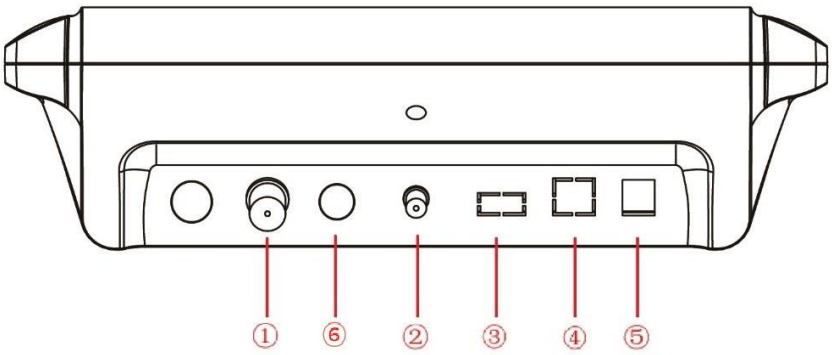
8. IP54 waterproof and dustproof.

II. Specifications

Instrument Grade		0.01
Measurement Range	pH/pX	(-2.00～20.00) pH, (0.00～14.00) pX
	mV	(-1999.9～1999.9) mV
	concentration	(0～19990), optional units: mol/L, g/L, ppm
	temperature	(-10.0～110.0)℃
Resolution	pH/pX	0.01pH/pX
	mV	0.01mV
	concentration	3 significant digits (in scientific notation)
	temperature	0.1℃
Accuracy	pH/pX	±0.02pH/pX
	mV	±0.03％FS
	ion concentration	±0.3%
	temperature	±0.1℃
Power Supply		DC 12V/1A, with standard power adapter
Dimensions & Weight		270×170×70mm, 600g

III. Operation Instructions

1. Interface Diagram



① Ion electrode connector

② Temperature electrode connector

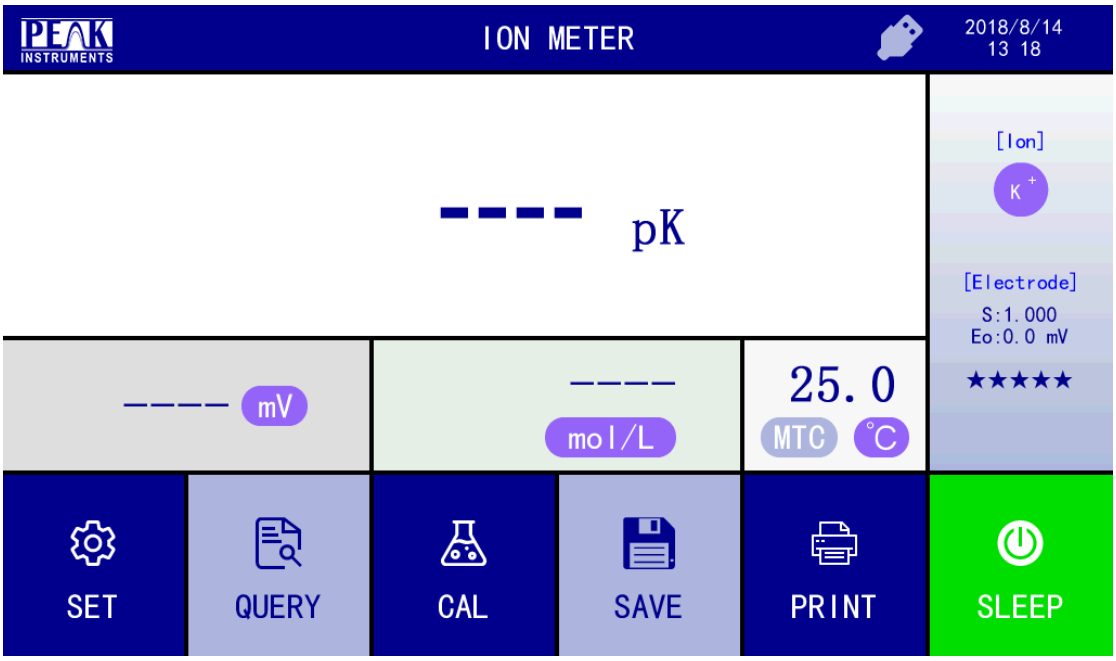
③ USB port for data transfer

④ Data cable interface

⑤ Power supply connector

⑥ Reference electrode connector

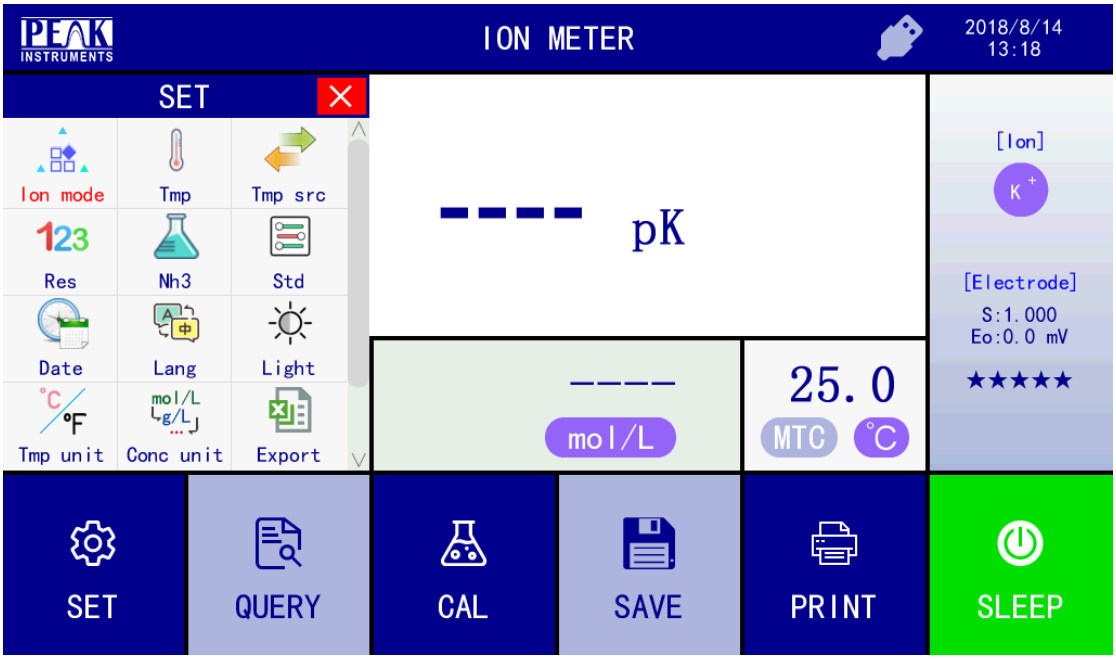
2. Main interface



2.1. System setup

Press 

to enter system and set the following parameters.



