

Portable Water Quality Analyzer Series



Instruction Manual

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Instrument Overview

Sincerely thank you for choosing our portable water quality analyzer, we will wholeheartedly provide you with the best quality service. The instrument you purchased can support one of the detection items such as residual chlorine, total residual chlorine, chlorine dioxide, phosphate, ammonia nitrogen, ozone, etc. If you need to test other items, please contact our company.

Before you use this instrument, please read the instruction manual carefully to help you use and maintain it correctly. The company is committed to the improvement and development of products, and continuously upgrades the technology of products. The contents of the instructions are subject to change without prior notice.

The instrument is easy to operate and has high sensitivity. The instrument is small in size, light in weight, easy to carry, suitable for field and field use, and has the following notable features:

- Small size,light weight,protection grade IP65.
- Professional optical path design,good optical system stability.
- Small amount of samples and reagents need,fast analysis speed.
- With automatic shutdown and power saving function,long standby time.
- Clear display and easy operation.

This instrument is produced in strict accordance with the requirements of the ISO9001 2015 quality management system,and has been strictly tested and calibrated before leaving the factory.

Safety Warning

The test reagent are irritating, please do not directly touch the skin. Please wear gloves and protective glasses. If you come into contact with the chemicals, immediately wash with water. Pay special attention to the hazard information prompts, read the product instructions before use, and follow the instructions carefully. Failure to do so may result in injury to the operator or damage to the instrument. If you have any questions about reagents or operating procedures, please contact us.

Warning: Keep chemical reagents away from minors.

Hazard information prompts: this manual will use slogans (danger, warning, attention) to try to avoid the occurrence of hazards.

Danger: indicates the existence of a potentially dangerous situation, which, if not avoided, may cause death or serious injury.

Warning: indicates that a potentially dangerous situation may cause injuries.

Attention: indicates to notice special information.

Warning labels Please pay special attention to the labels attached to the instrument. If not noticed may cause damage to the operator or the instrument.

Technical Data

Instrument Test Item

Test Item	Model No.	Measuring range	Wavelength	Principle
Ammonia Nitrogen	LH-N11	0.1-10.00mg/L	420nm	Nessler's reagent photometry
Residual Chlorine	LH-C10F	0.05-10.00mg/L	520nm	DPD spectrophotometry
Total Chlorine	LH-C06F	0.05-10.00mg/L	520nm	DPD spectrophotometry
Chlorine Dioxide	LH-C03F	0.1-5.00mg/L	520nm	DPD spectrophotometry
Ozone	LH-D01F	0.05-2.50mg/L	520nm	DPD spectrophotometry
Phosphate	LH-P30F	0.00-2.00mg/L	620nm	Ammonium molybdate spectrophotometry

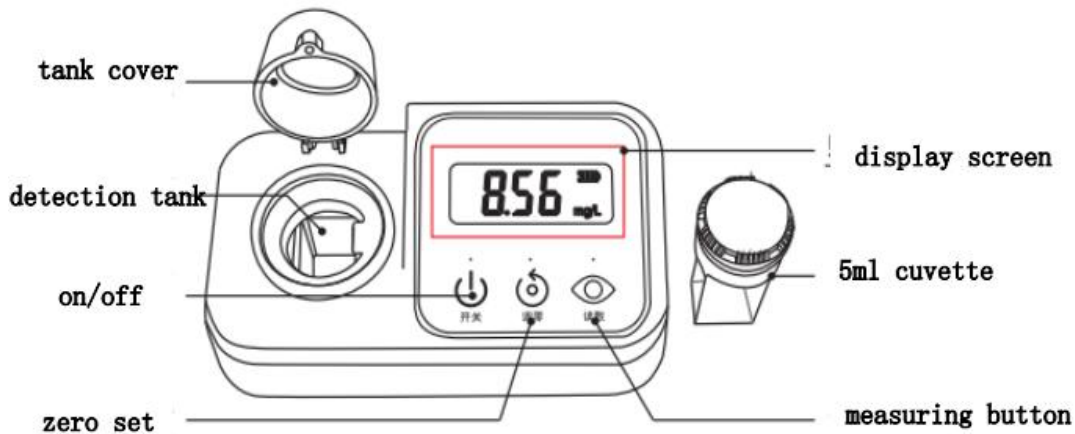
Instrument Specification

Light source	LED emitting diode
Accuracy	<1.0mg/L,error: ± 0.05 mg/L >1.0mg/L,error:< $\pm 5\%$
Battery capacity	24 hours plus(No turn off)
Size	128*70*48mm
Weight	188g(include battery)

