

INSTRUCTION MANUAL

Chemical Oxygen Demand Detector

Model No.

CD 200

Tech support



ROCKER

Please read this instruction manual before using this product.

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1. Important Notice

This instrument is designed for laboratory usage only. Please read this manual carefully before installing and operating. The instrument shall not be modified in any way. Any modification will void the warranty and may result in potential hazard. We are not responsible for any injury or damage caused by any non-intended purposes and modifying the instrument without authorization.

1. Check the voltage specified on the name plate and ensure it matches the line voltage in your location.
2. Install the instrument in a clean, dust-less and well-ventilated area under 40°C.
3. The instrument can be powered either by a power adaptor or a DC9V battery. For safety reasons, it's recommended to use the power adaptor supplied by the manufacturer. If using a DC9V battery, please remember to remove it when instrument will be unused for an extended period to prevent leakage.
4. Review Safety Data Sheets (SDS) before handling reagents, as they may be hazardous.
5. Please discard packing material according to local related regulations.
6. For more product details, please refer to the latest catalog and website.
7. Operating condition
 - (a) Ambient temperature: 5~ 40 °C
 - (b) Relative humidity: 80% RH Max.
 - (c) Power supply: 100~120V, 50/60Hz or 200~240V, 50/60Hz
 - (d) Altitude: up to 2000 m
 - (e) Pollution degree: II
 - (f) Indoor use

** Before starting COD measurement, allow the vials to cool down to room temperature and ensure the reagent is uniformly mixed and completely precipitate.*

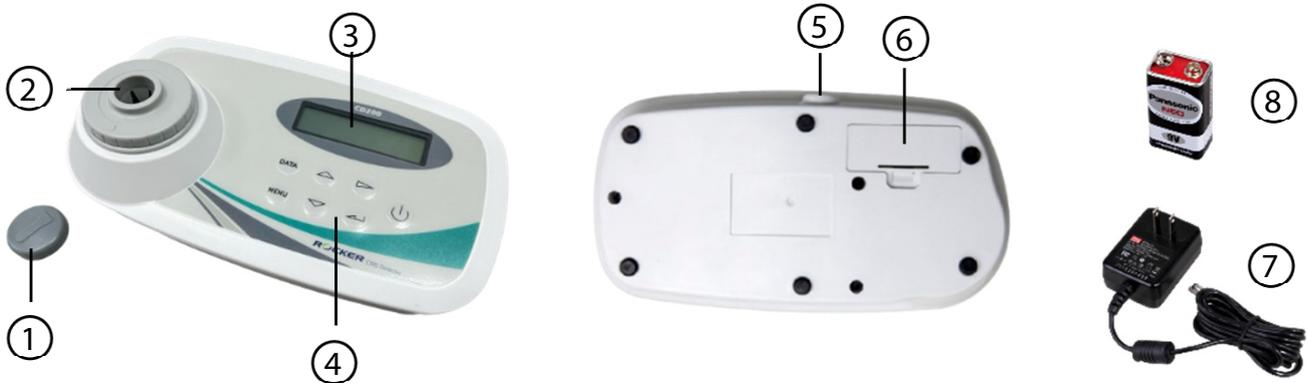
2. Unpacking

Please check if the package is complete without any damage before unpacking. When unpacking, please make sure you have all accessories that indicated on the list. If there is any problem, please keep the serial number along with packing case and contact your local distributor immediately for assistance.

Item	Content
1	CD 200 Detector
2	Power Adaptor
3	Instruction Manual



3. Main Part Diagram



Item	Designation	Item	Designation
1	Vial Dust Cap	5	DC Socket
2	Vial Holder	6	Battery Cover
3	Display	7	Power Adaptor
4	Buttons	8	DC9V Battery (Optional)

4. Button / Symbol Explication

(1). Buttons

Button	Designation	Description
Data	Data Button	Display information and data on the screen.
Menu	Menu Button	Return to the previous menu.
	Up Button	Scroll upward through menus or stored data.
	Down Button	Scroll downward through menus or stored data.
	Right Button	Scroll to right through menus or stored data.
	Enter Button	(1) Select the current menu option. (2) Confirm and accept the input value.
	Power Button	Turns the power on or off

(2). Symbols

Symbol	Description
	Indication of power adaptor connection.
	100% full power.
	66% power.
	33% power.
	5% low battery. Please replate the battery promptly. (Backlight and sound disabled)
<<	Selected option
<	Selected option

5. Operation

(1). Installation

- **Power Supply**

The instrument can be powered either by a power adaptor or a DC9V battery.