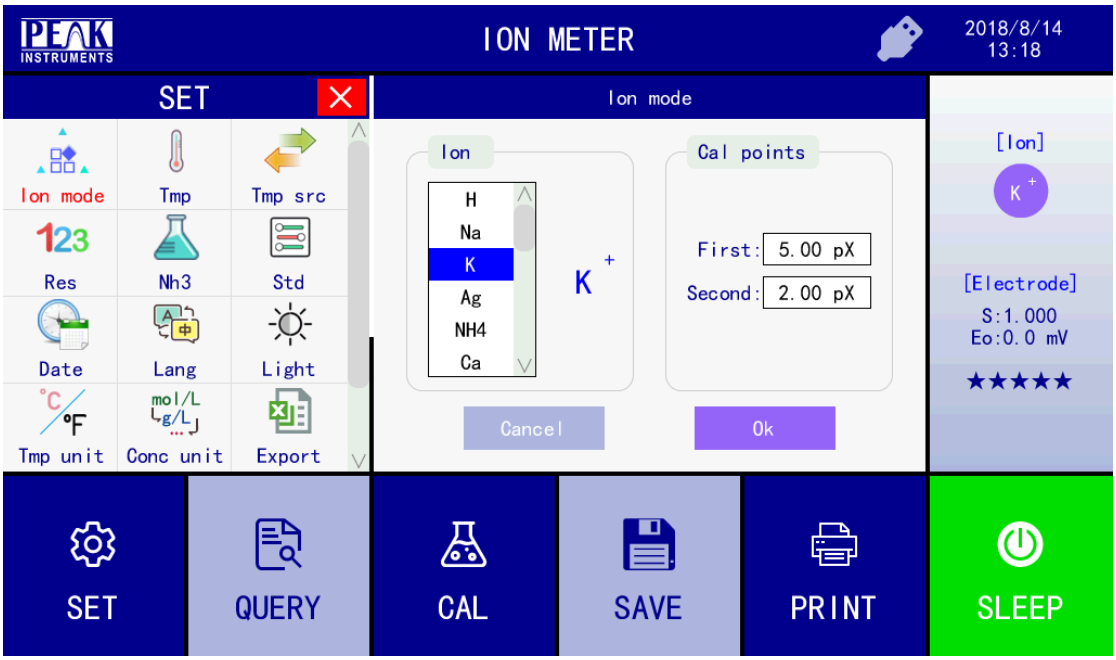
2.1.1. 

Ion model. You can choose the ion to be tested and press 

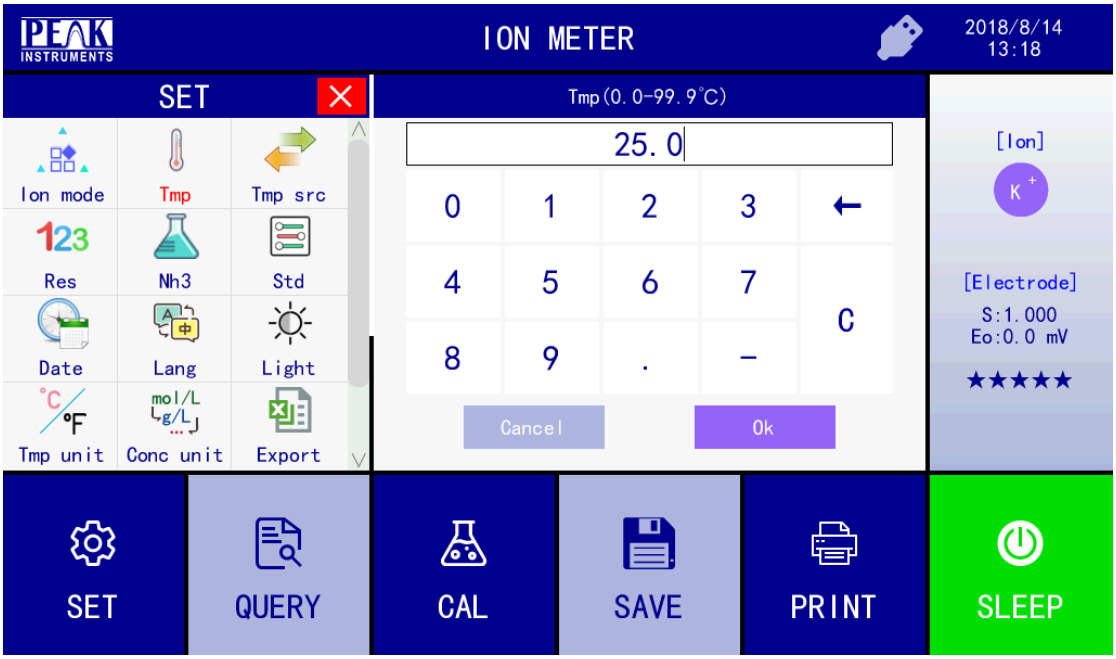
to confirm setting or press 

to back. Calibration points can

be set according to stardards.

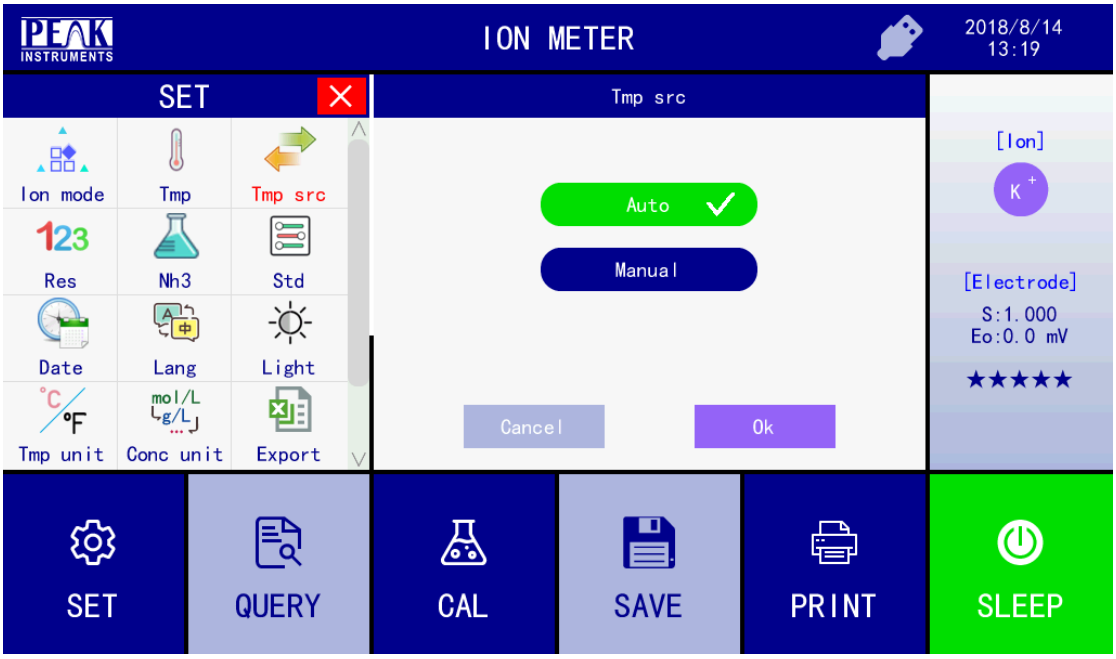


2.1.2. Tmp Manual temperature compensation. Enter the compensation temperature between 0.0-99.9℃, then press Ok to confirm setting or press Cancel to back.