Instrument Description

Instrument structure

The instrument is composed of plastic structure, electronic system, display screen, touch buttons and cuvette.



Instrument Diagram

Display icon	Function definitions
NIIF	When the instrument is turned on, the middle of the screen displays; it indicates the ammonia nitrogen detection item (take ammonia nitrogen as an example)
idle	Indicates that instrument is in standby
000	Indicates that instrument has been zero set or the concentration of the solution is 0.0
123	Indicates the current concentration value of the solution
mg/L	Indicates the unit of solution concentration
Battery icon	Indicates the current power of the instrument, and reminds to replace the battery when the space flashes
OFF	Turn off the instrument after long pressing the power button
HHHH	Indicates the detection value of the solution exceeds 20% of the upper limit of the range
Zero set icon	Zero set button
Power icon	Power button, long pressing switch ON/OFF

Precautions

- ◆ Indoor environment without direct sunlight,if not close the detection tank cover will not effect the test.Outdoor environment with direct sunlight,please close the detection tank cover.
- ◆ After adding the reagents, please complete the measurement within the specified time, otherwise the detection accuracy will be affected, and a small amount of reagents will not affect the detection.
- ◆ Any liquid or foreign matter entering the measurement basin may damage the instrument,please to wipe clean the basin.
- ◆ The reagent packaging bag is an easy-to-tear bag,which can be torn on any surface.
- ◆ When holding the colorimetric bottle, please hold the bottle lip.Before the colorimetric bottle is inserted into the detection slot, the surface of the colorimetric bottle must be cleaned with a lens-cleaning cloth.
- ◆ After each test, the colorimetric bottle needs to be cleaned, and the pipette needs to be cleaned several times. If the inner wall of the colorimetric bottle is dirty, it can be cleaned with detergent, then fully cleaned with pure water and dried before use.
- ◆ Do not expose the cuvette to organic solvents such as alcohol.
- ◆ Please sure no water stains,scratches,dust,fingerprints on the surface of the cuvette.
- ◆ The water sample in the cuvette must have no bubbles,which will affect the accuracy of test.
- ◆ After use, please clean the foreign objects in the detection tank of the instrument in time, and re-cover the hood on the detection tank to keep the interior clean.
- ◆ Rinse pipettes and vials when aspirating the solution.

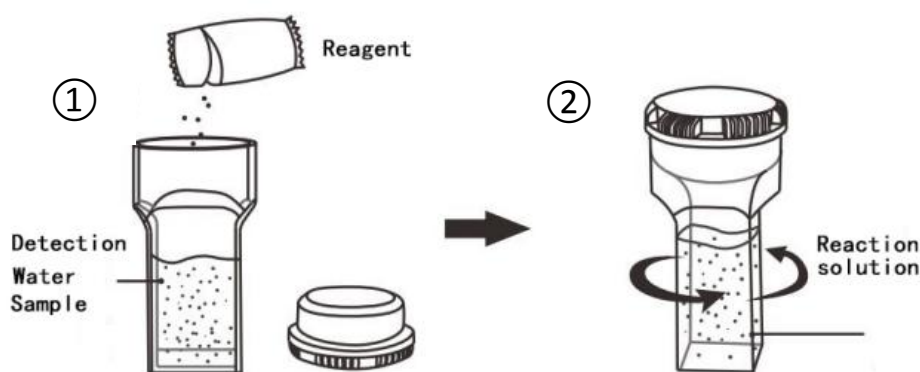
Phosphate Analyzer Operating Instructions

