Model EC900
pH/mV/Conductivity/DO
Meter

Operation Manual

Amtast USA Inc.

900 Series of Portable Meters

1. Model PH900 pH / mV Meter

2. Model CON900 Conductivity / TDS / Salinity / Resistivity Meter

3. Model DO900 DO Meter

4. Model EC900 pH / mV / Conductivity / DO Meter

Content

1. Summary:

Thanks for buying and using the model EC900 pH/mV/Conductivity/DO Meter (the following called “meter” in short).

Before using this meter, please read the operation manual carefully in order to help use and maintain it correctly. On the basis of improving instrument of performance constantly, we reserve the right of changing the content of this manual and accessories in case of not notifying in advance.

This meter is a perfect combination with the most advanced electronic technology, sensor technology and software design. The meter can measure the parameters of pH, mV, conductivity, TDS, salinity, resistivity, DO and temperature for high accuracy water solution. It is the best portable water analysis meter with the highest performance and the lowest cost. It is suitable for the trade such as the mining industry, power plant, water treatment projects and environmental protection, etc., especially has more extensive application in the field and spot test.

Built-in microprocessor chip, beautiful appearance, multi-functional and easy to use, this meter has the following prominent features:

1.1. Multi-parameter meter, equipped with pH electrode, conductivity electrode, DO electrode, calibration solution and special carrying case, easy to use.

1.2. Built-in microprocessor chip. Its features up to automatic calibration, automatic temperature compensation, data storage, auto power off, low voltage indication, function setting and automatic self-diagnose etc.

1.3. Adopts digital filter and step slipping technology to intelligently improve meter’s response speed and result accuracy. “ ☺ ” will appear when reading to be stable.

1.4. Automatically recognize 13 kinds of pH standard buffer solution. User can choose anyone from three series of buffer solutions: Europe & U.S.A. series, NIST series, China series.

1.5. High purified water and ammonia added purified water pH measuring mode can be set

up, for this two special pH measuring modes, besides the general slope compensation, also added function of nonlinearity solution temperature compensation to make measurement more accurate, especially suitable for the fields of electric power and petrochemical etc.

1.6. Adopts advanced automatic frequency convertible and voltage regulation technology to enlarge the measuring range 10 times for conductivity electrode which constant K=1. It can meet measuring accuracy requirement for range within 0 to 200mS/cm by using only one-point calibration. It is the particular one–point calibration function for this meter.

1.7. Automatically recognize 8 kinds of conductivity standard solution. User can choose anyone from two series of standard solutions: Europe & USA series and CHINA series.

1.8. Automatically select conductivity measuring range, the meter will do non-linearity temperature compensation test for purified and high purified water less than 10uS/cm, which greatly improves the measuring accuracy. It is especially suitable for use in fields of electric power, microelectronics and medicine.

1.9. Equips new type of DO electrode with temperature and salinity sensor which has function of automatic temperature compensation and automatic salinity compensation as well as manual barometric pressure compensation inside meter, easy to use, accurate to measure.

1.10. Polarogram type DO electrode has special electrode calibration cap. Only needs 3 to 5 minutes for electrode polarization. Electrode adopts combination diaphragm cap which very convenient to use. Each DO electrode equips with three spare diaphragms caps.

1.11. Meter’s circuit board adopts SMT film-covering technology to improve meter’s production reliability.

1.12. Meter has the back light LCD display monitor.

1.13. Dustproof and waterproof meter meets IP57 rating.

2. Technical Parameters:

2.1. pH:

Measuring range	(-2.00 ~ 19.99) pH
Resolution	0.1/0.01 pH
Accuracy	Meter: ±0.01pH; Overall: ±0.02pH
Input current	$\leq 2\times10^{-12}$ A
Input impendance	$\geq 1\times10^{12}\ \Omega$
Stability	±0.01 pH/3h
Temp.compensation range	(0 to 100)℃ (automatic)

2.2. mV:

Measuring range	-1999mV to 0 to 1999mV
Resolution	1mV
Accuracy	±0.1% FS

2.3. Conductivity:

Measuring range	Conductivity: (0.00 to 19.99) μS/cm (20.0 to 199.9) μS/cm (200 to 1999) μS/cm (2.00 to 19.99) mS/cm (20.0 to 199.9) mS/cm TDS: (0 to 100) g/L Salinity: (0 to 100) ppt Resistivity:(0 to 100) MΩ·cm
Resolution	0.01/0.1/1μS/cm 0.01/0.1 mS/cm
Accuracy	Meter: ±1.0% FS, Overall: ±1.5% FS
Temp. compensation range	(0 ~ 50)℃(automatic)
Electrode constant	0.1 / 1 / 10 cm^{-1}
Benchmark temperature	25℃, 20℃and 18℃

2.4. Dissolved Oxygen:

Measuring range	(0 to 40.00) mg/L (ppm) (0 to 200.0) %
Resolution	0.1/0.01 mg/L (ppm) 1/0.1 %
Accuracy	Meter: ±0.10 mg/L, Overall: ±0.40 mg/L
Response time	≤30 s (25℃, 90% response)
Residual current	≤0.1 mg/L
Temp. compensation range	(0 to 45) ℃ (automatic)
Salinity compensation	(0 to 45) ppt (automatic)
Barometric pressure	(66 to 200) kPa (manual)
Automatic calibration	Air saturated by water; water saturated by air
Electrode type	Polarogram type

2.5. Other Technical Parameters:

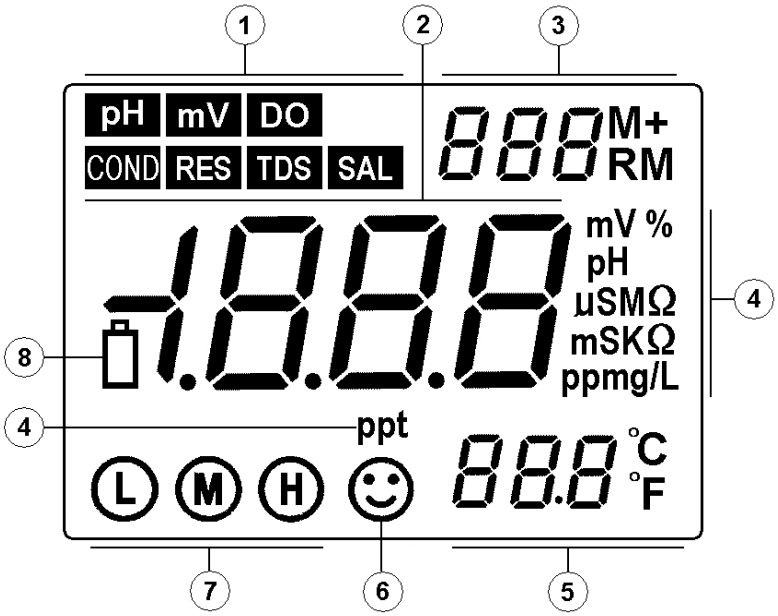
Data storage	400 groups
Storage content	Series number, measuring value measuring unit and temperature,
Power	Two AA batteries (1.5V x2)
Size and weight	Meter: (65×120×31) mm/180g; carrying case: (360×270×76) mm/1.6Kg
Quality and safety	ISO9001:2000, CE 和 CMC

2.6. Working Condition:

Environment temperature	5 to 35 ℃ (0.01 grade)
Environmental humidity	≤85%
IP rating	IP57 Dustproof and waterproof

3. Meter Overview:

3.1. LCD Display:



① —— Parameters mode icon

② —— Measuring value

③ —— Serial number and icon as measuring value to be stored and recalled, and indication icons for special states.