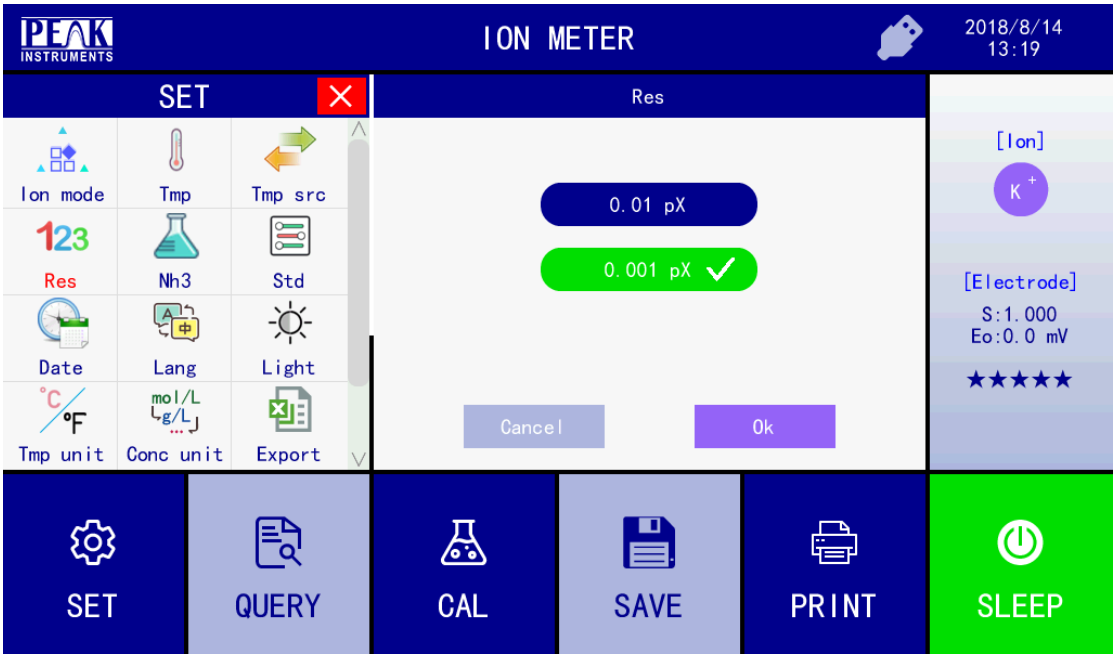
2.1.3. 

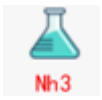
Temperature compensatioin source. You can choose it as manual or automatic temperature compensation, then press Ok to confirm setting or press Cancel to back.



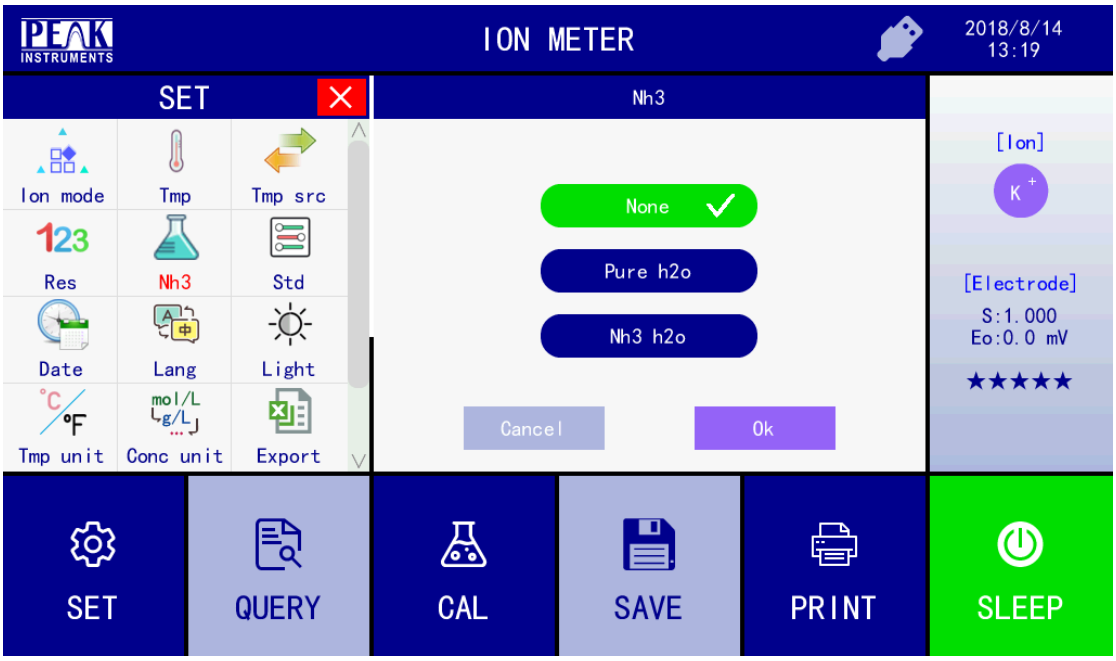
2.1.4. 

Resolution. You can select resolution 0.01pX or 0.001pX, then press Ok to confirm setting or press Cancel to back.



2.1.5. 

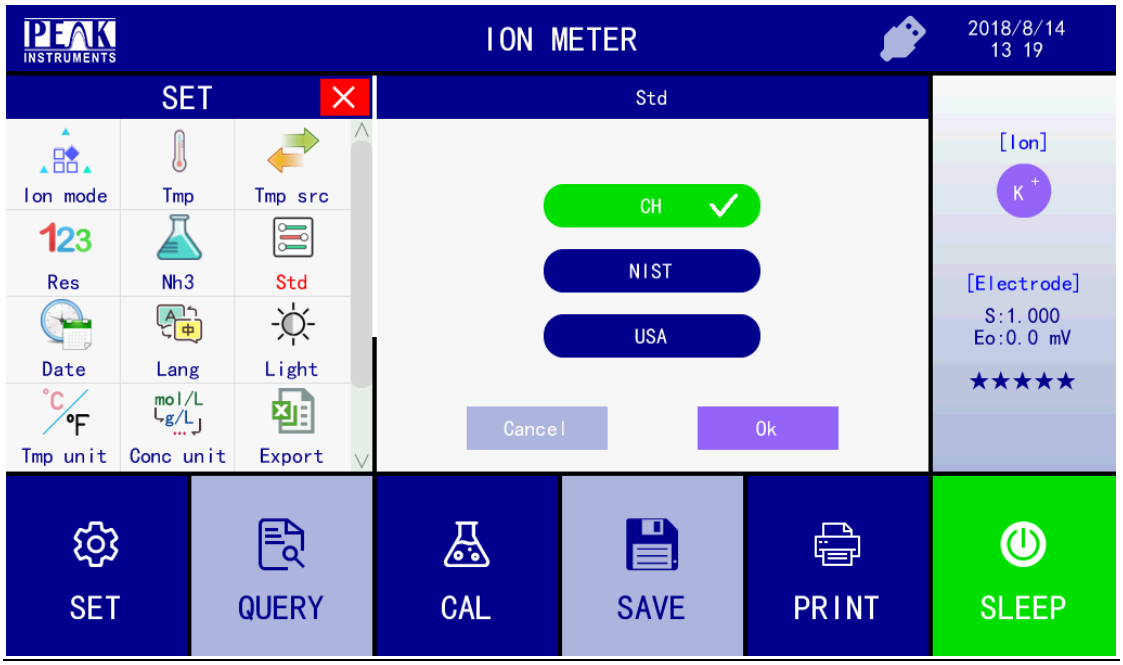
NH3 compensation. There are three options: NONE, PURE H2O and NH3 H2O. Select the mode and press Ok to confirm setting or press Cancel to back(for pH measurement).