Applicable reagents

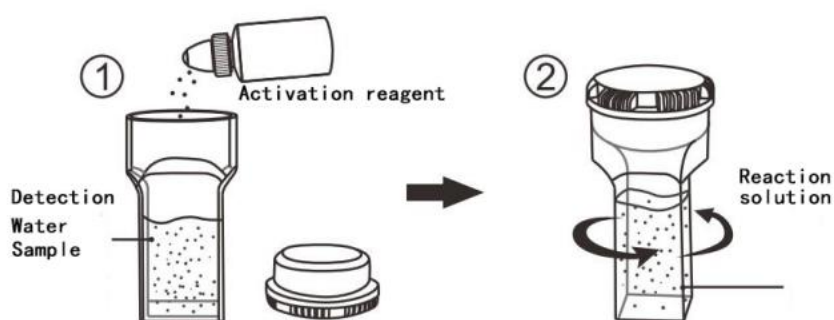
Reagent name	Order Model	Order code
Phosphate test reagent	PHOA10	2.04.010

Test step:

1. Press the "power button" to turn on, the screen displays "P30F", and finally displays "dLE" to indicate that the boot is completed, waiting for detection.
2. Take an appropriate amount of water to rinse the colorimetric bottle and bottle cap and pour it out. Then take 5ml of water sample (scale position) into the colorimetric bottle, close the lid, dry the water stains or fingerprints on the surface of the colorimetric bottle with a mirror cloth, and put it into the detection tank.
3. Press "zero" set button to do zero set.
4. When the instrument displays "000", take out the colorimetric bottle and open the lid, add a packet of phosphate detection reagent to it, cover the lid, and shake it evenly to completely dissolve the reagent.



5. Open the lid, add 7 drops of Activator P to it, close the lid, and shake it evenly. If there are air bubbles, slightly tilt the colorimeter bottle to remove the air bubbles, and wipe the water stains or fingerprints on the surface.



6. Put the colorimetric bottle into the detection tank, after standing for 1 minute, press the "reading" key, the value displayed on the screen is the measured concentration value (unit: mg/L).

Note: Please complete the test within 2 minutes after adding activator P, otherwise the test accuracy will be affected.

Interfering factors

- ◆ Arsenic and arsenate, sulfide, heavy metal, nitrite have interference effect.
- ◆ Samples with high buffering capacity or extreme pH values.

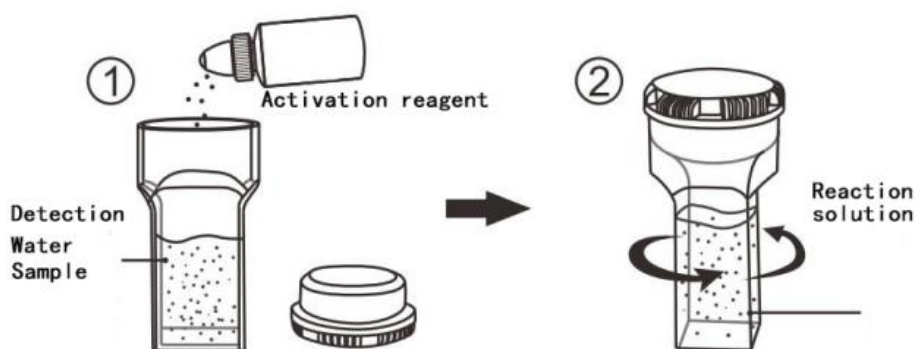
Ammonia Nitrogen Analyzer Operating Instructions

Applicable reagents

Reagent name	Order Model	Order code
Ammonia nitrogen test reagent	ANA20	2.04.009

Test step:

1. Press the "power button" to turn on, the screen displays "n I F", and finally displays "dLE" to indicate that the boot is completed, waiting for detection.
2. Take an appropriate amount of water to rinse the colorimetric bottle and bottle cap and pour it out. Then take 5ml of water sample (scale position) into the colorimetric bottle, close the lid, dry the water stains or fingerprints on the surface of the colorimetric bottle with a mirror cloth, and put it into the detection tank.
3. Press "zero" set button to do zero set.
4. When the instrument displays "000", take out the colorimetric bottle and open the lid, add 3 drops of ammonia nitrogen activation reagent A1 to it and shake well, then add 3 drops of ammonia nitrogen activation reagent B2. Cover the lid.