M+ — measuring value to be stored icon;

RM —measuring value to be displayed icon;

④ —— Measuring unit

⑤ —— Temperature measuring value and unit Temperature compensation state icon:

⑥ —— Icon for stable measuring value

⑦ —— Icon indicating electrode calibration

⑧ ——Icon indicating low voltage, appears when the voltage less than 2.4V, calls attention to change the batteries.

3.2. Operation Keys:

The meter has 5 operation keys in all.

3.2.1. ON/OFF — Switch on / off key

3.2.2. CAL — Calibration key

(a) When in the measurement state, press this key to enter into calibration mode.

(b) When in the parameter setting state, press this key to change the number or the ON/OFF state.

3.2.3. MODE — Function key

(a) In pH Mode,press this key in a short time (<1.5s) to change the measuring parameters, the meter will display pH → mV ; Press it in a long time (>2s) to enter into the parameter setting, it will in turn display P1,P2, P3 ……;

(b) In other measuring modes,press it to enter into the parameter setting, it will in turn display P2, P3 ……

3.2.4. ☼/ENTER — Back light and entrance key

(a) When in the measuring state, press this key in a short time (<1.5s) to open or close the back light display;

(b) When in the calibration state or the parameter setting state, press this key to confirm, and then the meter enters into measuring state;

(c) When in pH mode, press this key without releasing to change pH resolution: 0.01→0.1 pH; and release when a selection made.

(d) When in COND mode, press the key without releasing to in turn change parameter mode: TDS (total dissolved solid)→ SAL (salinity) → RES (resistivity)→ COND (conductivity), and then release the key when a selection made.

(e) When in DO mode, press the key without releasing to in turn change unit symbol: mg/L→ppm→%, and then release the key when a selection made.

3.2.5. M+/RM — The combination key of Storing and Displaying

(a) In the measuring mode,press it in a short time(<1.5s) to store the measuring data, press in a long time(＞2s) to display the stored measuring data.

(b) When in the parameter setting state, press it to change the number or ON/OFF state.

3.3. The Storing, Displaying and Clearing of the Measuring Information:

3.3.1. Store the measuring information:

In the measuring mode, when the measuring data is stable and appears the "☺", short-time press M+/RM key(＜1.5s), LCD will display " M+ " icon and stored serial number, and meanwhile store all the measuring information. Meter can separately store 100 groups of measuring information in the mode of pH, mV, conductivity and dissolved oxygen, thus totally it can store 400 groups.

3.3.2. Display measuring information:

(a) In the measuring mode, press M+/RM in a long time(>2s), meter will display the last stored information, the stored number and " **RM** " icon will appear in the lower right corner of the LCD, and the complete measuring information. Again press CAL or M+/RM key, meter will in turn display all the measuring information, press CAL or M+/RM key without releasing can make a quick query;

(b) In the displaying mode (there is " **RM** " and stored serial number in the upper right corner of the LCD), press ☼/ENTER key to return to the measuring mode.

3.3.3. Clear the stored measuring information:

In the displaying mode, press ☼/ENTER in a long time(about 5s) , LCD will appear "CL" for 2 seconds. It means the memory has been cleared, then it will return to measuring mode.

4. pH Measurement:

4.1. Preparation Work:

Press ON/OFF key to turn on the meter. Plug the 201T-S pH/ATC three in one combination pH electrode into meter's socket, the meter automatically switches to the ph measuring mode.

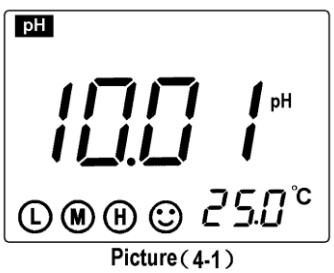
4.2. Meter Calibration:

4.2.1. Press CAL to enter into calibration mode, LCD displays the flickering " C1 " indicating to enter into the first point calibration.

4.2.2. Wash the pH electrode in purified water and shake off the water, then insert it into the pH7.00 buffer solution, stir the electrode and then let it still, waiting for the data stable and " ☺ " appearing, then press CAL key, the LCD will appear a flickering 7.00 pH, calibration finishes after several seconds and appear a stable pH value and a flickering "C2 ", indicating the first point calibration has been finished and the meter enters into the second point calibration.

4.2.3. Wash the pH electrode in purified water and shake off the water, then insert it into the pH4.00 buffer solution, stir the electrode and then let it still, waiting for a stable data and " ☺ appearing, then press CAL key, the LCD will appear a flickering 4.00pH, calibration finishes after several seconds, LCD will appear a stable pH value and a flickering " C3 ", indicating the second point calibration has been finished and and it will enter into the third point calibration.

4.2.4. Wash the pH electrode in purified water and shake off the water, then insert it into the pH10.01 buffer solution, stir the electrode and then let it still, waiting for the data stable and " ☺ " appearing, then again press CAL Key, LCD



Picture(4-1)

will appear a flickering 10.01 pH, calibration finished after several seconds, and it will appear a stable pH value and " Ⓛ Ⓜ Ⓗ " three calibration indicating icon, see picture (4-1), indicating the three-point calibration has been finished and meter enters into measuring mode.

4.2.5. Note:

(a) This meter can adopt randomly one-point, two-point or three-point automatic calibration, after the first point calibration (see item 4.2.2.), press ENTER to confirm one-point calibration and the meter enters into measuring mode. The indication icon " Ⓜ " for one-point calibration will appear on the lower left corner of LCD. When the measuring accuracy is ≤±0.1pH, user just need to choose one kind buffer solution to take one-point calibration according to the measuring range.

(b) After the second point calibration, (see item 4.2.3.), press ENTER to confirm two-point calibration and the meter enter into measuring mode. The indication icon 'Ⓛ Ⓗ' for tow-point calibration will appear on the lower left corner of LCD. User can choose pH4.00 and pH7.00 to calibrate if the measurement is just within the acidity range and can choose pH7.00 and pH10.01 to calibrate if just within the alkalinity range.

(c) User should choose three-point calibration so as to reach a more accurate measurement if the measuring range is wide, or if the electrode has been used for long or has ageing phenomenon. As to the new electrode which is used for the first time, it must be calibrated by three-point calibration to adjust the curve slope in the meter to be same with that of the pH electrode.

4.3. Sample Test:

Immerge pH electrode into the sample solution after washing and dry it, stir the electrode holder and let it still, when the measuring value stable and appearing " ☺ ", take the reading, the value is the right one of the sample solution pH .

Note: According to the pH equal temperature measuring theory: the closer the temperature of the sample solution with the calibration solution, the more accurate the measuring value will be achieved. So please comply with this theory.

4.4. Parameter Setting:

4.4.1. pH measuring parameter setting Table (Table (4-1))

Table (4-1)

Prompt	Parameter Setting Items	Code	Parameters
P1	pH buffer solution series selection	SOL	USA (Europe & U.S.A series) NIS (NIST series) CH (China series)
P2	Purified water pH temperature compensation setting	PU 1	OFF-On (shut-set)
P3	Ammonia added purified water pH temperature compensation setting	PU 2	OFF-On (shut-set)
P4	Temperature unit setting		℃ ℉
P5	Back light display time	bL	0-1-3-6min
P6	Auto power off setting	AC	0-10-20min
P7	Restore to default setting		OFF-On (shut-set)

4.4.2. pH buffer solution series selection (P1)

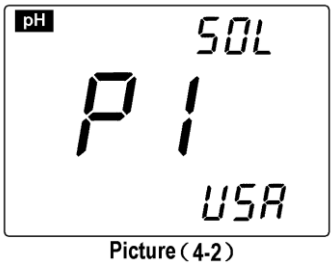
(a) Press MODE key in a long time(>2s), meter enters into P1 mode: seepicture (4-2).