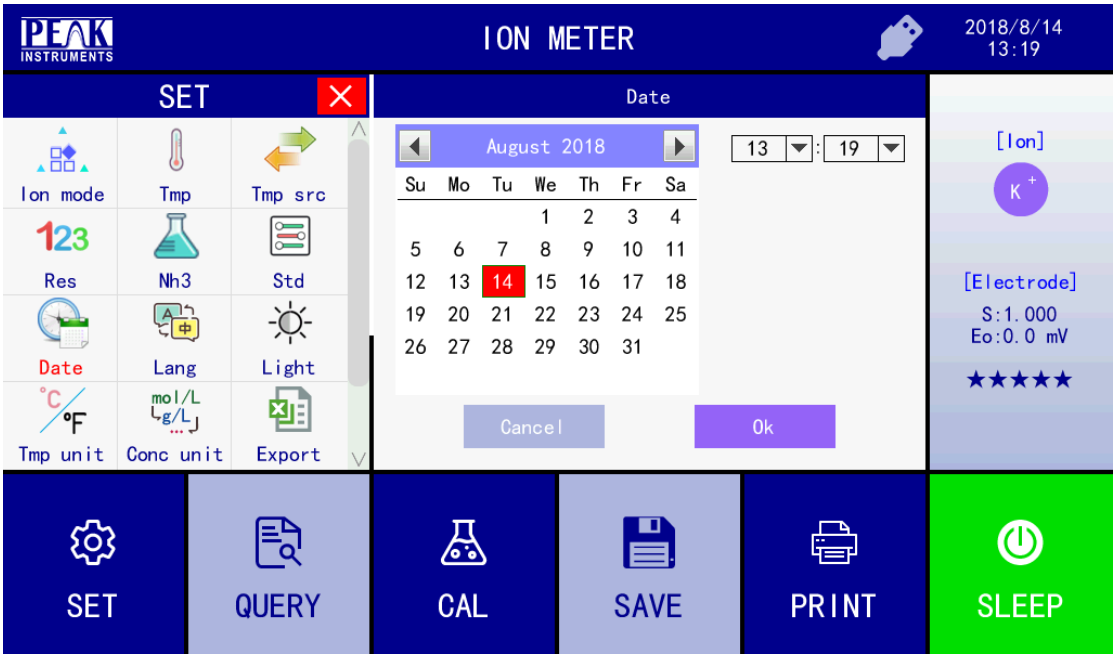
2.1.6. 

Standard buffer. There are three options: China, NIST and USA. Press 

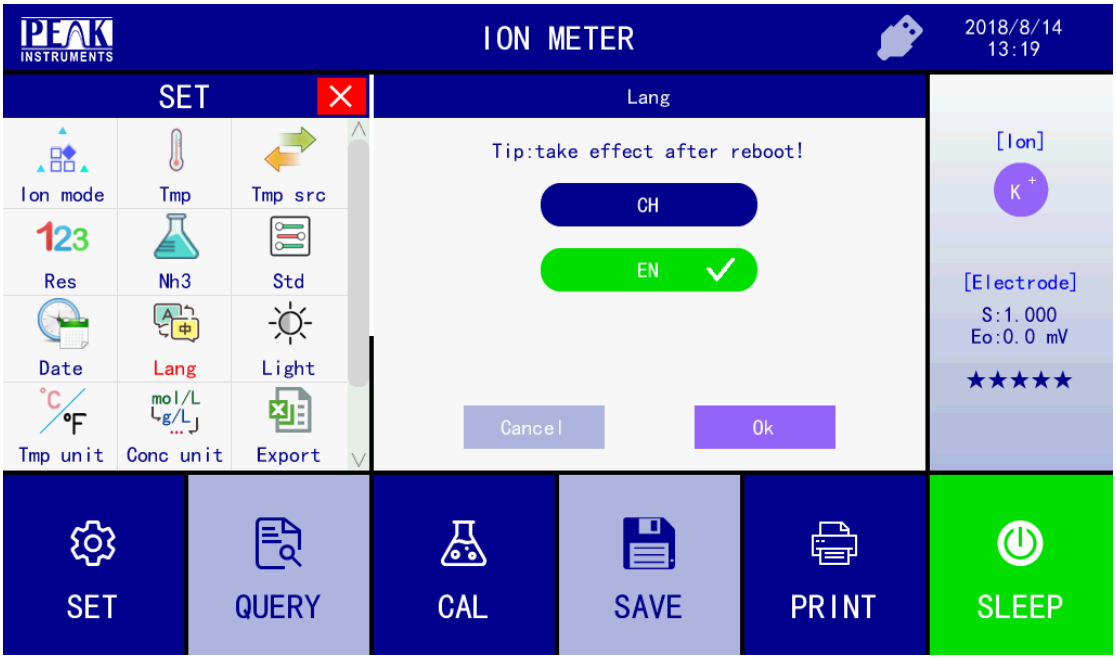
to enter the following window, select the preferred standard, then press Ok to confirm setting or press Cancel to back (for pH measurement).



2.1.7. Date In this menu you can change the current date and time, then press Ok to confirm setting or press Cancel to back.