- Power Adaptor:

Ensure the power supply voltage matches the voltage rating for CD 200 (100-240V~), with an output voltage of DC12V.

- DC9V Battery:

Users can install a DC9V battery by removing / installing the battery cover at the back of CD200.

- ◆ Please remove the battery if CD 200 will be unused for an extended period to prevent leakage.

- **Power On / Off**

- Power On: Press the power button , and you can start using CD 200.

- Power Off: Press the power button , and select the "Yes" option to shut it down

(2). Menu

Menu	Item	Description	Remark
Main Menu	1: COD TEST	Select the Curve Brand.	
	2: Time	Date and time setting.	
	3: Backlight	Backlight setting.	
	4: Sound	Sound setting.	
	5: Auto Shut	Auto power setting.	
	6: Memory	Memory setting.	
Curve Menu	1: HACH	HACH COD standard curve.	
	2: Lovibond	Lovibond COD standard curve.	
	3: CHEMetrics	CHEMetrics COD standard curve.	
	4: HANNA	HANNA COD standard curve.	
	5: Merck	Merck COD standard curve.	
	6: User-1	User Curve	Self-Calibration.
	7: User-2	User Curve	Self-Calibration.
	8: User-3	User Curve	Self-Calibration.
	9: User-4	User Curve	Self-Calibration.
Curve Range	150	Measuring range 10 ~ 150 mg/L	
	1500	Measuring range 100 ~ 1500 mg/L	
	15000	Measuring range 1000 ~ 15000 mg/L	
Operating Menu	Start	Start COD measurement	
	Info	(1) Standard Curve: display curve measuring range. (2) User Curve: display calibration data.	
	CAL	Calibration Parameters	

(3). Curve Operation

3.1 Built-In Standard Curves - Hach, Lovibond, CHEMetrics, HANNA, Merck

- ◆ Built-in standard curves are preloaded with saved calibration values for direct COD testing.
- ◆ Insert sample vials in the same direction to keep COD values consistent.

Step	Operation	Screen Display
1	Switch on the instrument and LOGO shows on the screen.	ROCKER
2	The curve menu shows on the screen in 2 seconds.	1: HACH <<  2: Lovibond
3	Select desired curve based on the used reagent brand by using 「▲」 or 「▼」. Press ← button to enter the curve range.	1: HACH <<  2: Lovibond
4	Press 「▶」 and select curve range based on reagent concentration: 150, 1500, or 15000. Press ← button to enter the operating menu.	HACH-1500  150 1500 < 15000
5	While Start is selected, press 「▶」 to start a COD test..	HACH-1500  Start < Info
6	Insert Blank vial into the vial holder, and “Blank OK” message appears in 2 seconds.	HACH-1500  Insert Blank
7	Remove the Blank vial and insert sample vial when “Insert Sample” message appears.	HACH-1500  Insert Sample
8	The COD value will appear in 2 seconds and the data will be saved automatically.	HACH-1500  1001 mg/L

9	Remove the sample vial from the vial holder and insert another vial to test COD value.	H A C H - 1 5 0 0  4 8 7 . 1 m g / L
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* "<<" and "<" symbols indicate the selected option.

* Press the **Data** button to display stored data on the screen.

* The **Info** on the operating menu displays the range of reading value.

* "Over Range" or "Under Range" errors occur when the testing concentration is outside the range of the current COD curve.

3.2 User Curves Calibration - User-1, User-2, User-3, User-4

- ◆ Ensure to calibrate using standard solution and reagent vials during initial use.
- ◆ Set the concentration values equally to prevent errors from close absorbance readings.
- ◆ Complete the Blank calibration and use more than 1 standard to finish the calibration.
 You can save up to 6 standard setpoints in one curve.
- ◆ Avoid calibrating the same concentration twice to prevent errors in calibration parameters.
- ◆ Insert sample vials in the same direction to keep COD values consistent.