(b) Press CAL or M+/RM key to choose buffer solution series:

USA (Europe & U.S.A series) — 1.68, 4.00, 7.00, 10.01and 12.45 pH

n IS (NIST series) — 1.68, 4.01, 6.86, 9.18 and 12.45 pH

CH (China series) — 1.68, 4.00, 6.86, 9.18 and 12.46 pH

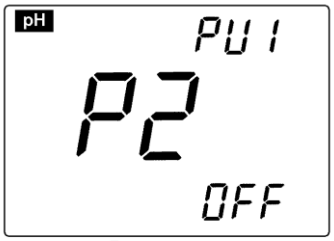


Picture (4-2)

(c) Press MODE key to enter into next parameter setting or press ☼/ENTER key to conform

and return to measuring mode.

4.4.3. Purified water pH temperature compensation setting (P2)



Picture (4-3)

(a) Short-time press MODE (<1.5s) in the mode P1, the meter enters into mode P2, see picture (4-3).

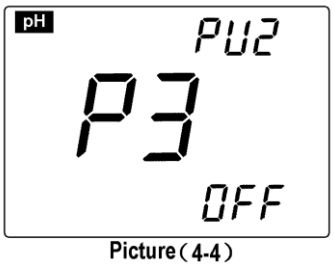
(b) Press CAL or M+/RM to choose " On " (purified water pH temperature compensation setting) or " OFF " (OFF).

(c) Press MODE key to enter into next parameter setting or press ENTER key to conform and return to measuring mode.

(d) The default setting is **" OFF "**.

Note: There will appear " PU 1 " icon in the upper right corner of the LCD if purified water temperature compensation function is set.

4.4.4. Ammonia added purified water pH temperature compensation setting (P3)



Picture (4-4)

(a) Short-time press MODE key in mode P2 to enter into mode P3, see picture (4-4).

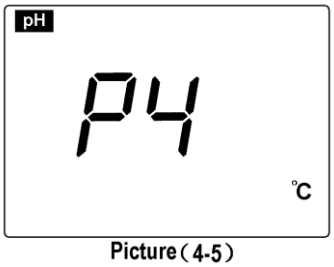
(b) Press CAL or M+/RM key to choose " On " (ammonia added purified water pH temperature compensation setting) or " OFF " (OFF).

(c) Press MODE key to enter into next parameter setting or press ENTER key to conform and return to measuring mode.

(d) The default setting is **" OFF "**.

Note: If set the ammonia purified water pH temperature compensation function, there will appear " PU 2 " icon in the right upper corner of the LCD when in the measuring mode.

4.4.5. Temperature unit ℃/℉ setting (P4)



Picture (4-5)

(a) Short-time press MODE key in mode P3 to enter into mode

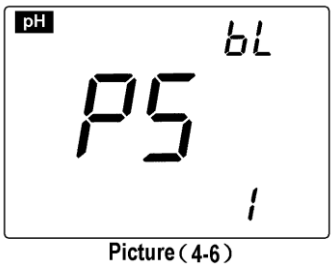
P4, see picture (4-5).

(b) Press CAL or M+ RM key to choose temperature unit: ℃or℉.

(c) Press MODE key to enter into next parameter setting or press ENTER key to conform and return to measuring mode.

4.4.6. Back light display time setting (P5)

(a) Short-time press MODE key in mode P4 to enter into mode P5, see picture (4-6).



Picture (4-6)

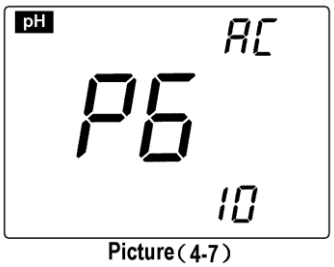
(b) Press CAL or M+ RM key to choose the time of back light auto power off: 0 min, 1 min, 3 min or 6 min. The back light display function will be closed if choosing a 0 min.

(c) Press MODE key to enter into next parameter setting or press ENTER key to conform and return to measuring mode.

(d) The default setting for P5 is 1min.

4.4.7.Auto power off time setting (P6)

(a) Short-time press MODE key in mode P5 to enter into mode P6, see picture (4-7).



Picture (4-7)

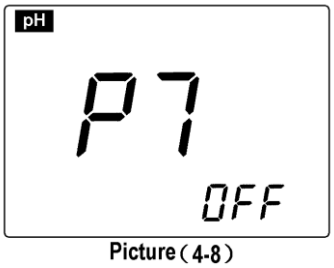
(b) Press CAL or M+ RM key to choose the time: 0min, 10min or 20min. The auto power off function will be closed if choosing 0min.

(c) Press MODE key to enter into next parameter setting or press ENTER key to conform and return to measuring mode.

(d) The default setting for P6 is 10min.

4.4.8. Restore to default setting (P7)

(a) Short-time press MODE key in mode P6 to enter into mode P7, see picture (4-8).



Picture (4-8)

(b) Press CAL or M+/RM key to choose “ On”, meaning that the parameters have been restored to the default setting mode, and the meter will restore to measuring mode after 2 seconds.

4.5. Considerations:

4.5.1.Calibration times of meter relies on the sample, electrode performance and required accuracy. For high accurate measurement (≤±0.02pH), which should be calibrated in time with high accurate standard buffer solution, for general accuracy measuring (≥±0.1pH), which can be used almost one week or long time once be calibrated.

4.5.2. The meter must be recalibrated in the following situations:

(a) New changed or unused electrode for a long time;

(b) After measuring acid (pH<2) or alkaline (pH>12) solution;

(c) After measuring solution which contains fluoride and concentrated organic solution;

(d) The solution’s temperature is much different with calibration temperature.

4.5.3. The soaking solution in the protecting bottle of front pH electrode is to keep the glass bulb and junction activating. Loose the capsule, pull out the electrode and wash it in purified water before measuring. Insert the electrode and screw tight the capsule after measuring to prevent the solution leaking. If the soaking solution is turbid or moldy, please wash and change a new one at once.

4.5.4. The preparation of the soaking solution: take 25g analytical pure KCL, dissolved with purified water and dilute to 100mL. Electrode should avoid soaking in purified water protein solution and acid fluoride solution for a long time as well avoid getting touching with organic silicon lipidic matters.

4.5.5. To calibrate the meter with the given value pH buffer solution, the pH value of the standard buffer solution must be reliable so as to improve the accuracy. Buffer solution should be changed in time after many times using.

4.5.6. Always keep the meter clean and dry, especially for the socket of meter and electrode, otherwise it may lead to an inaccurate measurement or invalidity. To clean and dry them with medical cotton with dehydrated alcohol if there are any dirty.

4.5.7. The sensitive glass bulb in the front of combination electrode should not touch with hard things, any broken and rough will make the electrode invalidity. Before and after measuring, the electrode should be washed with purified water, and dry electrode after washing, don't clean glass bulb with tissue for it will effect stability of electrode potential and enlarge response time. The electrode should be washed many times for removing the sample stuck on the electrode, or wash with suitable solvent then clean the solvent with purified water after measuring sticky sample.

4.5.8. An electrode be used for a long time, or measured solution which contains a polluting solute easily for the sensitive bulb, or a substance resulting in jam at the junction, the electrode will be getting passivated, its sensitivity will decrease and its response is getting slow, the reading are not correct. It could adopt the following method for various cases:

(a) The glass bulb is contaminated and aging: Put the electrode into 0.1mol/L dilute hydrochloric acid (Preparation: diluted 9mL hydrochloric acid to 1000mL with purified water) for 24h. Rinse it with purified water, then dipped it into the electrode dipping solution for 24h. If the passivation is serious, then user can also put the bulb of electrode into 4% HF (hydrofluoric acid) or the electrode activation solution for 3 to 5 seconds, rinsing it with purified water, and dipped it in the electrode soaking solution for 24h to renew it. Note: the electrode activation solution is available in our company.

