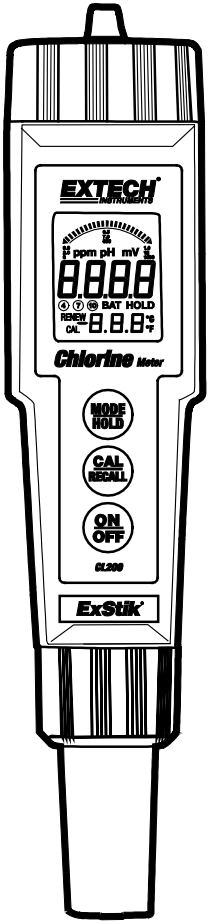
EXTECH INSTRUMENTS

USER MANUAL

ExStik® CL200A

Waterproof Total Residual Chlorine Tester

Patent Pending



Additional User Manual Translations available at www.extech.com

Introduction

Congratulations on your purchase of the ExStik® CL200 chlorine tester. The CL200 is a revolutionary first of its kind measurement device that offers direct reading of Total Chlorine from 0.01 to 10.00 ppm. The electrode method employed by the ExStik® is approved by the U.S. Environmental Protection Agency (EPA) as an acceptable method for wastewater compliance monitoring of total chlorine. For this type of electrode method, a reagent tablet* (supplied) must be added to the measurement solution before testing. The advantages of the CL200 to the user include: Easy to use and maintain, high accuracy, and fast response. The CL200 offers simultaneous Chlorine and Temperature displays and a 15-reading memory storage. Careful use and maintenance will provide years of reliable service.

**Reagent Tablet Health Hazards*

WARNING: Reagents marked with an * are considered to be potential health hazards. To view or print a Safety Data Sheet (SDS) for these reagents go to www.lamotte.com. Search for the four-digit reagent code number listed on the reagent label, in the contents list or in the test procedures. Omit any letter that follows or precedes the four-digit code number. For example, if the code is 4450WT-H, search 4450. To obtain a printed copy, contact LaMotte by email, phone or fax.

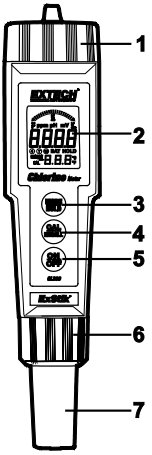
Emergency information for all reagents manufactured for Extech by LaMotte are available from Chem-Tel: (US, 1-800-255-3924) (International, call collect, 813-248-0585)

Applications

The CL200 can be used wherever a measurement of the total chlorine in water is needed. This is also referred to as total residual chlorine. It measures the total of all chlorine present in all forms, including dissolved free chlorine, chloramines, hypochlorous acid and hypochlorite ion. Typical applications include measurements of discharge water from water treatment plants, public drinking water supplies and cooling towers, and measurement of disinfectant properties in swimming pools and cooling water applications.

Meter Description

CL200 Front Panel Description

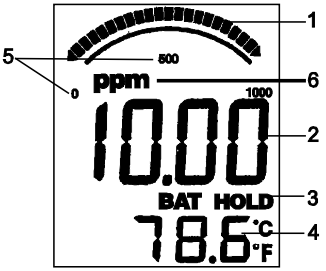


The ExStik's® keys have functions which change depending on the electrode attached (pH, ORP or Chlorine). Key descriptions here apply for the ExStik® with a chlorine electrode attached.

1. Battery compartment
2. LCD Display
3. MODE/HOLD button (store data)
4. CAL/RECALL button change temperature units and recall data. (Calibration is required for chlorine)
5. ON/OFF button
6. Electrode Collar
7. Electrode

(Note: The Electrode cap is not shown)

ExStik® CL200 Display



1. Bargraph display
2. Measurement display
3. BAT (low battery) and HOLD (data hold) indicators
4. Temperature display
5. Bargraph scale designations
6. Unit of measure

Getting Started

Equipment Required

A chlorine test requires a 20ml sample cup, a reagent tablet (see the earlier section 'Reagent Tablet Health Hazards' for important safety information), and the CL200 with a chlorine electrode attached. The optional EX006 Weighted base is a recommended accessory.

