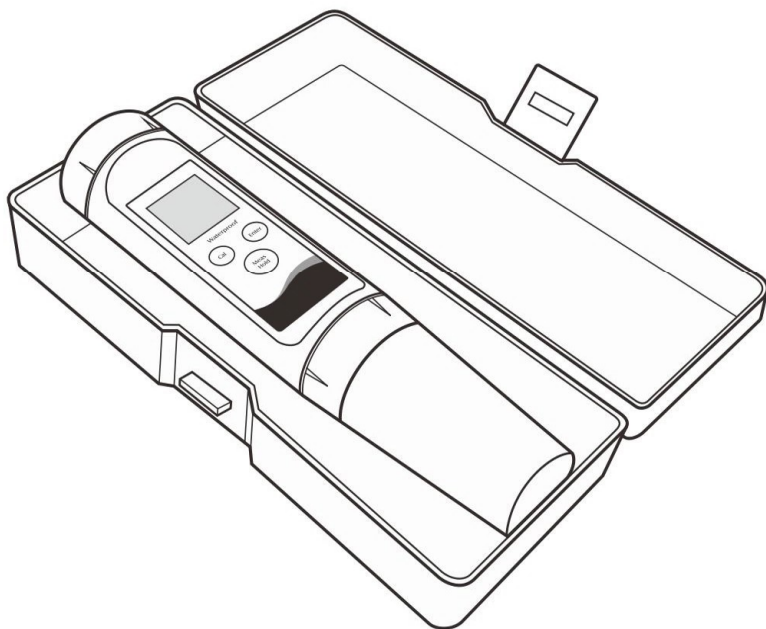


ORPscan10/20 Pocket ORP Tester

Instruction Manual



Overview




Thank you for selecting the ORPscan series pocket ORP tester. This manual provides a step-by-step guide to help you operate the instrument, please carefully read the following instructions before use.

Installing the Batteries


1. Twist the electrode collar counter clockwise, pull the electrode (or BNC connector) away from the tester.
2. Insert the two AAA batteries into the battery compartment, note polarity.
3. Push the electrode (or BNC connector) into the tester and twist the electrode collar clockwise until tight.



Keypad

Key	Function
	<ul style="list-style-type: none"> • Switch the tester on or off • Lock the reading, press the key again to resume measurement • Exit the calibration, setting and return to the ORP measurement mode
	<ul style="list-style-type: none"> • Start calibration • Press and hold the key to enter the setup menu • Select an option
	<ul style="list-style-type: none"> • Confirm the calibration, setting or displayed option

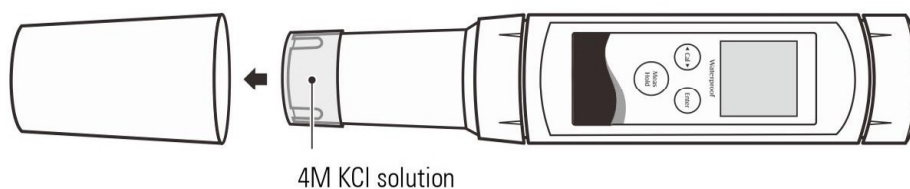
Display

Icon	Description
	When the battery voltage falls below the minimum power requirements, the icon automatically disappears
MEAS	Indicates that the tester is in the measurement mode
CAL	Indicates that the tester is in the calibration mode
SETUP	Indicates that the tester is in the setup mode

Prior to Use

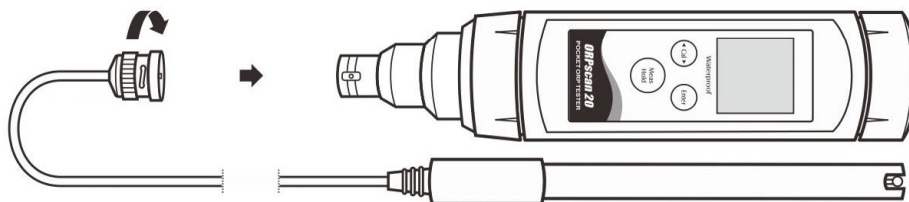
ORPscan10:

Remove the protective cap and translucent cover from the bottom of the tester. If some salt crystals deposited on electrode, rinse with tap water to clean these deposits. If the platinum sensor has dried out, soak the electrode in 4M KCl solution for at least 30 minutes.