(b) Wash for contaminated glass bulb and junction: (For reference)

Contamination	Abluent
Inorganic metal oxide	diluted acid less than 1mol/L

Organic lipidic matter	dilute washing (weak alkaline)
Resin macromolecule matter	dilute alcohol, acetone, ether
Proteinic haematocyte sediment	Acidic enzymatic solution (such as dried yeast)
Kinds of paint	dilute bleacher, peroxide

4.5.9. pH electrode using period is about 1 year, but its life will be shortened if using condition is poor or incorrect maintenance. So it should be replaced immediately after electrode become aging or invalid.

4.5.10. When it appears an abnormal reading when calibration or displaying, please set P7 as "ON" to restore the meter to default setting mode, and then to calibrate and measure again.

4.6. The Self-diagnose Information:

When using, there might be appearing some icons,they are the meter's self-diagnose information, which can help to know some information about the meter or the electrode when using:

4.6.1. The stable icon -2.00 pH or the 19.99 pH — this icon appeares when the value has surpassed the measuring range. There will also appear such signs when the electrode is not well connected with the meter or when the electrode is not immerged into the solution. This is a normal phenomenon.

4.6.2. "Err 1" — Electrode zero potential to be exceeded (<-60mV or >60mV)

4.6.3. "Err2" — Electrode slope to be exceeded (< 85% or >105%)

When appears "Err 1" or "Err2", the meter can not work, please take the following check:

(a) Check if the electrode bulb has air bubble, if has, please shake it hardly.

(b) Check the quality of buffer solution, if it goes bad or the value has biggish error.

(c) Set the meter to default setting mode (for details see P15 item 4.4.8.), then recalibrate

it.

If still can not recover the normal state after doing the above checking, please replace a new pH electrode.

5. mV Measurement:

5.1. Sample test:

5.1.1. In pH measuring mode, short-time press MODE to switch to mV mode;

5.1.2. In other measuring mode,plug the model 301Pt-S ORP combination electrode (Sold Separately） into mete's corresponding socket, the meter automatically switches to the **mV** measuring mode, insert the probe into the sample solution, stir and then let it still. When it appears " ☺ " and a stable reading, that is the ORP value or the potential of the ion electrode.

5.2. Parameter Setting:

5.2.1. mV measurement parameter setting Table (Table (5-1))

Table (5-1)

Prompt Mark	Parameter Setting Items	Code	Parameters
P1	Back light display time setting	bL	0 -1-3-6 min
P2	Auto power off time setting	AC	0 -10-20 min

5.2.2. Back light display time setting (P1)

Press MODE key in a long time until the meter entering into mode P1, see detailed information in P16 item 4.4.6.

5.2.3. Auto power off time setting (P2):

In P1 mode, short-time press MODE key, the meter enters into mode P2, see detailed operations in P16 item 4.4.7.

6. Conductivity Measurement:

6.1. Preparation Work:

6.1.1. Press ON/OFF key to turn on the meter; connect the 2301-S conductivity electrode with the meter, the meter automatically switches to the Conductivity measuring mode.

6.1.2. Press ENTER key without releasing to show

TDS (Total Dissolved Solid) → SAL (Salinity) → RES (Resistivity) → COND (Conductivity) in turn, and release the key when selection chosed.

6.2. Electrode Calibration:

Press CAL key, " CAL " is flickering on the LCD, indicating into the calibration mode, and wash the conductivity electrode with purified water and shake off water, then insert it into the 1413μS/cm calibration solution, stir it and let it still, when " ☺ " icon appears, meaning the display values is stable and again press CAL key, LCD will display flickering "1413μS/cm ", several seconds later the " End " icon will appear and return to the measuring mode, at this time, LCD will display stable measuring value 1413μS/cm and calibration icon " Ⓜ ", indicating the calibration is finished. If measuring value is unstable, user can repeat calibrating steps until it is stable.

Note: Meter only can be calibrated under the mode of COND, and can not be calibrated in mode of RES , TDS and SAL , it must be switched to COND mode, and it need to switch back to the previous mode after finishing calibration.

6.3. Sample Test:

6.3.1. Wash the conductivity electrode and shake off the water on it, then insert it into the solution, still it after stirring, and take the reading after " ☺ " appears, which is the conductivity values of this solution.

6.3.2 Press ENTER key without releasing can display the value of the TDS, salinity or resistivity value which against the conductivity value in turn.

6.4. Important Statement:

6.4.1. Two below kinds of calibration solution series are stored in this meter, and can be set up in the parameter P1;

(a) USA (Europe & U.S.A. series) — 84μS/cm, 1413μS/cm, 12.88mS/cm and 111.9 mS/cm

(b) CH (China series) — 146.6μS/cm, 1408μS/cm, 12.85mS/cm and 111.3 mS/cm

6.4.2. This meter has an unique one-point calibration function, to choose the calibration solution based on the principle of the water samples and calibration solution conductivity as close as possible, in general the most common calibration solution is 1413 μS/cm. Use the equipped 2301-S conductivity electrode (K = 1 cm^{-1}), and do calibrate with 1413 μS/cm calibration solution, can use within the range of less than 200 mS/cm. Please refer to the Table (6-1).

Note : When you choose to use DJS-0.1-S conductivity electrode (optional accessories, K=0.1 cm^{-1} , no temperature element), you can install the meter Manual Temperature Compensation model: long time press MODE (press time more than 2s), at this time, the value of temperature is twinkling, press CAL or M+ RM to change the value of temperature and then press ☼ ENTER is ok.

Table (6-1)

Measuring range	0.05 to 20μS/cm	0.5μS/cm to 200mS/cm		
Electrode constant	K=0.1cm^{-1}(flow test)	K=1.0cm^{-1}		
Calibration solution	84μS/cm	84μS/cm	1413μS/cm	12.88 mS/cm 111.9 mS/cm
Calibration indication icon	Ⓛ	Ⓛ	Ⓜ	Ⓗ

6.4.3. There are two kinds of method, one is standard solution calibration and the other is constant calibration method for conductivity electrode calibration which have been set

in meter, the statement in item 6.2.“electrode calibration” is the standard calibration method, and when the accuracy of standard solution is accurate then suggest the standard solution calibration method is priority selected, it can ensure the best accuracy. If user used to use constant calibration method, please set the electrode constant in the parameter set of P5. (see P25 item6.5.6.). The two methods can choose freely and won’t influence each other. When adopting the constant calibration method, LCD won’t display the calibration indicator symbol.

6.4.4. The default temperature compensation coefficient of the meter setting is 2.00%/℃. However, the conductivity temperature coefficient is different for solution of different variety and concentrations, the user can refer Table (6-2), as well as the data which they own get in the experiment, to set in the parameters setting of P4. At the same time, meter will do automatic non-linear temperature compensation in the high purified water which less than 10 μ S / cm.

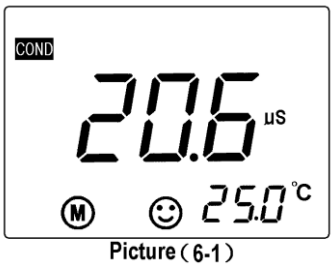
Note: When the coefficient of temperature compensation is set to be 0.00, that is, there is no temperature compensation when testing, the measuring value based on current temperature.

