User's Guide

EXTECH®
INSTRUMENTS
A FLIR COMPANY

ExStik® CL200A

Waterproof Total Residual Chlorine Tester
Patent Pending

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 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, self-calibration, 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.

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, hyporchlorous 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.
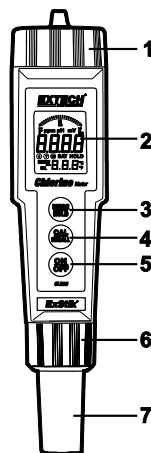
Meter Description

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.
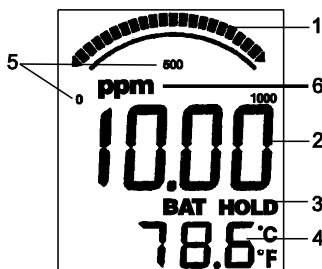
1. Battery compartment
2. LCD Display
3. MODE/HOLD button (store data)
4. CAL/RECALL button (change temperature units and recall data. Calibration not required for chlorine)
5. ON/OFF button
6. Electrode Collar
7. Electrode

(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 and the CL200 with a chlorine electrode attached. The optional EX006 Weighted base is a recommended accessory.
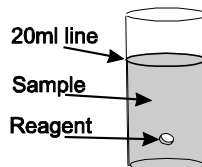
Battery Activation

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.
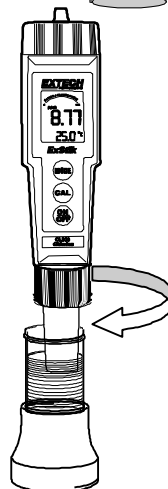
Measurement Procedure

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.
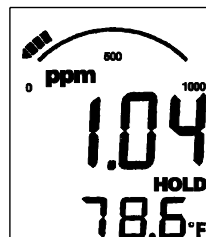
Measurement:

1. Press the ON button and insert the electrode into the sample.

2. Stir the sample with the electrode for 5 to 10 seconds. The "HOLD" indicator will appear after 120 seconds.

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.

Offset Adjustment Procedure

If it is necessary to adjust the chlorine reading to match the value of a known standard or to agree with the reading from another chlorine meter, the following procedure can be used.

1. Using a chlorine solution of known concentration perform the normal sampling procedure (refer to the operator's manual) with 20 ml of the solution, 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

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.
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 restart. Note that if the batteries are removed, any stored readings will be lost.
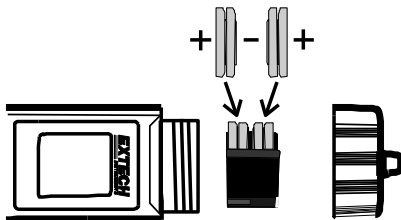
Electrodes Types

The CL200 can also measure ORP and pH. To perform these tests, the appropriate electrode must be acquired and connected to the ExStik[®]. When the unit is turned on, it recognizes the type of electrode that is connected and displays the appropriate unit of measure.

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

You, as the end user, are legally bound (**EU Battery ordinance**) to return all used batteries, **disposal in the household garbage is prohibited!** You can hand over your used batteries / accumulators at collection points in your community or wherever batteries / accumulators are sold!

Disposal: Follow the valid legal stipulations in respect of the disposal of the device at the end of its lifecycle.

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 122°F (0 to 50°C) 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	23 to 194°F (-5 to 90°C)
Temperature range for Chlorine measurement	32 to 122°F (0 to 50°C)
Temp. Resolution	0.1^o up to 99.9 then 1°
Temp. Accuracy	± 1.8^{o}F (1°C) from 23 to 122°F (-5 to 50°C); ± 5.4^{o}F (3°C) from 122 to 194°F (50 to 90°C)
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 turns off 10 minutes after the last key press