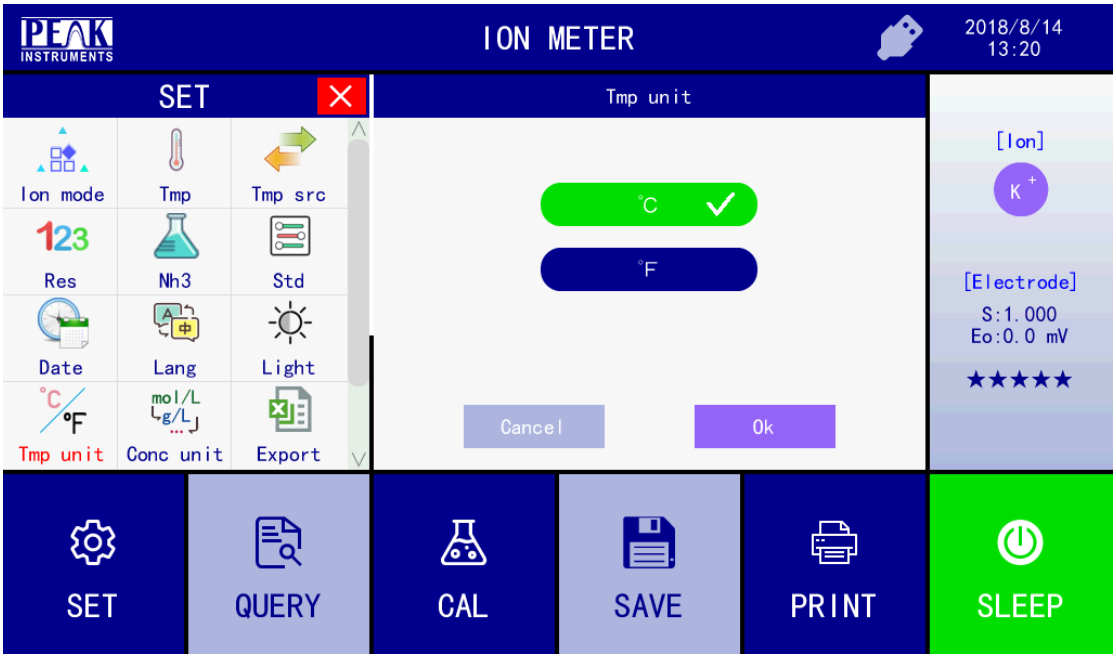


2.1.8. Lang Language setup. Select English or Chinese, then press Ok to confirm setting or press Cancel to back.

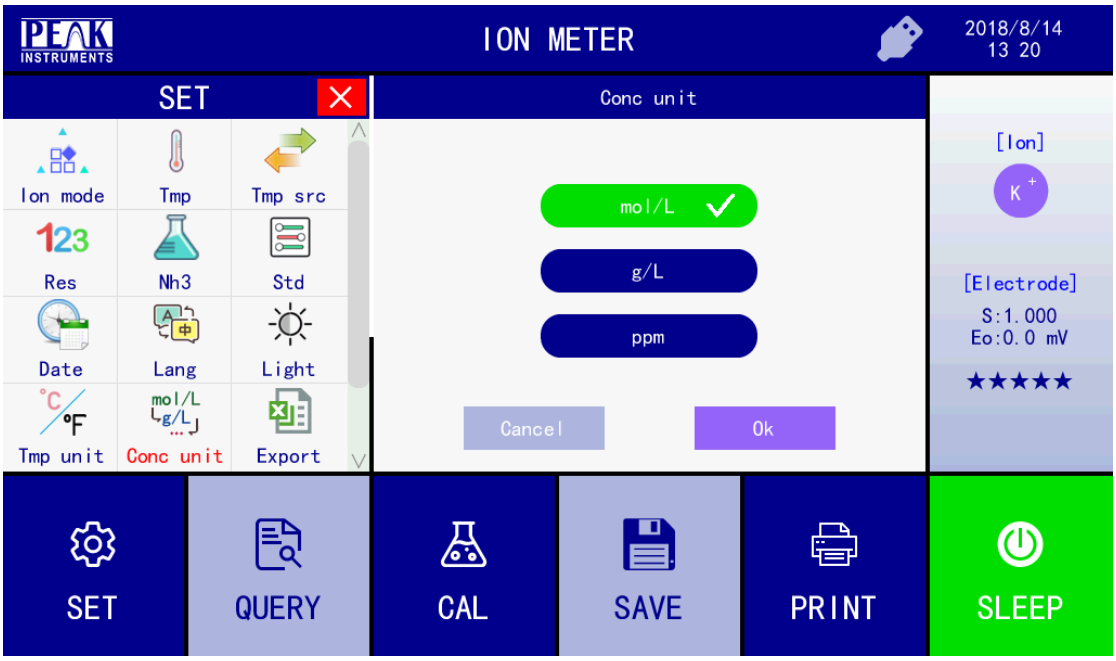


2.2.9. Light Screen brightness adjustment. You can adjust screen brightness by the slide bar, then press Ok to save the changes or press Cancel to back.

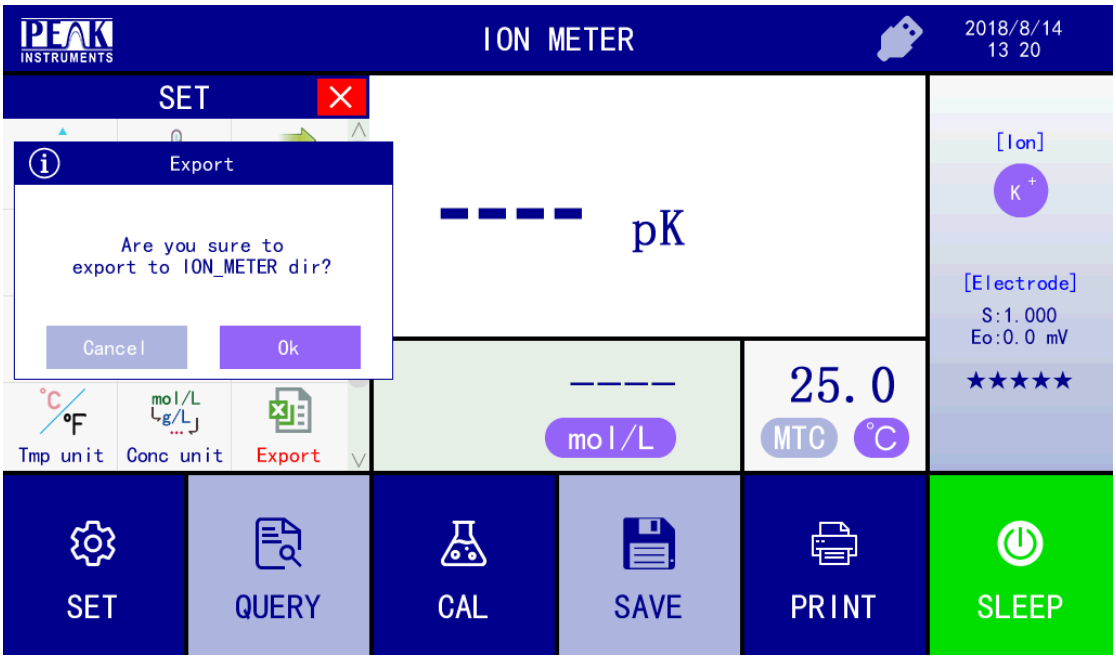
2.1.10. Tmp unit Temperature unit. Choose the unit of temperature(℃/℉). The default unit is ℃. Then press Ok to save the changes or press Cancel to back.