Table (6-2)

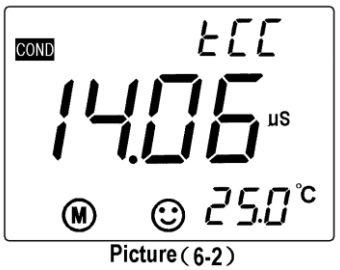
Solution	Temperature compensation coefficient
NaCl salt solution	2.12%/℃
5%NaOH solution	1.72%/℃
Dilute ammonia solution	1.88%/℃
10% hydrochroric acid solution	1.32%/℃
5% sulfuric acid solution	0.96%/℃

6.4.5.The other parameters setting, please see the Table (6-3)

6.4.6. Special attention: when the content of parameter setting is consistent with content of default setting, conductivity measuring interface will display as picture (6-1). when the content of parameter setting is different with content of default setting, conductivity measuring interface will display as picture (6-2), the code icon will appear on the upper right of LCD, when parameters with code icon to be set more than two, LCD just display one of the code symbols, user should enter into the parameter setting interface and carefully check the contents of setting or restore the meter to default setting and again set needed parameters.



Picture（6-1）



Picture（6-2）

6.5. Parameter Setting:

6.5.1. Conductivity measuring parameter setting Table (Table (6-3))

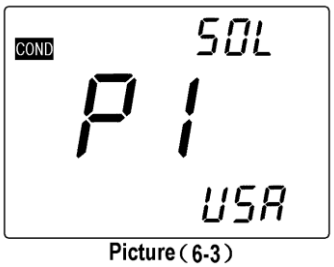
Table (6-3)

Prompt Mark	Parameter Setting Items	Code	Parameter
P1	Standard solution series selection	SOL	USA (84μS/cm, 1413μS/cm, 12.88 mS/cm, 111.9 mS/cm) CH (146.6μS/cm, 1408μS/cm, 12.85mS/cm, 111.3mS/cm)
P2	Electrode constant selection	Con	0.1, 1, 10
P3	Benchmark temperature selection	rEF	25℃ 20℃ 18℃
P4	Temperature compensation coefficient setting	tCC	0.00 to 9.99%
P5	Electrode constant setting	CC	
P6	Temperature unit setting		℃ ℉
P7	Back light display time	bL	0-1-3-6min

	setting		
P8	Auto power off time setting	AC	0-10-20min
P9	Restore to default setting		OFF-On

6.5.2. Conductivity calibration solution series selection (P1)

(a) Press MODE key in a long time to let the meter enter into P1 mode, see picture (6-3);



Picture (6-3)

(b) Press CAL or M+/RM key to choose the standard solution series:

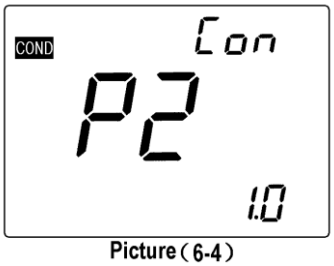
USA — Europe & U.S.A. series CH — China series

(c) Press MODE key to enter into the next parameter setting or press ENTER key to return to measuring mode.

6.5.3. Electrode constant selection (P2)

(a) Under P1 mode, short-time press MODE key to let meter enter into P2 mode, see picture (6-4);

(b) Press CAL or M+/RM key to change the constant setting: 0.1→1.0→10.0.



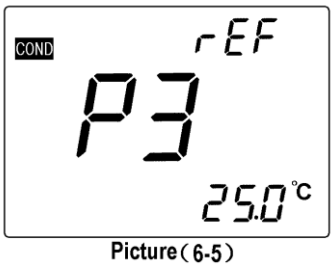
Picture (6-4)

(c) Press MODE key to enter into the next parameter setting or press ENTER key to return to measuring mode.

(d) The default setting of P2 is K=1.0.

6.5.4. Benchmark temperature selection (P3)

(a) Under P2 mode,short-time press MODE key to let the meter enter into the P3 mode, see picture (6-5);



Picture (6-5)

(b) Press CAL or M+/RM key to choose the benchmark temperature: 25℃→20℃→18℃;

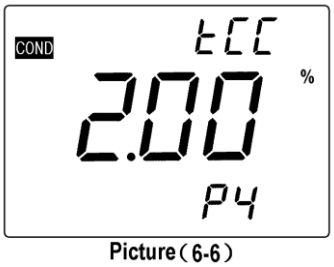
(c) Press MODE key to enter into the next parameter setting or press ENTER key to return to measuring mode.

(d) The default setting of P3 is 25℃.

Attention: If change the benchmark temperature to 20℃ or 18℃, the LCD will display " rEF " icon in the upper-right corner when in measuring mode.

6.5.5. Temperature compensation coefficient setting (P4)

(a) Under P3 mode,short-time press MODE key to let the meter enter into P4 mode, shown as the picture (6-6);



Picture (6-6)

(b) Press CAL or M+/RM key to change the number, the changing range of data is from 0.00 to 9.99; Press CAL or M+/RM without releasing to quickly change.

Attention: When the number set as 0.00, means there is no temperature compensation, for details please see P21 item 6.4.4;

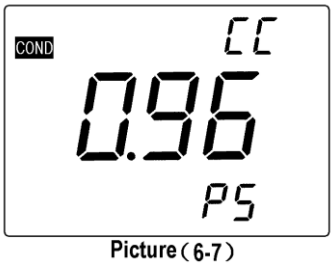
(c) Press M+/RM key to enter into the next parameter setting or press ENTER key return to measuring mode.

(d) The default setting of P4 is 2.00%.

Attention: If change the temperature coefficient to other numerical value, upper-right corner of LCD will display " tCC " icon when in measuring mode.

6.5.6. Constant calibration setting (P5), please refer to P19 item 6.4.3.

(a) Under P4 mode,short-time press MODE key to let the meter enter into P5 mode, LCD displays last calibration constant. For example the 0.96cm^{-1} shown as picture (6-7);



Picture (6-7)

(b) Press CAL or M+/RM key to change number when the number is flickering, and set the constant according to that marked on the housing of conductivity electrode.

(c) Press MODE key to enter into the next parameter setting or press ENTER key return to measuring mode.

(d) If need to do calibration for other conductivity electrode which constant is not 1, such as conductivity electrode with constant 10.3, it should enter into constant setting P2 to set the constant to be "10", then enter into P5 mode to change the constant to be 10.3.

6.5.7. Temperature units ℃/℉ selection (P6)

Under P5 mode,short-time press MODE key to let the meter enter into P6 mode, other operations please refer to P15 item4.4.5.

6.5.8. Back light display time setting (P7)

Under P6 mode to short press MODE key to enter into P7 mode, other operation please refer to P16 item 4.4.6.

6.5.9. Auto power off time setting (P8)

Under P7 mode, short-time press MODE key to enter into P8 mode, other operation please refer to P16 item 4.4.7.

6.5.10. Restore to default setting (P9)

Under P8 mode, short-time press MODE key to enter into P9 mode, other operation please refer to P16 item 4.4.8.

6.6. Considerations:

6.6.1. The conductivity electrode has been calibrated before meter leaving factory, user can directly use it under normal circumstance;

6.6.2. Recommend calibrating one time every month under the normal circumstances; It is necessary to calibrate the newly purchased conductivity electrode or used after a period time;

6.6.3. Keeping the conductivity electrode clean and wash it with purified water, then throw off the water on it before and after testing. It's better to rinse electrodes with sample solution;

6.6.4. The surface of 2301-S conductivity electrode is plated with a layer of metal platinum

black to used as lowering the electrode polarization, enlarge measuring range, so can not polish the surface of platinum black, only can wash it in water by shaking, in case to damage the platinum black coating; for organic stained things can be washed with hot water with detergent or alcohol.