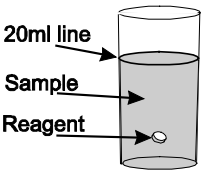
Battery Activation

An insulating tab is located in the battery compartment and prevents battery drain during storage. It must be removed before use. Refer to the battery replacement paragraph in the maintenance section.

Measurement Procedures

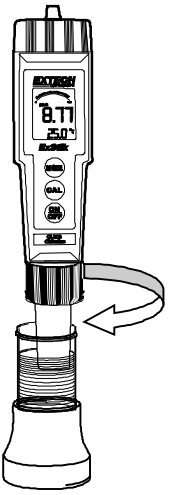
Calibration:

Calibration of the CL200 is required to ensure measurement accuracy. Refer to the Calibration section.



Sample Preparation:

1. Place the test sample into the sample cup up to the 20mL line.
2. Drop one reagent tablet into the sample, wait 10 seconds and then shake or stir vigorously until it is dissolved.



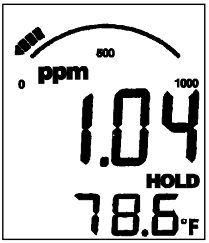
Measurement:

1. Insert the electrode into the sample and then press the ON button.
2. Stir the sample with the electrode for 5 to 10 seconds. The "HOLD" indicator will appear after 120 seconds.
3. If the meter reads -1, the level of chlorine in the sample may be lower than the detectable limit of 0.01ppm.

Reading:

The value in the display is the total chlorine in ppm.

Note: After running a test, wipe the entire electrode with a clean/dry paper towel.



Storing Readings

1. Press the MODE button to store a reading. The storage location number will be displayed followed by the stored reading and the “HOLD” indicator.
2. Only one reading can be stored during the 120 second measurement cycle.
3. Press the MODE button again to return to normal operation.
4. If more than 15 readings are stored, previously stored readings (starting with number 1) will be overwritten.

Recalling Stored Readings

1. Press the CAL button and then press the MODE button immediately after CAL is displayed; a location number (1 through 15) will flash.
2. The last stored reading taken will be displayed first. To scroll through the stored readings, press the MODE button. The location number is displayed first, followed by the reading stored in that location.
3. To exit the storage mode, press the CAL button and the CL200 will return to normal operation.

Note: If the batteries are removed all stored readings will be lost.

Changing the Temperature Units

Press and hold the CAL button for approx. 3 seconds to change the temperature units.

Auto-Power OFF

The auto power off feature automatically shuts the CL200 off 10 minutes after the last keypress.

Low Battery Indication

When the batteries become weak the “BAT” icon will appear in the display. Refer to the Maintenance section for battery replacement information.

Calibration Adjustment Procedure

The CL200 requires periodic calibration to ensure that it is making accurate measurements.

1. Using a chlorine standard of known concentration (CL207) perform the normal sampling procedure (refer to Measurement procedures) with 20 ml of the solution and a regent tablet. Wait for the display to read “HOLD” (approx. 2-minute sampling time).
2. With meter still in the solution press the Mode/Hold button for approximately 5 seconds until “CO” appears at the bottom of the Display.
3. The concentration value on the Display can now be adjusted up or down to match the actual known concentration of the solution.
4. Press the MODE/HOLD key to increase the value or Press the CAL/RECALL button to decrease the value.
5. Once the reading is adjusted to the desired value do a quick press of the ON/OFF button and “SA” will appear on the Display followed by “END”. This indicates that the adjusted value was saved to memory.
6. Turn the meter off and proceed with the sampling procedure as described in the operator’s manual.