Step	Operation	Screen Display
1	Switch on the instrument and LOGO shows on the screen.	ROCKER
2	The curve menu shows on the screen in 2 seconds.	1 : H A C H < <  2 : L o v i b o n d
3	Select user curve by using 「▲」 or 「▼」. Press ← button to enter the curve range.	5 : M e r c k  6 : U s e r - 1 < <
4	Press 「▶」 and select curve range based on reagent concentration: 150, 1500, or 15000. Press ← button to enter the operating menu.	U s e r - 1 - 1 5 0  1 5 0 < 1 5 0 0 1 5 0 0 0
5	Press 「▶」 and select CAL . Press ← button to proceed calibration.	U s e r - 1 - 1 5 0  S t a r t I n f o C A L <

6	Insert Blank vial when "Insert Blank" message appears.	User - 1 - 1 5 0  I n s e r t B l a n k
7	Insert Blank vial into the vial holder, and "Blank OK" message appears in 2 seconds.	User - 1 - 1 5 0  B l a n k O K
8	Remove the Blank vial and press ↵ button to confirm.	User - 1 - 1 5 0  B l a n k O K
9	Insert 1 st standard vial into vial holder when "Insert Std 1" message appears.	User - 1 - 1 5 0  I n s e r t S t d 1
10	Input the standard concentration value by using 「▲」 , 「▼」 and 「▶」 .	User - 1 - 1 5 0  0 0 0 <u>5</u> 0 m g / L
11	Remove the sample vial from the vial holder and press ↵ button to save the 1 st setpoint.	User - 1 - 1 5 0  S 1 : 5 0 . 0 m g / L O K <
12	Repeat step 9~11 until standard vials are finished. Press Menu and select Save to complete the calibration. Save: Save the calibration parameters and exit. Exit: Exit without saving CAL parameters. CAL: Back to the calibration.	User - 1 - 1 5 0  S a v e < E x i t C A L

* After completing the calibration, follow steps in [P.10 3.3 Calibration Verification](#) to verify its success.

3.3 Calibration Verification - User-1, User-2, User-3, User-4

- ◆ After completing the calibration, follow these steps to verify its success.
- ◆ If the calibration fails, please refer to [P.8 3.2 User Curves Calibration](#) for instructions on redoing the calibration.

Step	Operation	Screen Display
1	Switch on the instrument and LOGO shows on the screen.	ROCKER
2	The curve menu shows on the screen in 2 seconds.	1 : H A C H <<  2 : L o v i b o n d
3	Select user curve by using 「▲」 or 「▼」. Press ← button to enter the curve range.	5 : M e r c k  6 : U s e r - 1 <<
4	Press 「▶」 and select curve range based on reagent concentration: 150, 1500, or 15000. Press ← button to enter the operating menu.	U s e r - 1 - 1 5 0  1 5 0 < 1 5 0 0 1 5 0 0 0
5	Press 「▶」 and select Info . Press ← button to verify the calibration result.	U s e r - 1 - 1 5 0  S t a r t I n f o < C A L
6	CAL point: Number of calibration setpoints. OK: Calibration parameters are correct. NG: Calibration parameters are incorrect, please redo the calibration.	U s e r - 1 - 1 5 0  C A L p o i n t = 2 O K <
7	Check the concentration of setpoints using 「▲」 or 「▼」. Press ← or Menu button to return to the previous menu.	U s e r - 1 - 1 5 0  S 1 = 1 5 0 0 . 0 m g / L <

3.4 Change Name of User Curve - User-1, User-2, User-3, User-4

Step	Operation	Screen Display
1	Switch on the instrument and LOGO shows on the screen.	ROCKER
2	The curve menu shows on the screen in 2 seconds.	1: H A C H <<  2: L o v i b o n d
3	Select user curve by using 「▲」 or 「▼」. Press ↵ button to enter the curve range.	5: M e r c k  6: U s e r - 1 <<
4	Press and hold 「▲」 for 2 seconds during the curve range menu to change the curve name.	U s e r - 1 - 1 5 0  1 5 0 < 1 5 0 0 1 5 0 0 0
5	Use 「▲」, 「▼」 and 「▶」 to change the characters (up to 10 characters).	U s e r - 1  = > <u>U</u> s e r - 1
6	Press ↵ button to save the name. Press Menu button to exit without saving.	U s e r - 1 - 1 5 0  = > R O C K E R <u>R</u>

3.5 Check Testing Data

- ◆ CD 200 can store up to 100 records and automatically delete the oldest record when the limit is exceeded.