5. Shake the colorimetric bottle up and down for about 10 seconds. Shake the colorimetric bottle evenly. If there are air bubbles, slightly tilt the colorimetric bottle to discharge the air bubbles, and wipe the water stains or fingerprints on the surface.
6. Put the colorimetric bottle into the detection tank, cover the hood and let it stand for 3 minutes, then press the "read" button, the value displayed on the screen is the measured concentration value (unit: mg/L).

Note: If it contains ammonia nitrogen, the solution should appear yellow-brown, and the higher the concentration, the darker the color.

Interfering factors

If the water sample contains suspended solids, residual chlorine, calcium and magnesium and other metal ions, sulfides and organics, the contrast color measurement will interfere, and it needs to be pretreated or diluted.

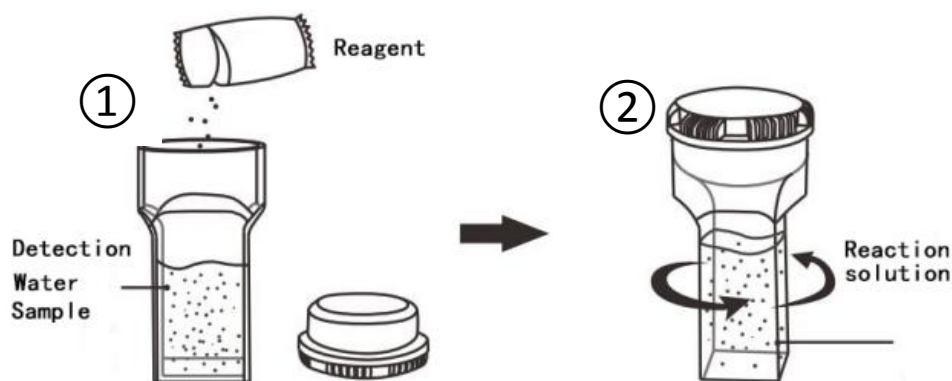
Ozone Analyzer Operating Instructions

Applicable reagents

Reagent name	Order model	Order code
Ozone test reagent	OZA10	2.04.011

Test step

1. Press the "power button" to turn on, the screen displays "DO IF", and finally displays "dLE" to indicate that the boot is completed, waiting for detection.
2. Take an appropriate amount of water to rinse the colorimetric bottle and bottle cap and pour it out. Then take 5ml of water sample (scale position) into the colorimetric bottle, close the lid, dry the water stains or fingerprints on the surface of the colorimetric bottle with a mirror cloth, and put it into the detection tank.
3. Press "zero" set button to do zero set.
4. When the instrument displays "000", take out the colorimetric bottle and open the lid, add a packet of ozone reagent to it, and close the lid.



5. Shake the colorimetric bottle up and down for about 20 seconds to completely dissolve the reagent. If there are air bubbles, tilt the colorimetric bottle slightly to remove the air bubbles, and wipe off the water stains or fingerprints on the surface.
6. Put the colorimetric bottle into the detection tank, after standing for 40 seconds, press the "reading" key, the value displayed on the screen is the measured concentration value (unit: mg/L).

Note: After adding the ozone reagent, please shake it up as soon as possible to complete the test as soon as possible, otherwise the test accuracy will be affected.

Interfering factors:

- ◆Oxidizing agents: bromine, iodine, bromine amine, iodine amine, hydrogen peroxide, chromate, manganese oxide, etc.
- ◆Reducing agent: nitrite, etc.