Considerations and Techniques to Preserve the Electrode

1. If the meter has not been used for several weeks or is new, at least two tests should be made to condition the electrode.
2. Do not touch the reagent tablets. Touching can cause contamination. See the earlier section 'Reagent Tablet Health Hazards' for important safety information.
3. If the electrode has not been used for in a 24hr period, wipe the tip with a clean/dry paper towel before use.
4. Before use, wash the sample cups and the caps and then rinse them completely.
5. The CL200 should not be left in a solution while turned off. If left in solution while turned off, subsequent readings may take longer to reach the correct value.
6. Do not touch the sensor surface except with a clean/dry paper towel.
7. When measuring solutions that have large differences in chlorine concentration, i.e. 0.1ppm and 5.0ppm, use separate sample cups.
8. Discard the sample cup when it shows a color change.
9. Maintain the electrode by completely wiping dry and then replacing the electrode cover immediately after taking a measurement. The electrode should always be stored in the dry cap.
10. Cover the connector with the clear cover whenever the electrode is removed from the meter body.
11. Gently stirring the probe in the solution for 10 seconds, within the first minute of operation, will accelerate the process and yield more accurate readings. Do not stir after 10 seconds.

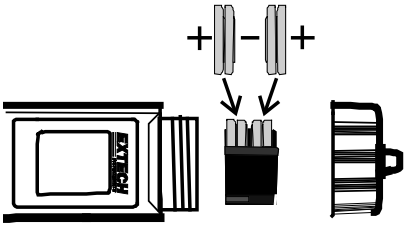
Troubleshooting Guide

1. If the unit appears locked it is possible that the Data Hold mode has been inadvertently accessed. If the HOLD icon is displayed, simply press the MODE button or turn the meter off and restart.
2. If the meter latches up and cannot be reactivated by a button press, remove the batteries and Press and hold the On/Off button for 8 – 10 seconds. Re-install the batteries.
   Note that if the batteries are removed, any stored readings will be lost.
3. If the meter reads a -1 in a known level of Chlorine, the meter may be defective.

Maintenance

Battery Replacement

1. Twist off the battery compartment cap
2. Replace the four (4) CR2032 batteries observing polarity.
3. Replace the battery compartment cap



Never dispose of used batteries or rechargeable batteries in household waste.
As consumers, users are legally required to take used batteries to appropriate collection sites, the retail store where the batteries were purchased, or wherever batteries are sold.

Disposal: Do not dispose of this instrument in household waste. The user is obligated to take end-of-life devices to a designated collection point for the disposal of electrical and electronic equipment.

Cleaning and Maintaining the Electrode

The CL200 Chlorine Electrode arrives in a factory-cleaned condition and is ready to be used. The electrode will perform best and yield more stable readings after the first few tests. Before and after tests, firmly wipe the electrode tip with a clean, dry paper towel to remove any compounds that may have formed. When not in use, the CL200 should be stored with the electrode cap in place.

Electrode Replacement

The CL200 is shipped with an electrode attached. If the electrode has to be replaced, or if a pH or ORP electrode is to be installed, follow these steps:

1. Turn the unit off.
2. To remove an electrode, unscrew and remove the electrode collar (turn the collar counter-clockwise).
3. Gently rock the electrode from side to side, pulling it downwards, until it disconnects from the meter.
4. To attach an electrode, allign the slots and carefully plug the electrode into the meter socket.
5. Tighten the electrode collar firmly enough to make a good seal (a rubber gasket seals the electrode with the meter).

Specifications

Display	Multifunction LCD with Bargraph
Operating conditions	32 to 122ºF (0 to 50ºC) and < 80% RH
Chlorine range	0.01 to 10.00 ppm (Total Chlorine)
Chlorine accuracy	0.05 to 5.00ppm; ± (10%reading + 0.01ppm) 5.00 to 10.00ppm; ± (15%reading + 0.05ppm)
Temperature measurement range	-5 to 90ºC (23 to 194ºF)
Temperature range for Chlorine measurement	0 to 50ºC (32 to 122ºF)
Temp. Resolution	0.1º up to 99.9 then 1º
Temp. Accuracy	± 1.8ºF (1ºC) from 23 to 122ºF (-5 to 50ºC); ± 5.4ºF (3ºC) from 122 to 194ºF (50 to 90ºC)
Measurement storage	15 readings can be stored and recalled
Low battery indication	'BAT' appears on the LCD
Power	Four CR2032 button batteries
Dimensions	1.4x6.8x1.6"(35.6x172.7x40.6mm); 3.85oz (110g)
Auto power off	Automatically switches OFF 10 minutes after the last key press

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