Step	Operation	Screen Display
1	Press the Data button to display stored information under every menu page.	1 : H A C H < <  2 : L o v i b o n d
2	The displayed data includes the date, time, curve name, curve range, data number and COD value.	2 0 1 6 / 0 2 / 0 6 0 8 : 3 4  0 2 2 4 8 7 . 1 m g / L
3	The data, time, curve name and curve range will alternate in the first row every 2 seconds. Press 「▶」 to stop the automatic switching and switch it manually.	H A C H - 1 5 0 0  0 2 2 4 8 7 . 1 m g / L
4	Use 「▲」 or 「▼」 to display different data. Press Menu button to exit.	2 0 1 6 / 0 2 / 0 6 0 8 : 3 3  0 2 1 9 9 9 . 9 m g / L

3.6 Setup of Basic Settings - Time, Backlight, Sound, Auto Shut, Memory

Step	Operation	Screen Display
1	Switch on the instrument and press the Menu button to return to Main Menu.	1 : H A C H <<  2 : L o v i b o n d
2	Use 「▲」 or 「▼」 to select desired options. Press ← button to start the setup.	1 : C O D T e s t  2 : T i m e <<
3	Use 「▲」, 「▼」 and 「▶」 to change the settings. Press ← button to save and exit.	D a t a : 2 0 1 6 / 0 2 / 0 6  T i m e : 0 9 : 3 4

◆ List of Settings and Their Meanings

Settings	Options	Description
Time	N/A	The time setting is automatically saved upon modification.
Backlight	On	Backlight remains continuously on.
	Auto	Backlight turns on but automatically turns off after 3-min idle time.
	Off	Backlight remains off.
Sound	On	Sound is enabled.
	Off	Sound is disabled.
Auto Shut	On	The instrument will automatically switch off after 10-min idle time
	Off	Auto Shut feature is disabled.
Memory	On	After switching on, the last menu displayed before shutdown.
	Off	After switching on, the curve menu will be displayed.

6. Maintenance

1. Please clean the surface with a damp cloth, mild soap, or 75% ethanol and dry it.
2. Use the dust cap to prevent from dust accumulation for reliable performance.
3. Remove the battery if the instrument will be unused for an extended period to prevent leakage.
4. Clean the vial holder with ethanol to avoid reading interference due to dirt accumulation.

7. Troubleshooting

Problem	Reason and Solution
Fail to start or Abnormal Display	<ul style="list-style-type: none">• Wrong power supply → Connect to power specified on mani unit.• Loose plug → Reconnect plug to power supply and instrument.• Battery error → Replace with a new 9V battery.• Display or components failure → Contact distributor for assistance.
Dark Display	<ul style="list-style-type: none">• Incorrect backlight setting → Turn on the backlight.• Low battery → Replace with a new 9V battery.• Display or components failure → Contact distributor for assistance.
Error Messages	<ul style="list-style-type: none">• Incorrect range of reagent → Ensure range of curve and reagent is corresponding.• Over / under range → Testing value exceeds than used curve range.• Blank NG → Used wrong range of reagent vials.
Other problems	<ul style="list-style-type: none">• Please contact distributor for assistance

8. Ordering Information

198200-01(02)	CD 200, COD Detector, AC100~240V adaptor, US plug (EU plug)
179250-11(22)	CR 25, COD Reactor, AC110V,60Hz (AC220V,50Hz)
179250-43	Protective Lid
191100-01(02)	WD 100, Multiparameter Colorimeter, AC100~240V adaptor, US plug (EU plug)
AWE770110	1000~5000 ul Pipette (Adjustable)
SSI 5000-50	5 ml Pipette Tip (50/PK)

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