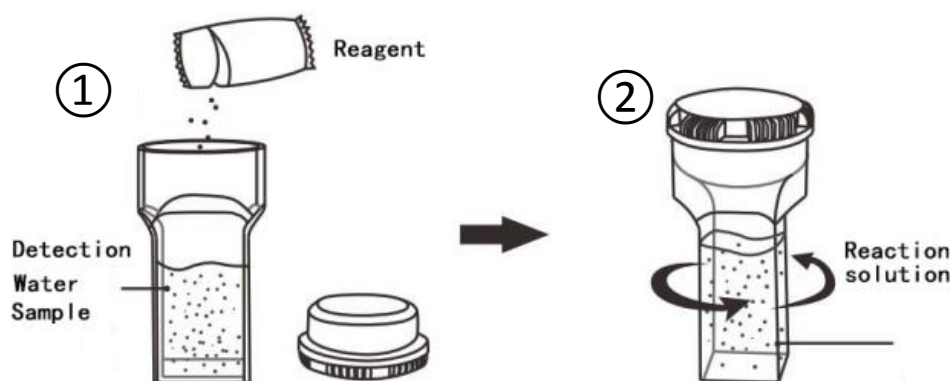
Residual Chlorine Analyzer Operating Instructions

Applicable reagents

Reagent name	Order model	Order code
Residual Chlorine Test Reagent	RCHA10	2.04.068

Test step

1. Press the "power button" to turn on, the screen displays "C10F", and finally displays "idLE" to indicate that the boot is completed, waiting for detection.
2. Take an appropriate amount of water to rinse the colorimetric bottle and bottle cap and pour it out. Then take 5ml of water sample (scale position) into the colorimetric bottle, close the lid, dry the water stains or fingerprints on the surface of the colorimetric bottle with a mirror cloth, and put it into the detection tank.
3. Press "zero" set button to do zero set.
4. When the instrument displays "0.00", take out the colorimetric bottle and open the lid, add a packet of residual chlorine reagent to it, and close the lid.



5. Shake the colorimetric bottle up and down to dissolve the reagent completely. If there are air bubbles, slightly tilt the colorimetric bottle to remove the air bubbles, and wipe off the water stains or fingerprints on the surface.
6. Put the colorimetric bottle into the detection tank, measure it after 1 minute of reaction, press the "reading" key, the value displayed on the screen is the measured concentration value (unit: mg/L.)

Note: After adding the residual chlorine detection reagent, please shake it up as soon as possible to complete the test as soon as possible, otherwise the test accuracy will be affected.

Interfering factors:

- ◆ Oxidizing agents: bromine, iodine, bromine amine, iodine amine, hydrogen peroxide, chromate, manganese oxide, ozone, etc.
- ◆ Reducing agent: nitrite, etc.
- ◆ If the alkalinity of water exceeds 250mg/L or the acidity exceeds 150mg/L, the measured value will be unstable, and dilute hydrochloric acid or sodium hydroxide solution can be added for adjustment.
- ◆ Extreme pH or samples with strong buffering capacity will cause interference and should be adjusted between 6-7.
- ◆ Samples with high turbidity and chromaticity will cause interference and should be pretreated.

Chlorine Dioxide Analyzer Operating Instructions

Applicable reagents

Reagent name	Order model	Order code
Chlorine Dioxide Test Reagent	CDA10	2.04.006

Test step:

1. Press the "power button" to turn on the machine, the screen displays "COF", and finally displays "dLE" to indicate that the boot is completed, waiting for the test.
2. Take an appropriate amount of water to rinse the colorimetric bottle and bottle cap and pour it out. Then take 5ml of water sample (scale position) into the colorimetric bottle, close the lid, wipe the water stains or fingerprints on the surface of the colorimetric bottle with a mirror cloth, and put it into the detection tank, as shown on the right.
3. Press "zero" set button to do zero set.
4. When the instrument displays "000", take out the colorimetric bottle and open the lid, add 2 drops of chlorine dioxide activator G1 to it, cover the lid and shake it up, add a packet of chlorine dioxide powder again, and close the lid, such as As shown in Figure 1 and Figure 2.