6.6.5. Conductivity electrode before use can be immersed in water, to prevent the platinum black to be passivated, if found the platinum black plated electrode is invalid, can immerse it into 10% nitric acid solution or 10% hydrochloric acid for 2 minutes, then rinse with purified water and again test. If the situation does not improve, then need to replace platinum black, or replacing a new conductivity electrode.

6.6.6. When it appears an abnormal reading when calibrating or displaying, please set P9 as "ON" to make the meter restore to default setting mode, and then do calibrate and measure again

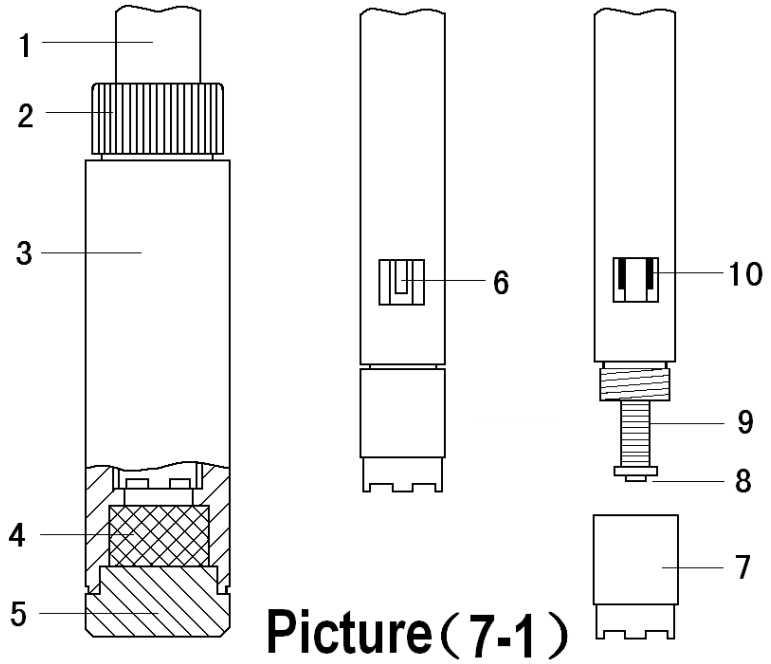
7. DO Measurement:

7.1. Preparation Work:

7.1.1. Check the DO500 DO electrode: see picture (7-1), screw off the bottom lid of electrode calibration cover, check whether the water stored sponge inside is soaked. If it is not soaked, please drop some appropriate purified water, then upside down the calibration cover to remove of rest purified water (Attention: no stored water in calibration cover); repeatedly inspect the electrolyte within electrode membrane cap can't have air bubbles (except the smaller air bubbles). If there are lager air bubbles, please screw off the membrane cap and add electrolyte and screw on.

7.1.2.Press ON/OFF key to turn on meter to enter into " DO " mode, then connect the electrode into meter to polarize for 5 minutes.

7.1.3. Choose the units: press ENTER to choose unit: mg/L, ppm and %; then release.



Picture（7-1）

1— DO500 DO electrode
2 — Calibration cover cap
3 — Calibration cover
4 — Water stored sponge
5 — Calibration cover bottom lip
6 — Temperature electrode
7 — Membrane cap
8 — Cathode (gold slice)
9 — Anode
10 — Salinity electrode

7.2. Meter Calibration:

7.2.1. Press CAL key, the meter enters into calibrate mode, upper-right corner of LCD will display a flickering "CAL". Access the DO electrode to calibration cover, and plug the cap of calibration cover tightly, place vertically to polarize 3 to 5 minutes, or taking electrode out, upright place in air to wait for 3 to 5 minutes, after the display values is stable and when appear the "☺" icon, again press CAL key to calibrate. LCD will display flickering 100%, the calibration is finished after several seconds and return to the measuring mode. If the display value is unstable, please polarize it several minutes and again press CAL key until the calibrate value is completely stable.

7.2.2. It is suggested to shift the unit to " % " when calibrating for the display value of

“ % ” mode is unrelated to temperature. The stable display value is always 100%.

7.3. Water Sample Test:

7.3.1. To measure in the flowing water (water sample velocity of flow >5cm/s): Insert the DO electrode into water, water surface should excess location of the thermistor which is on the electrode, the direction for electrode and water is 45°to 75°angle, and swing slightly the electrode, then hold 3 to 5 minutes to take the reading after stable displayed.

7.3.2. To measure in static water: Insert DO electrode into water, water surface should excess location of the thermistor, the direction for electrode and water is 45°to 75°angle, quickly remove the electrode in water, The remove speed is >5cm/s, hold 3 to 5 minutes to take the reading after stable displayed;

7.3.3. To test in the slower flowing water: according to the method of item 7.3.1.,but the remove speed of electrode should be faster.

7.4. Considerations:

7.4.1. The air temperature and water temperature should closer when test (≤10℃), if it is biggish different, please immerse the electrode into the sample water for about 10 minutes, then insert the electrode into the calibrate cover for 5 to 6 minutes according to item 7.2.1 and press the CAL key to do calibration.

7.4.2. After each start-up meter must be carried out as required electrode polarization and calibration, so do not turn off the meter while using (when in the DO mode, the time for default setting for auto power off is 0).

7.4.3. During DO test, temperature effects a lot on measuring value, because the thermistor of DO electrode is installed on the electrode housing, direct touches with water, not equips in the electrolyte of internal electrode, both of them have difference for sensibility on the water temperature, generally will need 3 to 5 minutes to make the

thermistor temperature and the electrolyte within electrode of the actual temperature reached unanimity, so the reading time must be > 3 minutes, or else they would have a greater error, especially when the electrode temperature and water temperature has larger difference, will need to extend the reading time;

7.4.4. DO measurement also can be affected by Barometric pressure, and has biggish inaccuracy (please see Table V and Ⅵ). This meter has automatic Barometric pressure compensation function, and the measuring value has been amended by the Barometric pressure compensation.

7.4.5. DO electrode can not be static test in the static water, otherwise it will lead the results to be lower.

7.4.6. When measuring, there can not have any bubbles for DO electrode and the sensitive membrane which touches with water, otherwise will affect measuring accuracy.

7.4.7. Electrode within the electrolyte can not have air bubbles (except for the smaller air bubbles), otherwise it will affect the response speed and accuracy. If a large air bubble, should screw out membrane cap, then add the electrolyte and membrane cap is screwed up;

7.4.8. Should keep the surface of DO electrode to be wet to prevent the cathode electrolyte withered, there is a piece of water stored sponge in calibration cover bottom, see picture (7-1), user must always maintain a moist sponge when the sponge is dried should be dropping some water on it (Let sponge saturated absorption, but you can not have a water flow). And tightly twist electrode cap, dissolved oxygen electrode should be kept in humid conditions.

7.4.9. The salinity electrode be installed in DO electrode (see picture (7-1)), the surface is plated with a layer of metal platinum black to reduce electrode polarization. The surface of platinum can not be rubbed. It only can be washed by shaking in water in

case of damaging the platinum black coating. Wash the organic component pollution with tepid water containing detergent or with alcohol.

7.4.10. When it is abnormal for calibrating or displaying, please set the mode P7 to be "On" to restore meter to default setting state, and then do calibrate and measure.