2.1.11. Concentration unit. There are three options: mg/L, g/L and ppm. Select the unit you need, then press Ok to save the changes or press Cancel to back.

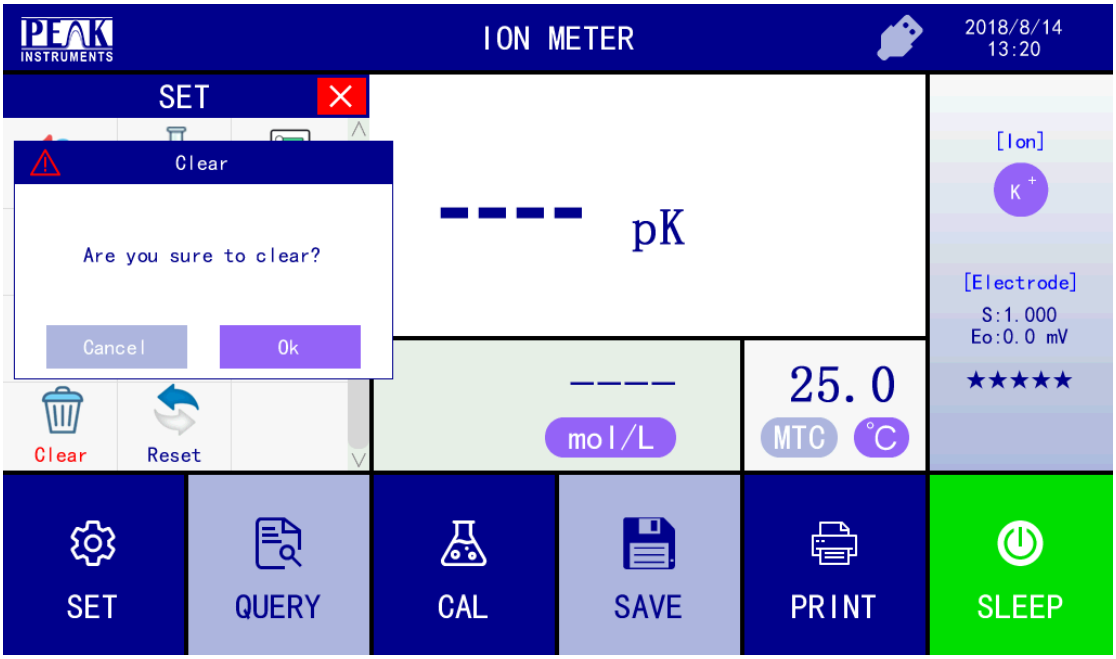


2.1.12. Data export. Press Ok to export data to USB or press Cancel to quit.



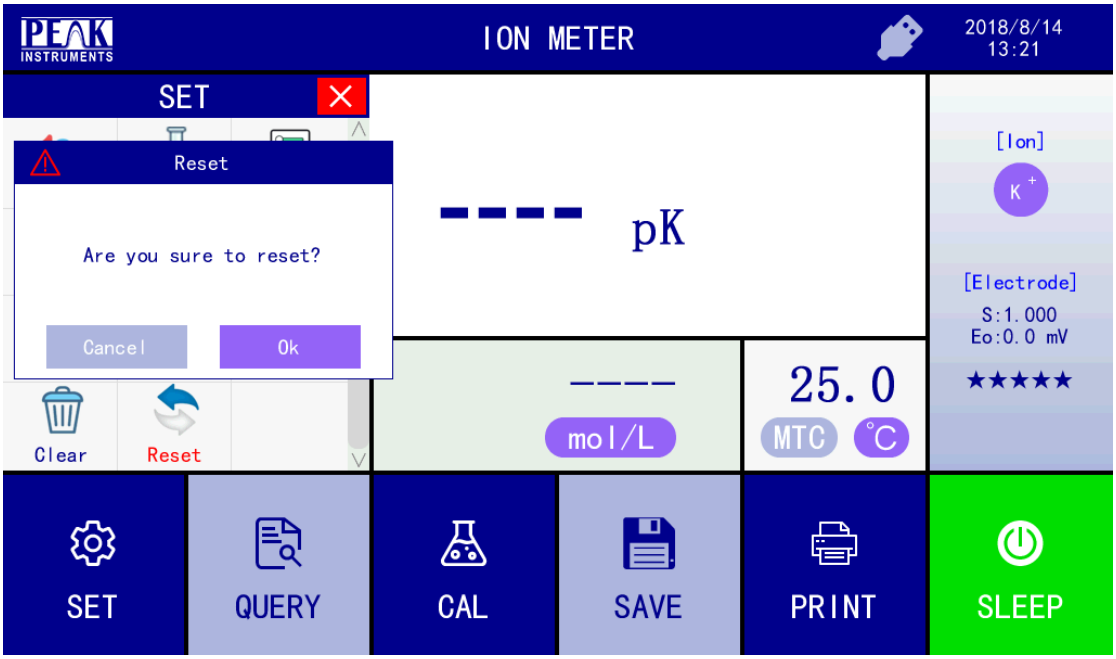
2.1.13. 

Data clear. Press the icon to enter the following interface. Then press Ok to clear the saved data or press Cancel to back.

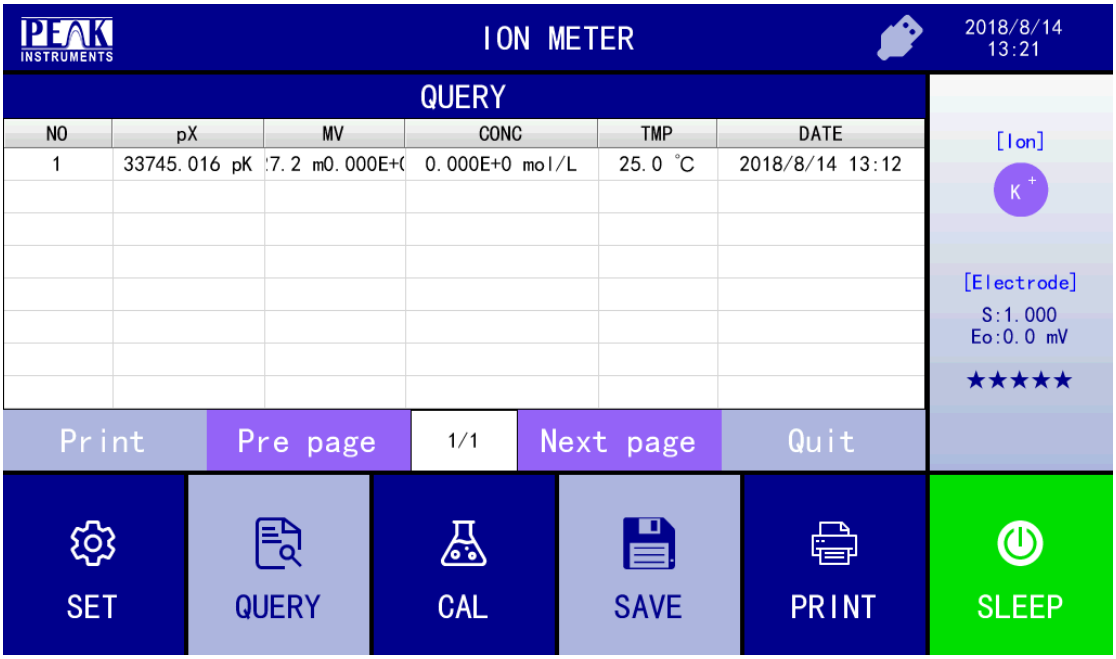


2.1.14. 