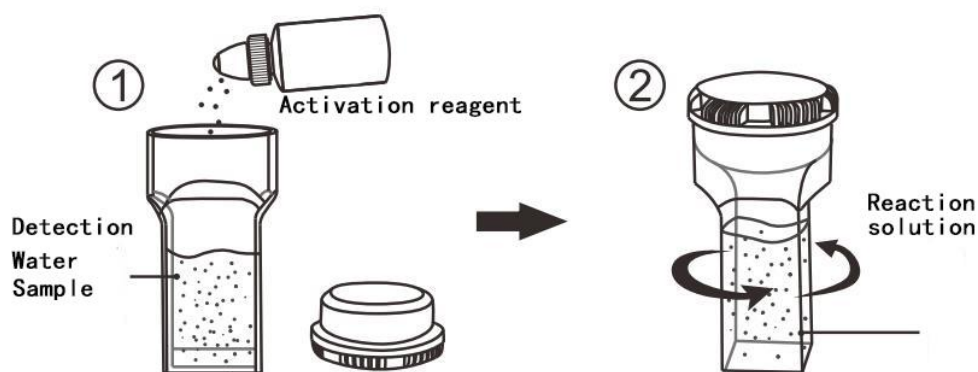


Figure 1

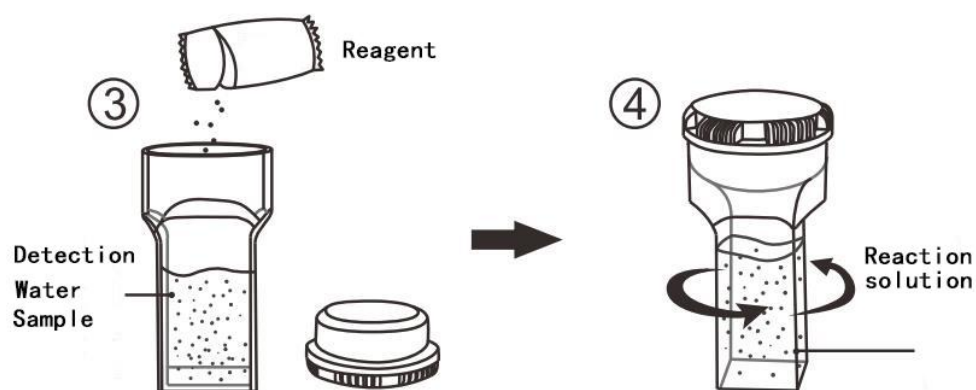


Figure 2

5. Shake the colorimetric bottle up and down for about 20 seconds to completely dissolve the reagent. If there are air bubbles, tilt the colorimetric bottle slightly to remove the air bubbles, and wipe off the water stains or fingerprints on the surface.
6. Put the colorimetric bottle into the detection tank, after standing for 30 seconds, press the "reading" key, the value displayed on the screen is the measured concentration value (unit: mg/L).

Note: Please shake well as soon as possible after adding chlorine dioxide reagent, and complete the test within 1 minute, otherwise the test accuracy will be affected.

Collection, preservation and storage of samples:

Chlorine dioxide in water samples is extremely unstable, and should be measured immediately after sampling, and strong light, vibration and heat should be avoided from beginning to end.

Interfering factors:

- ◆ Oxidant: Bromine, iodine, ozone, organic amines, chloramines and peroxides interfere with the results of the determination.
- ◆ Manganese in the oxidation state interferes with the measurement results, which can be removed by adding a certain amount of potassium iodide or sodium arsenite; various metals can also interfere with the measurement results, which can be eliminated by increasing the amount of activator. Turbidity and chromaticity will interfere with the measurement. If the turbidity is too high, please filter and then test.
- ◆ Samples with high turbidity and chromaticity will cause interference and should be pretreated.