7.5. Parameter Setting:

7.5.1. DO parameter setting Table (Table (7-1))

Table (7-1)

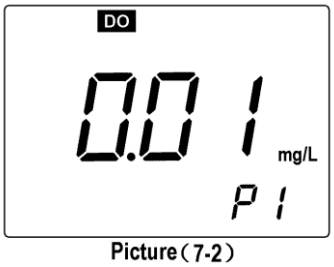
Prompt Mark	Parameter Setting Items	Code	Parameter
P1	Resolution selection		0.01/0.1(mg/L and ppm) 0.1/1(%)
P2	Salinity calibration		
P3	Barometric pressure setting		
P4	Temperature unit setting		℃ ℉
P5	Back light display time setting	bL	0-1-3-6 min
P6	Auto power off time setting	AC	0-10-20 min
P7	Restore to default setting		OFF-On (shut-set)

7.5.2. Resolution selection (P1)

(a) Press MODE key to enter into P1 mode, see picture (7-2);

(b) Press CAL key to choose resolution: 0.01→0.1;

(c) Press MODE key to enter into the next parameter setting or press ☼ ENTER to return to the measuring interface.

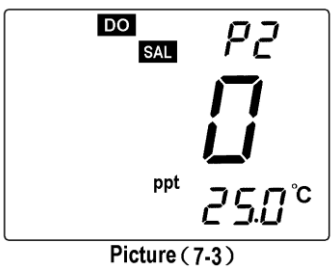


Picture (7-2)

7.5.3. Salinity calibration setting (P2)

(a) Under P1 mode, press MODE key to enter into P2 mode, shown as picture (7-3).

(b) Insert the DO electrode into 12.88mS/cm calibration solution, solution level should excess salinity electrode, still



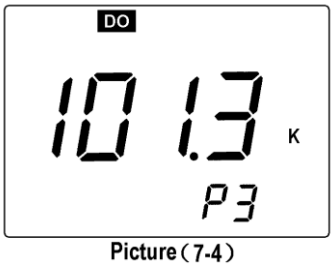
Picture (7-3)

it a CAL ring, then press the key when the value to be stable appears an icon “ ”, the LCD displays a flickering “12.9”. The calibration is finished after several minutes and displays a stable salinity value.

(c) Press MODE key to enter into the next parameter setting or press ENTER key to confirm and return to the measuring mode.

7.5.4. Barometric pressure setting (P3)

(a) Under mode P2, press MODE key to enter into P3 mode, the LCD displays the barometric pressure measuring value set earlier (unit is kPa), such as 101.3kPa, shown as picture (7-4).



Picture (7-4)

(b) Press CAL or M+/RM to alter according to standard Barometric pressure table, and press the CAL or M+/RM in a long time to quickly change the value.

(c) Press MODE key to enter into next parameter setting or press ENTER key to confirm and return to measuring mode.

7.5.5. Time unit℃/℉ selection (P4)

Under P3 mode,short-time press MODE key to enter into P4 mode, the other operations, please refer to P15 item 4.4.5.

7.5.6. Time setting for back light display (P5)

Under P4 mode, short-time press MODE key to enter into P5 mode, the other operation, please refer to P15 item 4.4.6.

7.5.7. Time setting for auto power off (P6)

Under P5 mode to short press MODE key and enter into P6 mode, the other operation, please refer to P15 item 4.4.7.

Note: The default setting for DO measurement mode is 0, that is, the function of auto power off is closed.

7.5.8. Restore to default setting (P7)

Under P6 mode,short-time press MODE key to enter into P7 mode, the other operation, please refer to P16 item 4.4.8.

7.6. Change the Membrane Cap:

When electrode response time to be longer, and displaying value appear obviously error, or when sensitive membrane of DO electrode has a wrinkle, crack or damaged, should replace a membrane cap according to the following steps.

(a) Loose the membrane cap and remove;

(b) Wash the electrode without membrane cap with purified water and throw off the water on it.

(c) Polish lightly on cathode surface (gold slice) with a piece of clear velvet or tissue;

(d) Inject electrolyte into a new membrane cap slowly and do not has any air bubbles appeared. After injected, should check the electrolyte to see whether there are air bubbles in it. If found there are air bubbles, please carefully knock on the membrane cap to dispel them.

(e) Put membrane cap on the table and set in the electrode vertically, slowly clockwise twist, then twist tightly. Temporality, redundant electrolyte will squeeze out, please wipe it out with tissue and clear it in the purified water.

(f) Check there is no air bubbles in electrolyte (beside the smaller air bubbles), otherwise, re-assembly is needed.

(g) No touching the sensitive membrane when use the electrode and replace the membrane cap for the sweat and grease will effect the quality of membrane and decrease the rate of oxygen permeability.

7.7. Zero Oxygen Calibration:

Generally need to do zero oxygen calibration in the situation of replacing electrode,

replacing membrane cap, and long time without using. Usually it's not need to do zero oxygen calibration. The meter has already been made zero oxygen calibration before leaving factory, so for the initially use, needn't to be calibrated. To do zero oxygen calibration by following below steps:

(a) Preparing 100mL anaerobic water: In 100 mL beaker add 5g anhydrous sodium sulfite (Na_2SO3), plus 100 mL purified water stir to dissolve, anaerobic water is effective within 24 hours.

(b) To polarize electrode by connecting it into meter for 15min, and to do calibration according to the item 7.2.1;

(c) Put the electrode into anaerobic water, press CAL key to make meter enter into calibration mode, when displaying value is ≤ 0.15mg/L (≤5min), again press CAL key to calibrate, then the LCD displays a flickering 0.0%, the calibration finishes after several seconds and the meter displays 0.00 mg/L, then wash the electrode with purified water;

(d) If the meter displayed value ≤0.02mg/L within 5 minutes, means the response speed of meter and residual current are good, need not to do zero oxygen calibration, press ENTER key to return to measuring mode.

(e) If the value of meter is displayed as >0.15 mg/L after 5 minutes, means the response speed of meter is slow and large residual current, at this time can change the membrane cap or remove the membrane cap and take out the polishing paper in the accessories to lightly wipe the catholic of gold plane (to the surface along the arc of gold-polished), and clean surface of cathode with soft cloth to tissue), and wash electrode with purified water and throw off the water on it. Add some electrolyte into the membrane cap, re-assembly and screw tightly, then to do full scale and zero oxygen calibration according to item 7.2. and 7.7.

7.8. Salinity Calibration:

The meter has salinity automatic compensation, but this salinity calibration is just need to apply in replacing a new electrode and long-time without using. In general do not need to do salinity calibration. The meter has already been made salinity calibration before leaving factory, so it is no need to do salinity calibration for fist time using. For the procedure of salinity calibration, please refer to P31 item 7.5.3.

7.9. Barometric pressure Setting:

The meter has the function of manual barometric pressure compensation. It is suggested to reset the value according to the standard barometric pressure table when there is a biggish change of barometric pressure while using to ensure the accuracy of barometric pressure compensation. For the procedure of barometric pressure calibration, please see P32 item 7.5.4.

8. Meter's Complete Kit:

8.1. Model EC900 pH/mV/Conductivity/DO meter	1 set
8.2. 201T-S plastic pH/ATC three-in-one combination electrode	1 pc
8.3. 2301-S plastic conductivity electrode	1pc
8.4. DO500 DO electrode	1pc
8.5. pH standard buffer solution	1pk/each
(pH4.00, pH7.00 and pH10.01/50mL or 250ml buffer powder/bag)	
8.6. 1413μS/cm conductivity standard solution (50mL)	1btl
8.7. DO503 membrane cap (DO electrode use)	3pc
8.8. DO502 DO electrode inner solution (30mL)	1btl
8.9. Cathode polishing paper	2pcs

8.10. Screw driver	1pc
8.11. Spare AA batteries	2pcs
8.12. Operation manual	1pc
8.13. Carrying case	1pc

9. Warranty:

9.1. We warrant this meter to be free of charge maintain, replace the parts or products under normal using circumstances, from purchased time within one year caused by manufacturing bad and unable to work.