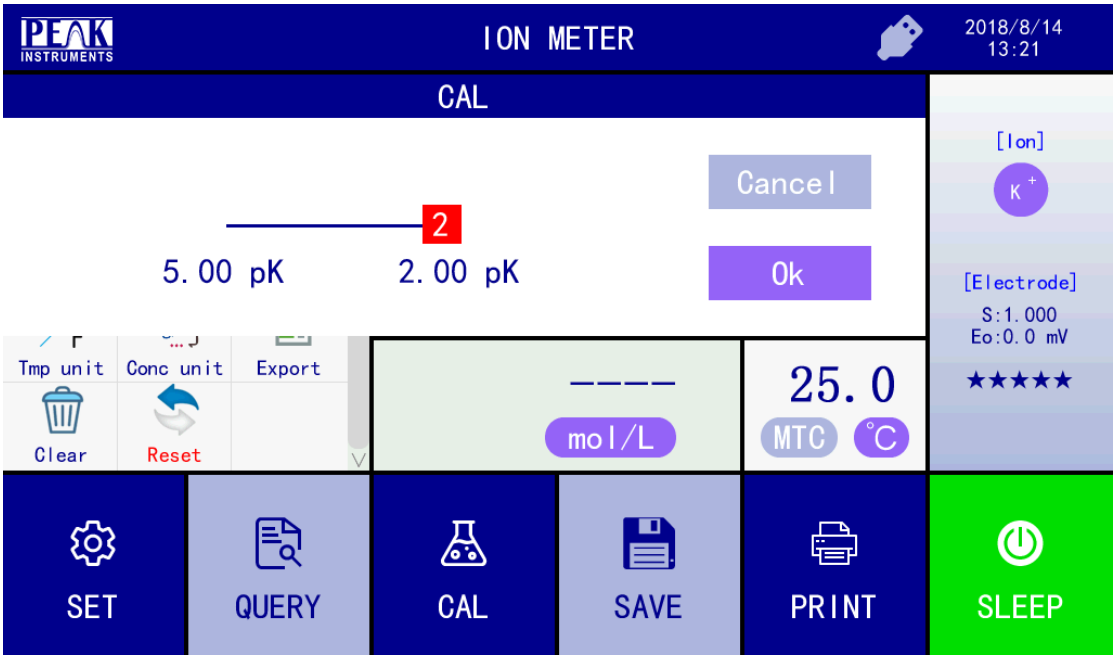
Restore the system to its original factory setting and delete all saved data, you can use this function whenever there is mistake in the system.



2.2. QUERY To view all saved data including pX, mV value, concentration, temperature and date. If already connected to printer, you can press Print to print or quit to back.



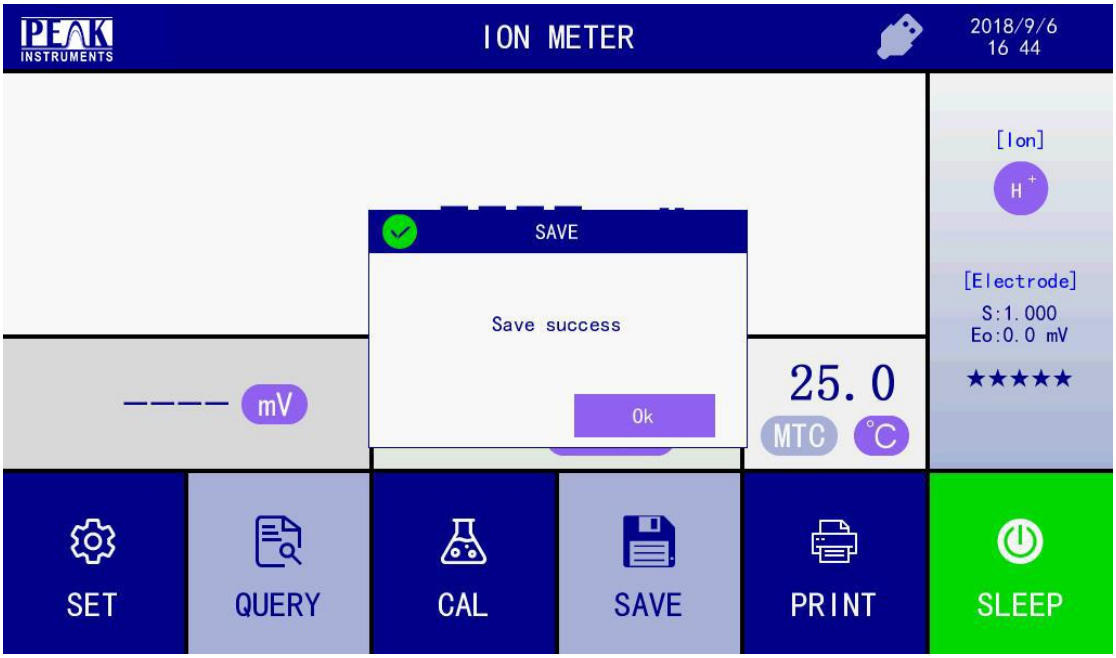
2.3. CAL Calibration. You can set the calibration standard, then press Ok to confirm selection or press Cancel to back.



2.4. 

Press this button to save data, then press 

to confirm and back.



2.5. 

To print the current data shown on the screen(with optional Bluetooth printer).

2.6. 

Press this icon to make the system fall asleep.

If you want to go back, just press “Weak up”.