ORPscan20:

Take out the ORP electrode from carrying case. Insert the BNC connector into the connector socket on tester, rotate and push the connector clockwise until it locks. Remove the protective cap from the bottom of the electrode.



Switching the Tester On and Off

- Press and hold the **Meas** key for about 5 seconds to switch on the tester.
- Press and hold the **Meas** key to switch off the tester.
- To disable the auto-power off function, refer to the **Setup Menu** section.

Setup Menu

The ORPscan series tester contains 3 menu items in the setup menu, the following table describes the functions of each option.

Menu	Description	Options	Description	Default
HOLD	When the option is enabled, the tester will automatically sense a stable reading and lock the measurement	YES	Enable	Disable
		NO	Disable	
OFF	When the option is enabled, the tester will automatically switch off if no key is pressed within 8 minutes	YES	Enable	Enable
		NO	Disable	
rSt	Reset the tester to factory default settings	YES	Enable	Disable
		NO	Disable	

Setting the Default Option

1. In the measurement mode, press and hold the **Cal** key for 5 seconds to enter the setup menu.
2. If necessary, press the **Cal** key again to select an option.
3. Press the **Enter** key, the tester saves the current option and moves to the next menu item.
4. Repeat the steps above until the tester returns to the measurement mode.

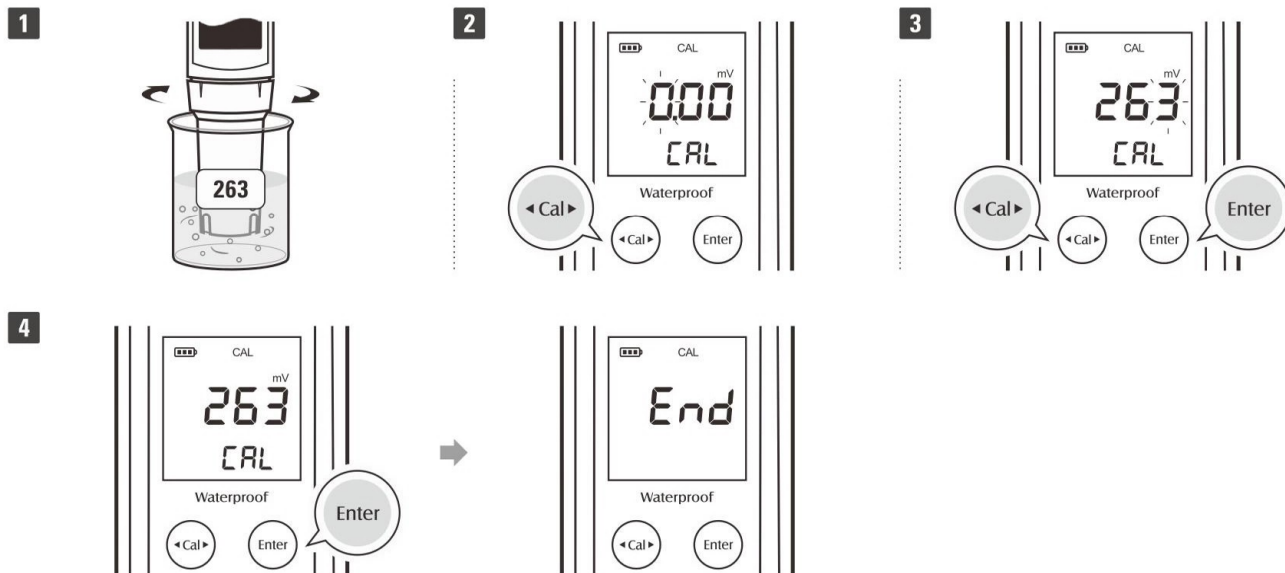


- During the setting process, press the **Meas** key, the tester will exit the setup menu and return to the measurement mode.
- The **rSt** option is used to restore the tester back to the factory default settings. If enabled, all of the calibration data and user-specific settings will be deleted or reset.

Relative mV Calibration

The ORPscan series tester allows 1 point calibration, but calibration is not necessary unless exact readout agreement with a work standard and at a specific ORP value is needed.

1. Rinse the electrode with deionized water and place into the standard solution. Stir the electrode gently and wait until the measurement is stable.
2. Press the **Cal** key, the display shows "000/CAL".
3. Press the **Cal** key again to set the calibration value, press the **Enter** key to confirm and move to the next digit. When the setting is completed, make sure that the displayed value matches your calibration standard.
4. Press the **Enter** key, the tester begins calibration. When the reading has stabilized, the display will show "End". Calibration is completed.



