

Free and Total

CHLORINE METER

Model : CL-2006



Your purchase of this Free and Total CHLORINE METER marks a step forward for you into the field of precision measurement. Although this CHLORINE METER is a complex and delicate instrument, its durable structure developed. Please read the following instructions carefully and always keep this manual within easy reach.

OPERATION MANUAL

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1. FEATURES

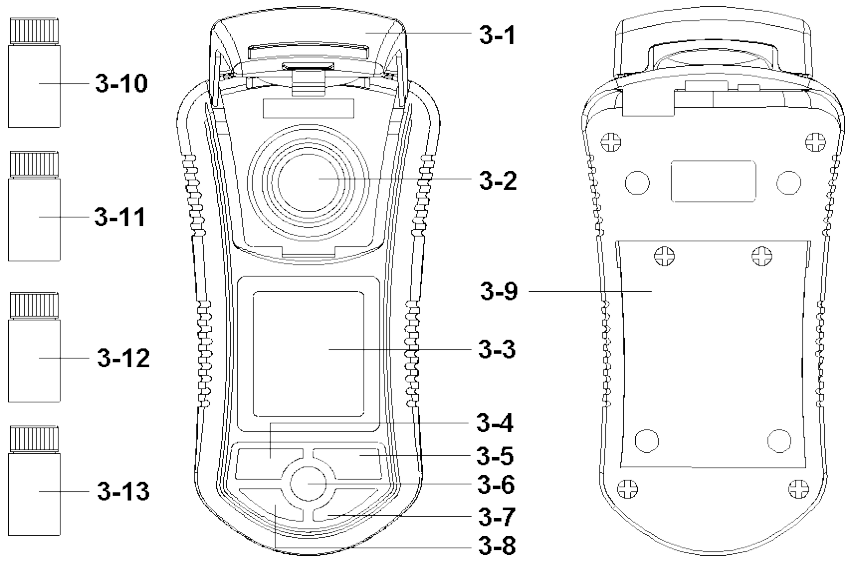
- The meter measures the Free and Total chlorine (CL) between 0.00 to 3.50 ppm (mg/L).
- The measuring method is an adaptation of the USEPA Method 330.5 for waste water and Standard Method 4500-Cl G for drinking water.
- The advanced optical system based on a special narrow band LED lamp that allows most accurate and repeatable reading.
- User friendly and powerful calibration functions are able to validate the performance of your meter at any time.
- 1.00 ppm Free standard solution and 1.00 ppm Total standard solution are included as standard accessories.
- The unique optics structure, enables the instrument to read with high resolution : 0.01 ppm (mg/L).
- Splash waterproof on the front panel.
- Jumbo LCD, easy readout.
- Microprocessor circuit assures maximum possible accuracy, provides special functions and features.
- Battery operated for field and on-site testing convenience.
- Data hold function for freezing the desired value on display.
- Records Maximum and Minimum reading with Recall.
- Heavy duty & compact housing with hard carrying case, designed for easy carry out & operation.
- Auto shut off feature to save battery life.
- Applications : Test swimming pool, municipal water, food and beverage water, or other aqueous solution where fluid clarity is important.

2. SPECIFICATIONS

Display	LCD size : 41 mm x 34 mm
Range	Free chlorine (CL) : 0.00 to 3.50 ppm (mg/L).
	Total chlorine (CL) : 0.00 to 3.50 ppm (mg/L).
Resolution	0.01 ppm (mg/L).
Accuracy	± 0.02 ppm (mg/L). @ 1.00 ppm (mg/L)
Light source	LED, 525 nm.
Light detector	Photo diode
Method	The measuring method is an adaptation of the USEPA Method 330.5 and Standard Method 4500-Cl G. Note: The reaction between free (total) chlorine and the DPD reagent cause a pink tint in the sample.
Response time	Less than 10 seconds.
Sample volume	10 mL.
Data Hold	Freeze the display reading.
Memory Recall	Maximum & Minimum value.
Display Sampling Time	Approx. 1 second.
Power off	Auto shut off saves battery life or manual off by push button.
Calibration points	Zero chlorine. 1.00 ppm (Free chlorine). 1.00 ppm (Total chlorine).

Operating Temperature	0 to 50 °C.	
Operating Humidity	Less than 85% R.H.	
Power Supply	DC 1.5 V battery (UM4, AAA) x 6 PCs, or equivalent.	
Power Current	Stand by	Approx. DC 4 mA.
	Testing	Approx. DC 12 mA.
Weight	320 g/0.70 LB. @ Battery is included.	
Dimension	155 x 76 x 62 mm (6.1 x 3.0 x 2.4 inch)	
Accessories Included	<ul style="list-style-type: none"> • Instruction manual.....1 PC • 1.0 ppm Free Chlorine standard solution, CF-01.....1 PC • 1.0 ppm Total Chlorine standard solution, CT-01.....1 PC • Zero Chlorine standard solution, CL-01.....1 PC • Empty testing bottle.....2 PCs • Clean cloth.....1 PC • Free Chlorine DPD powder.....10 PCs • Total Chlorine DPD powder.....10 PCs 	
Optional Accessories	<ul style="list-style-type: none"> • Free Chlorine DPD powder (10 PCs), Model : CFP-10 • Total Chlorine DPD powder (10 PCs), Model : CTP-10 • Empty testing bottle, Model : 0601 • 1.0 ppm Free Chlorine standard solution, Model : CF-01 • 1.0 ppm Total Chlorine standard solution, Model : CT-01 • Zero Chlorine standard solution, Model : CL-01 	