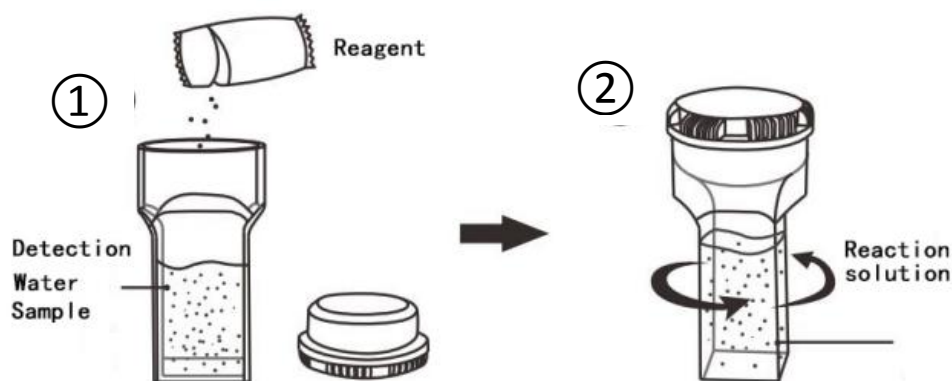
Total Chlorine Analyzer Operating Instructions

Applicable reagents

Reagent name	Order model	Order code
Total chlorine test reagent	TRCHA10	2.04.093

Test step

1. Press the "power button" to turn on, the screen displays "LOFF", and finally displays "idle" to indicate that the boot is completed, waiting for detection.
2. Take an appropriate amount of water to rinse the colorimetric bottle and bottle cap and pour it out. Then take 5ml of water sample (scale position) into the colorimetric bottle, close the lid, dry the water stains or fingerprints on the surface of the colorimetric bottle with a mirror cloth, and put it into the detection tank.
3. Press "zero" set button to do zero set.
4. When the instrument displays "000", take out the colorimetric bottle and open the lid, add a packet of total chlorine reagent to it, and close the lid.



5. Shake the colorimetric bottle up and down to dissolve the reagent completely. If there are air bubbles, slightly tilt the colorimetric bottle to remove the air bubbles, and wipe off the water stains or fingerprints on the surface.

6. Put the colorimetric bottle into the detection tank, measure after 3 minutes of reaction, press the "read" key, the value displayed on the screen is the measured concentration value (unit: mg/L).

Note: After adding the total residual chlorine HR reagent, please shake it up as soon as possible to complete the test as soon as possible, otherwise the test accuracy will be affected.

Interfering factors:

- ◆ Oxidizing agents: bromine, iodine, bromine amine, iodine amine, hydrogen peroxide, chromate, manganese oxide, ozone, etc.
- ◆ Reducing agent: nitrite, etc.
- ◆ If the alkalinity of water exceeds 250mg/L or the acidity exceeds 150mg/L, the measured value will be unstable, and dilute hydrochloric acid or sodium hydroxide solution can be added for adjustment.
- ◆ Extreme pH or samples with strong buffering capacity will cause interference and should be adjusted between 6-7.
- ◆ Samples with high turbidity and chromaticity will cause interference and should be pretreated.


Instrument Maintenance

Battery replacement

1. Use a Phillips screwdriver to remove the battery cover at the bottom of the instrument.
2. Take out the battery, do not put it in disorder, and recycle it in an environmentally friendly manner.
3. Put 2 new AAA batteries into the battery slot, pay attention to the direction of the battery.
4. Reassemble the battery cover with screws.
5. If it is not used for a long time, the battery must be taken out to prevent battery leakage from damaging the instrument..

Common Troubleshooting

Check whether the battery is properly installed before switch on the instrument.

Situation	Reason	Solution
No display after boot	Battery drained	Replace with new battery
The buttons are not sensitive	There are water or oily stains on the surface of the instrument	Clean wipe clean
Large measurement error	There are bubbles in the vial	Check again after removing bubbles
	There is dirt in the detection tank	Checking after cleaning the detection slot
Display 	The detected solution concentration exceeds the set 20%	Change to low concentration solution

After Sales

The product is guaranteed for 1 year from the date of purchase, and the product is maintained for life. Please keep the warranty card properly.

Note:

The following situations do not belong to the scope of free maintenance:

1. Man-made damage to the product caused by not installing or using the product as required
2. The product has been disassembled or repaired by non-authorized personnel of our company.
3. Product damage caused by other irresistible natural forces such as earthquakes, fires, etc.
4. The product exceeds the warranty period.

We are here to serve you wholeheartedly, if you have any questions, please contact us.

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