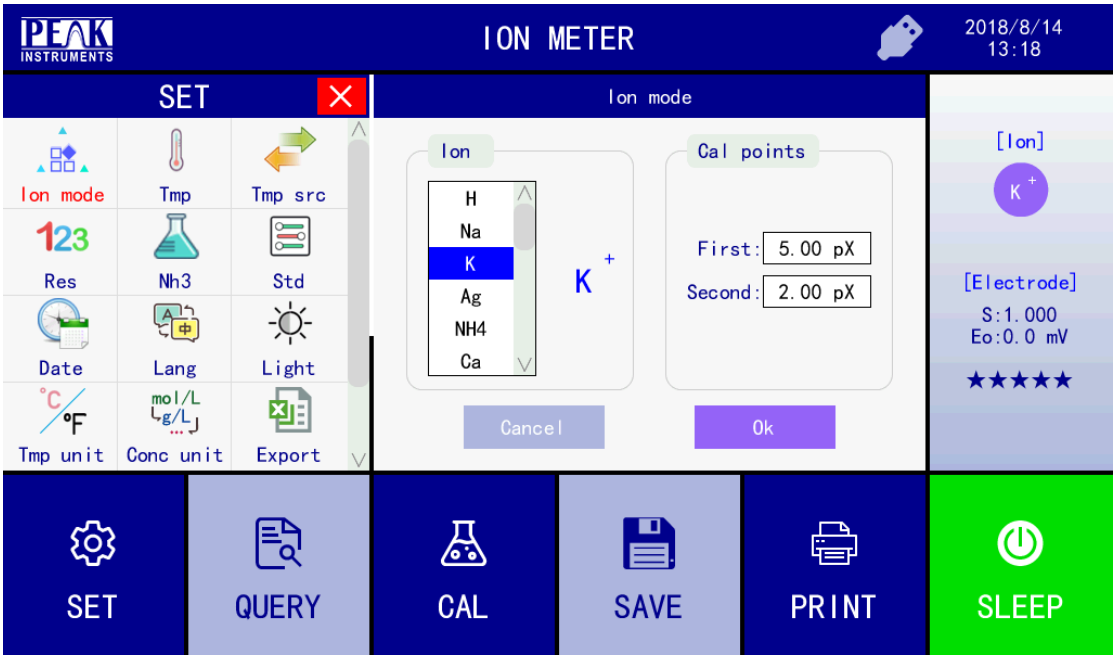
IV. Ion Measurement

1. Preparations

1.1. Connect DC12V/1A adapter to the power supply and instrument, enter ion measurement interface.
1.2. Check if ion electrode and reference electrode are intact. If the electrode is not used for a long time, it should be cleaned and stored in a dry place. Before use, it should be soaked in deionized water for 24 hours.
1.3. Connect ion and reference electrodes with the right interfaces.

2. Calibration

2.1. Set up calibration point. Enter ion mode and set calibration points based on standard solutions.



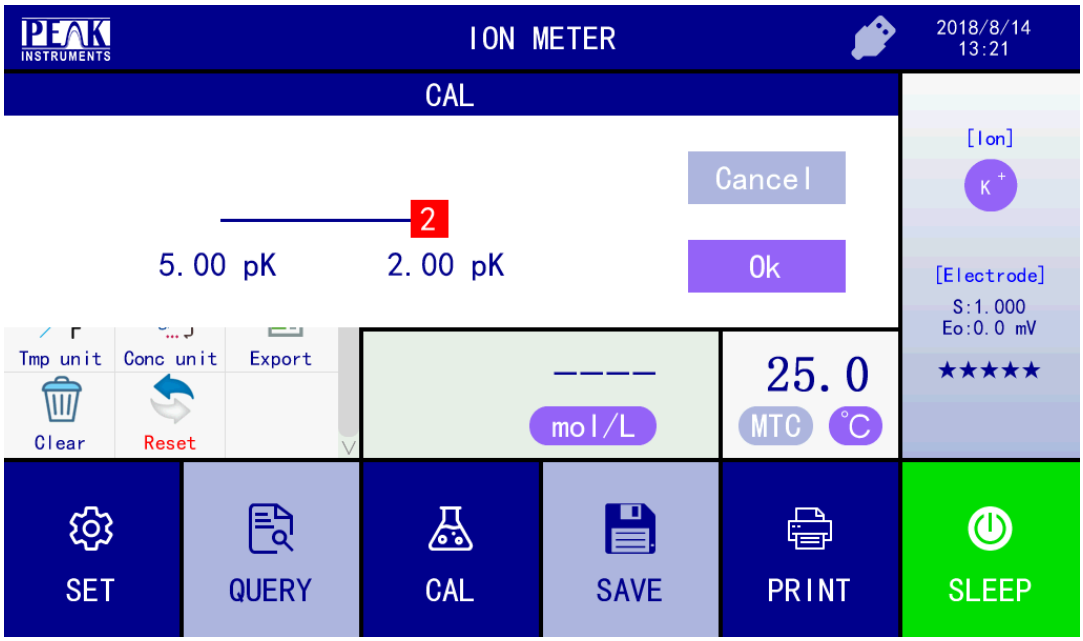
2.2. Calibration instructions

2.2.1. Press 

and the first calibration point flash. Clean the electrode and put it in the standard solution according to previous calibration settings.

2.2.2. After first point is calibrated, the second point start to flash. Clean

the electrode and put it in the corresponding solution. Press OK to save calibration result after the number is stable.



3. Measurement

Clean the electrodes and wave them dry, put them into the sample solution, shake the electrode and let it be static, then wait until the reading is stable, then the reading is its ion concentration.

NOTE: Based on principle of isothermal measurement, the closer of the temperature of test solution with that of standard solution, the more accurate of the measurement, please obey this rule when doing the test.

4. Notes

4.1. Times to be calibrated depend on test sample, electrode and measurement accuracy. For high accuracy test, it should be calibrated in time with high accuracy standard solution. For regular accuracy measurements, it can be used for one week or even longer after being calibrated.

4.2. The instrument should be recalibrated in the following situations.
4.2.1. For new electrode and the one that has not been used for a long time.

4.2.2. After testing corrosive solution.
4.2.3. After testing fluoride solution or high concentration organic solution.
4.2.4. The temperature difference is big for the tested solution and calibration solution.

4.3. Keep the instrument clean and dry, especially for the communication ports of instrument and electrode, otherwise the measurements will not be accurate or wrong.

4.4. The glass bulb can't be contacted with solid things, any bulb damage will cause the electrode failure. The electrode should be washed before and after using it, then wave or absorb it dry, don't wipe it with paper tissue which will make the electrode unstable and prolong response time. After the use in viscous sample, the electrode should be washed for a few time in order to remove sample stuck to the surface, or use suitable solvent to clean it.

4.5. After long use, the electrode will be passivated because the bulb is polluted or the liquid interface is blocked, which will make the electrode sensitive gradient lower, response slow, reading inaccurate. The following methods could be used in different situations.

4.6. Reference cleaning of glass bulb and liquid contact interface.

Contaminant	Detergent
Inorganic metal oxide	Less than 1mol/L dilute hydrochloric acid
Organic fat	Dilute detergent(alkalescent)
Resin polymer substance	Dilute alcohol, acetone, aether
Protein blood cell sediment	Acid enzyme solution(Saccharated Yeast Tablets)
Pigment substance	Dilute bleach solution, hyperoxide

4.7. Ion electrode can usually be used for one year, if the working conditions are very bad, being misused or in improper maintenance, its lifespan will be shortened. If the electrode is passivated or not working well, please replace it.

4.8. When the instrument is abnormal, please restore it to default settings, then do the calibration and test.

VI. Packing List

Description	Number
T-713 ion meter	1 unit
Ion electrode	1 piece
Temperature electrode	1 piece
Reference electrode	1 piece
Electrode holder and base	1 set
Connection adapter	1 piece
Power adapter(12V/1A)	1 piece
User manual	1 copy