3. FRONT PANEL DESCRIPTION



- 3-1 Test Chamber Cover
- 3-2 Test Chamber
- 3-3 Display
- 3-4 Hold Button (Esc Button)
- 3-5 TEST/CAL Button
- 3-6 Power Button
- 3-7 ZERO Button
- 3-8 REC Button (MAX, MIN Button)
- 3-9 Battery Compartment/Cover
- 3-10 Free Chlorine 1.0 ppm standard solution.
- 3-11 Total Chlorine 1.0 ppm standard solution
- 3-12 Zero Chlorine standard solution
- 3-13 Empty testing bottle 1
- 3-14 Empty testing bottle 2
- 3-15 Clean Cloth
- 3-16 Free Chlorine DPD powder (10 PCs)
- 3-17 Total Chlorine DPD powder (10 PCs)

4. MEASURING PROCEDURE

4-1 Measurement

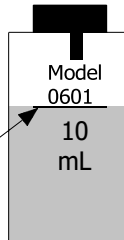
Before the measurement, you should set the measurement mode to " Free Chlorine " or " Total Chlorine ". For setting procedure, refer to chapter 4-3, page 8.

ZERO setting for the liquid

- 1) Power ON the meter by pressing the Power Button once.
The display will show " Free (TOTAL) " for approx. 1 second. then show " CAL 0 ". The meter is now ready for the ZERO setting procedures.
- 2) Fill the measurement liquid into the testing bottle.

Note :

Be sure to fill the testing bottle to the top of the 10ml line.



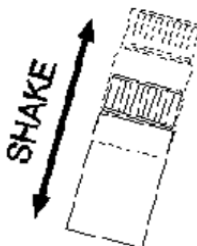
- 3) Open the test chamber cover and insert the testing bottle into the test chamber. Make sure the testing bottle is seated fully and oriented correctly. The white mark on the bottle should point towards the white mark on the test chamber. Close the cover.

Note :

Be sure orient the testing bottle into the test chamber correctly.



- 4) Press the Zero Button once, the display will flash (TEST), then show " 0.00 ".
- 5) Open the test chamber cover and remove the testing bottle.
- 6) Open the testing bottle and add the DPD powder to the testing bottle. Shake the bottle for at least 10 seconds.



Note :

- For the Free Chlorine measurement, it should use the " Free Chlorine DPD powder ".
- For the Total Chlorine measurement, it should use the " Total Chlorine DPD powder ".

- 7) Wait approximately one minute, then insert the testing bottle into the testing chamber.
- 8) Press the Test Button once, the display will flash (TEST), wait approximately 10 seconds, then the display will show the measurement value.



Washing the Testing bottle

After the testing, you should wash the Testing Bottle with Distilled Water.

4.2 Free/Total Chlorine mode selection

- 1) With the meter in the off condition, Press and hold the Hold Button and the REC Button at the same time. Without releasing the Hold & REC buttons, press the Power Button. The unit will enter the selection mode to select Free Chlorine or Total Chlorine.
- 2) Press the TEST Button to select the desiring function (Free Chlorine or Total Chlorine), then press the REC Button to confirm and save theselection mode into the memory.

Note :

- For the swinging pool application, it is typical to select the Free Chlorine function.
- For the industrial water pollution application, typical to select the Total Chlorine function.

4.3 Data Hold

- 1) During the measurement, pressing the Hold Button once will hold the measured value & will display a HOLD symbol.

Note: Press the Hold Button once again will release the data hold function.

4.4 Data Record (Max. , Min. reading)

Note: The data record function only records the maximum and minimum readings.

Press the REC Button once to start the data record function and there will be a REC symbol on the display.

While REC function is active:

- 1) Press the REC Button once, the REC MAX symbol along with the maximum value will appear on the display.

Note: If you want to delete the maximum value, press the Hold Button once, then the display will return to the REC symbol only.

- 2) Press the REC Button again, the REC. MIN symbol along with the minimum value will appear on the display.

Note: If you want to delete the maximum value, press the Hold Button once, then the display will return to the REC symbol only.

5. CALIBRATION PROCEDURE

1) The meter can be calibrated under following calibration points :

Free chlorine

- Zero
- 1.00 ppm

Total chlorine

- Zero
- 1.00 ppm

Note : The calibration procedures for the function of " Total chlorine " and the " Free chlorine " are independent.

2) Calibration requires the following two solutions :

- Zero Chlorine standard solution
- 1.0 ppm standard solution (Free or Total).

3) **Zero & 1ppm chlorine calibration**

- 1) Turn the meter on.
- 2) Press and hold the CAL button until CAL appears on the screen.
- 3) Let go of the CAL button. The screen will display 0.00, prompting for the Zero standard solution.


- 4) Place the Zero standard bottle into the test chamber, lining the vertical white line of the bottle with the white dot on the meter. Close the lid and press the TEST/CAL button once. The meter will flash the word CAL on the screen for up to ten seconds.

Note: If the zero calibration was successful, the meter will stop blinking and display the number 1.00, prompting for the 1.00 ppm standard solution.

- 5) Place the 1.00ppm standard bottle into the test chamber, lining the vertical white line of the bottle with the white dot on the meter. Close the lid and press the TEST/CAL button once. The meter will flash CAL on the screen for up to ten seconds.

Note: If the calibration was successful, the screen will stop blinking and display 0.0, indicating that it is ready to test samples

6. BATTERY REPLACEMENT

- 1) When the left corner of LCD display shows , it is necessary to replace the battery. However, in-spec. measurements may still be made for several hours after low battery indicator appears before the instrument become inaccurate.
- 2) Open the Battery Cover by unscrewing the cover and slide the Battery Cover away from the instrument and remove the battery.
- 3) Replace with DC 1.5 V battery (UM4, AAA, Alkaline/heavy duty) x 6 PCs, and reinstate the cover.
- 4) Make sure the battery cover is secured after changing the battery.