9.2. Attached electrodes do not belong to this warrant range. But, if the newly purchased electrode went wrong without using, it's free of charge to maintain and replace.

9.3. The above warranty is not apply to defects resulting from action of user such as misuse, improper wiring, operation outside of specification, improper maintenance or repair, or unauthorized modification.

Table I Meter Parameter Setting Table

Mode	Prompt Mark	Parameter Setting Items	Code	Parameter
pH	P1	pH buffer solution series selection	SOL	USA (Europe & U.S.A. series) NIS (NIST series) CH (China series)
	P2	Purified water pH temperature compensation setting	PU 1	OFF-On (shut-set)
	P3	Purified water added with ammonia pH temperature compensation setting	PU 2	OFF-On (shut-set)
	P4	Temperature unit seection		℃ ℉
	P5	Back light display time setting	bL	0-1-3-6min
	P6	Auto power off time setting	AC	0-10-20min
	P7	Restore to default setting		OFF-On (shut-set)
mV	P1	Back light display time setting	bL	0-1-3-6min
	P2	Auto power off time setting	AC	0-10-20min

Conductivity	P1	Standard solution series selection	SOL	USA(84μS/cm, 1413μS/cm, 12.88 mS/cm, 111.9 mS/cm) CH（146.6μS/cm, 1408μS/cm, 12.85mS/cm, 111.3 mS/cm）
	P2	Electrode constant selection	Con	0.1, 1, 10
	P3	Benchmark temperature selection	rEF	25℃ 20℃ 18℃
	P4	Temperature compensation coefficient setting	tCC	0.00 to 9.99%
	P5	Constant calibration setting	CC	
	P6	Temperature unit setting		℃ ℉
	P7	Back light display time setting	bL	0-1-3-6min
	P8	Auto power off time setting	AC	0-10-20min
	P9	Restore to default setting		OFF-On (shut-set)
Dissolved Oxygen	P1	Resolution selection		0.01/0.1(mg/L and ppm) 0.1, 1(%)
	P2	Salinity calibration		
	P3	Barometric pressure setting		
	P4	Temperature unit selection		℃ ℉
	P5	Back light display time setting	bL	0-1-3-6min
	P6	Auto power off time setting	AC	0-10-20min
	P7	Restore to default setting		OFF-On (shut-set)

Table Ⅱ Meter Restore to Default Setting Table

Mode	Prompt Mark	Parameter Setting Items	Default Setting Content	Non Default Setting Content Icon
pH	P2	Purified water pH temperature compensation setting	OFF	PU 1
	P3	Purified water added with ammonia pH temperature compensation setting	OFF	PU 2
Conductivity	P2	Electrode constant type selection	K=1	Con
	P3	Benchmark temperature selection	25℃	rEF
	P4	Temperature compensation coefficient setting	2.0%	tCC

Table Ⅲ Code Icon and Abbreviation Table

Code and Abbreviation	English	Explanation
SOL	Solution	Standard solution
CH	China	China series standard
USA	USA	Europe & U.S.A series standard
n IS	NIST	NIST series standard
PU 1	Pure1	Purified water pH temperature compensation setting
PU 2	Pure2	Purified water added with ammonia pH temperature compensation setting
Con	Constant	Electrode constant setting
tCC	Temperature compensation coefficient setting	Temperature compensation coefficient setting
rEF	Temperature Reference	Benchmark temperature selection
CC	Constant Calibration	Electrode constant setting
End	End	
CAL	Calibration	
COND	Conductivity	
DO	Dissolved Oxygen	
RES	Resistivity	
TDS	Total Dissolved Solid	
SAL	Salinity	

Table Ⅳ Content of Saturated Oxygen in Water at Different Temperature

Temperature ℃	DO mg/L	Temperature ℃	DO mg/L	Temperature ℃	DO mg/L
0	14.64	16	9.86	32	7.30
1	14.22	17	9.66	33	7.18
2	13.82	18	9.46	34	7.07
3	13.44	19	9.27	35	6.95
4	13.09	20	9.08	36	6.84
5	12.74	21	8.90	37	6.73
6	12.42	22	8.73	38	6.63
7	12.11	23	8.57	39	6.53
8	11.81	24	8.41	40	6.43
9	11.53	25	8.25	41	6.34
10	11.26	26	8.11	42	6.25
11	11.01	27	7.96	43	6.17
12	10.77	28	7.82	44	6.09
13	10.53	29	7.69	45	6.01
14	10.30	30	7.56		
15	10.08	31	7.43		

Table Ⅴ Content of Saturated Oxygen at Different Barometric Pressure

Barometric pressure		Dissovled Oxygen Concentration (mg/L)		
mmHg	kPa	15℃	25℃	35℃
750	100.00	9.94	8.14	6.85
751	100.13	9.96	8.15	6.86
752	100.26	9.97	8.16	6.87
753	100.40	9.98	8.17	6.88
754	100.53	9.99	8.18	6.89
755	100.66	10.00	8.20	6.90
756	100.80	10.01	8.21	6.91
757	100.93	10.03	8.22	6.92
758	101.06	10.04	8.23	6.93
759	101.20	10.07	8.24	6.94
760	101.33	10.08	8.25	6.95
761	101.46	10.09	8.26	6.96
762	101.60	10.11	8.27	6.97
763	101.73	10.12	8.28	6.98
764	101.86	10.14	8.30	6.99
765	102.00	10.15	8.31	7.00
766	102.13	10.16	8.32	7.01
767	102.26	10.18	8.33	7.02
768	102.40	10.19	8.34	7.02
769	102.53	10.21	8.35	7.03
770	102.66	10.22	8.36	7.04
771	102.80	10.23	8.37	7.05
772	102.93	10.25	8.39	7.06
773	103.06	10.26	8.40	7.07
774	103.19	10.28	8.41	7.08
775	103.33	10.29	8.42	7.09

Conversion between mmHg and kPa: mmHg ×0.13333=kPa

$$DO_{pt} = P \times DO_t \div 760$$

Note: DO_{pt} — DO concentration under temperature t, barometric pressure P, mg/L;

P— Barometric pressure, mmHg;

DO_t — DO concentration under temperature t, barometric pressure 760mmHg, mg/L;

760 — Barometric pressure, mmHg.

Table Ⅵ Content of Oxygen at Different Altitude

Altitude		Barometric pressure		DO	Altitude		Barometric pressure		DO
Foot	meter	kPa	mmHg	mg/l	Foot	meter	kPa	mmHg	mg/l
0	0	101.3	760	8.25	7500	2287	77.1	579	6.28
500	152	99.34	746	8.09	8000	2439	75.63	568	6.16
1000	305	97.6	733	7.95	8500	2591	74.44	559	6.06
1500	457	95.87	720	7.81	9000	2744	72.97	548	5.94
2000	610	94.28	708	7.68	9500	2896	71.64	538	5.83
2500	762	92.54	695	7.54	10000	3049	70.17	527	5.71
3000	915	90.95	683	7.41	10500	3201	68.84	517	5.61
3500	1067	89.35	671	7.28	11000	3354	67.38	506	5.49
4000	1220	87.75	659	7.15	12000	3659	66.58	500	5.42
4500	1372	86.15	647	7.02	13000	3963	65.78	494	5.36
5000	1524	84.56	635	6.89	14000	4268	64.98	488	5.29
5500	1677	83.09	624	6.77	15000	4573	64.18	482	5.23
6000	1829	81.63	613	6.65	16000	4878	63.38	476	5.16
6500	1982	80.03	601	6.52	17000	5183	62.58	470	5.10
7000	2134	78.56	590	6.40	18000	5488	61.79	464	5.03