- i** After the calibration, the measurement unit "mV" will automatically convert to "R.mV" (relative millivolt). If you want to resume the raw millivolt measurement, reset the tester (refer to the **Setup Menu** section).
- To exit the calibration without saving calibrated value, press the **Meas** key.

Measurement

Rinse the electrode with deionized water. Place the electrode into the sample solution and stir gently. Note that the end of the electrode must be completely immersed into the solution. Wait for the measurement to stabilize and record the reading.

- i** The platinum ORP electrode may give unstable readings in solutions that contain chromous, vanadous and titanous ions or other ions that are stronger reducing agents than hydrogen or platinum.
- If the display shows "----" indicating the measurement exceeds the range, remove the tester (or electrode) from the sample immediately.
- If the **HOLD** option is enabled in the setup menu, the tester will automatically lock a measurement endpoint and show **HOLD** icon. Press the **Meas** key to resume measuring.

Electrode Maintenance

- Rinse the electrode thoroughly with deionized water after use.
- In the corrosive chemicals, viscous solutions and solutions with heavy metals or proteins, take readings quickly and rinse electrode immediately.
- If you do not use the tester for long periods, store the electrode in 4M KCl solution or electrode storage solution.

Appendix

Preparation of ORP Standard Solutions

Quinhydrone solution A: Dissolve 3 grams of quinhydrone reagent in 500 ml of the pH4.01 buffer solution, stir the solution for about 10 minutes. Undissolved quinhydrone reagent must be present. If necessary, add the reagent.

Quinhydrone solution B: Dissolve 3 grams of quinhydrone reagent in 500 ml of the pH7.00 buffer solution, stir the solution for about 10 minutes. Undissolved quinhydrone reagent must be present. If necessary, add the reagent.






Temperature	Quinhydrone in pH4.01 (± 10 mV)	Quinhydrone in pH7.00 (± 10 mV)
20°C/68°F	268 mV	94 mV
25°C/77°F	263 mV	87 mV
30°C/86°F	260 mV	80 mV

⚠ Due to the quinhydrone solution is susceptible to air oxidation in storage, make sure to prepare the fresh solution before use.

Preparation of Electrode Storage Solution

Dissolve 29.82 grams of analytical grade KCl reagent in 100 ml deionized water. Add pH4.01 standard buffer and adjust solution to pH 4.

Optional Accessories

	Order Code	Description
	E-ORPscan-S	General purpose ORP electrode, platinum sheet. For measuring the general water samples.
	E-ORPscan-BNC	BNC connector for ORPscan series testers.
	501	General purpose ORP electrode, platinum pin, epoxy body, 12 mm (0.47") diameter. For measuring the general water samples.
	504	General purpose ORP electrode, platinum ring, glass body, 12 mm (0.47") diameter. For measuring the high temperature samples (< 100°C/212°F).
	PHCS-ES	Electrode storage solution, 480 ml

Specifications

ORP	Model	ORPscan10	ORPscan20
	mV Range	±999 mV	
	Relative mV Range	±999 mV	
	Resolution	1 mV	
	Accuracy	±2 mV	
	Calibration Point	1 point	
Other Specifications	Operating Temperature	0 to 50°C (32 to 122°F)	
	Storage Temperature	-5 to 60°C (23 to 140°F)	
	Relative Humidity	< 80% (non-condensing)	
	IP Rating	IP54	
	Connector	---	BNC
	Display	Dual-line LCD, 21 × 21 mm (0.82 × 0.82")	
	Power Requirements	2 × 1.5V AAA alkaline batteries	
	Auto-Off	8 minutes after last key pressed	
	Dimensions (L × Dia.)	185 × 40 mm (7.28 × 1.57")	175 × 40 mm (6.89 × 1.57")
	Weight	100 g (3.5 oz.)	



Disposal

This tester is required to comply with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC and may not be disposed of in domestic waste. Please dispose of this product in accordance with local regulations at the collecting point specified for electrical and electronic equipment.

Warranty

The warranty period for tester is one year from the date of shipment. Above warranty does not cover the electrode. Out of warranty products will be repaired on a charged basis. The warranty on your tester shall not apply to defects resulting from:

- Improper or inadequate maintenance by customer.
- Unauthorized modification or misuse.
- Operation outside of the environment specifications of the products.

For more information, please contact the supplier.