Warranty *(English)*

EXTECH INSTRUMENTS CORPORATION (A FLIR COMPANY) warrants this instrument to be free of defects in parts and workmanship for **one year** from date of shipment (a six month limited warranty applies to sensors and cables). If it should become necessary to return the instrument for service during or beyond the warranty period, contact the Customer Service Department at (781) 890-7440 ext. 210 for authorization or visit our website www.extech.com for contact information. A Return Authorization (RA) number must be issued before any product is returned to Extech. The sender is responsible for shipping charges, freight, insurance and proper packaging to prevent damage in transit. This warranty does not apply to defects resulting from action of the user such as misuse, improper wiring, operation outside of specification, improper maintenance or repair, or unauthorized modification. Extech specifically disclaims any implied warranties or merchantability or fitness for a specific purpose and will not be liable for any direct, indirect, incidental or consequential damages. Extech's total liability is limited to repair or replacement of the product. The warranty set forth above is inclusive and no other warranty, whether written or oral, is expressed or implied.

Garantía *(Español)*

EXTECH INSTRUMENTS CORPORATION (UNA EMPRESA FLIR) *garantiza este instrumento para estar libre de defectos en partes o mano de obra durante un año a partir de la fecha de embarque (se aplica una garantía limitada a seis meses para los cables y sensores). Si fuera necesario regresar el instrumento para servicio durante o después del periodo de garantía, llame al Departamento de Servicio a Clientes al teléfono (781) 890-7440 ext. 210 para autorización, o visite nuestra página en Internet www.extech.com para Información del contacto. Se debe otorgar un número de Autorización de Retorno (RA) antes de regresar cualquier producto a Extech. El remitente es responsable de los gastos de embarque, flete, seguro y empaque apropiado para prevenir daños en tránsito. Esta garantía no se aplica a defectos resultantes de las acciones del usuario como el mal uso, alambrado equivocado, operación fuera de las especificaciones, mantenimiento o reparación inadecuada o modificación no autorizada. Extech específicamente rechaza cualesquier garantías implícitas o factibilidad de comercialización o aptitud para cualquier propósito determinado y no será responsable por cualesquier daños directos, indirectos, incidentales o consecuentes. La responsabilidad total de Extech está limitada a la reparación o reemplazo del producto. La garantía precedente es inclusiva y no hay otra garantía ya sea escrita u oral, expresa o implícita.*

Garantie *(Français)*

EXTECH APPAREILS CORPORATION (Une société FLIR) garantit que cet appareil est exempt de défauts matériels et de fabrication pendant un an à compter de la date d'envoi (une garantie limitée de six mois s'applique aux capteurs et câbles). Si le renvoi de l'appareil pour réparation devient nécessaire durant ou après la période de garantie, contactez le service client au (781) 890-7440 poste. 210 pour autorisation ou visitez notre site Web à l'adresse www.extech.com *pour obtenir nos coordonnées. Un numéro d'autorisation de retour (AR) doit être délivré avant tout retour de produit à Extech. L'expéditeur prend à sa charge les frais d'expédition, le fret, l'assurance et l'emballage correct de l'appareil afin de prévenir toute détérioration durant le transport. Cette garantie ne s'applique pas aux dommages imputables à l'utilisateur tel que l'usage impropre ou abusif, un mauvais câblage, une utilisation non conforme aux spécifications, un entretien ou une réparation incorrecte, ou toute modification non autorisée. Extech déclinera spécifiquement toute garantie ou qualité marchande ou aptitude à l'emploi prévu et ne sera en aucun cas tenu responsable pour tout dommage conséquent direct, indirect, ou accidentel. La responsabilité totale d'Extech est limitée à la réparation ou au remplacement du produit. La garantie définie ci-dessus est inclusive et aucune autre garantie, écrite ou orale, n'est exprimée ou implicite.*

Appui de produit

Service d'assistance technique support@extech.com - Réparations et retours :repair@extech.com

Spécifications produit sujettes à modifications sans préavis

Pour obtenir la dernière version de ce manuel d'utilisation, des mises à jour logicielles et autres informations

www.extech.com **-(781) 890-7440**

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