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Operation Manual

PCE-ORP 3

Microcomputer Based
ORP & Temperature
Pocket Meter



PCE-ORP 3



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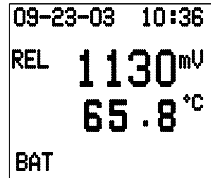
INITIAL INSPECTION AND ASSEMBLY

Carefully unpack the instrument and accessories. Inspect for damages made in shipment. If any damage is found, notify your Jenco representative immediately. All packing materials should be saved until satisfactory operation is confirmed.

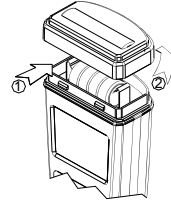
BEFORE YOUR FIRST USE

A. Replace the Batteries

Replace the battery when the blinking low battery indicator "BAT" appears on the lower left hand side of the LCD screen. The instrument can operate within specifications for approximately 2~3 hours after low battery indicator appears.



1. Shown in the right figure.
2. Take off the battery cover.
3. Remove all of the old batteries and insert a new set of batteries ensuring the polarities are correct.



B. Soak the Electrode, if necessary for up to 24 hours

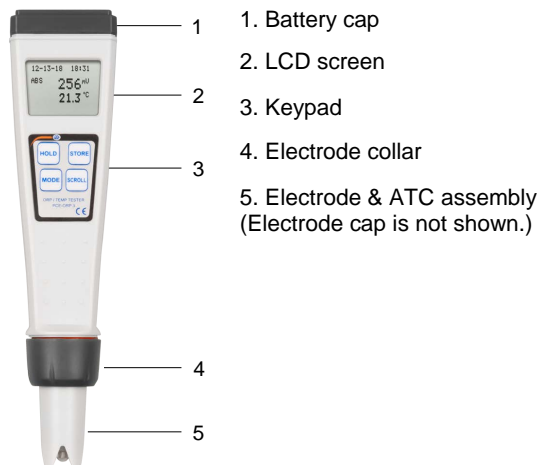
1. Remove the electrode cap covering the VisionPlus ORP meter.
2. Soak the ORP electrode in standard solution or distilled water for 10 minutes before first use or after storage.

C. Setup and Calibrate the Electrode and Meter

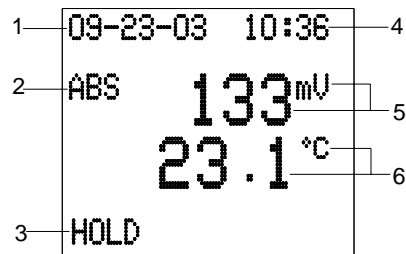
PCE-ORP 3 must be setup and calibrated before your first use. Please follow the instructions detailed in section **USING PCE-ORP 3**

PCE-ORP 3 OVERVIEW

A. Meter Description



B. PCE-ORP 3 Graphical Display



- 1. DATE (MM-DD-YY)
- 2. ABSolute or RELative ORP mode indicator
- 3. HOLD mode indicator
- 4. TIME (HH:MM – 24H format)
- 5. ORP reading & unit
- 6. TEMPERATURE reading & unit

Note: or °F is factory pre-set.

OPERATION MODES AND KEYPAD OPERATIONS

A. Operation Modes

PCE-ORP 3 meter has 7 operation modes:

1. Measure Mode.--Measure Mode is used to make all absolute or relative ORP and temperature measurements.
2. Calibration Mode.--Calibration Mode is used to perform offset voltage adjust.
3. Hold Mode.--Hold Mode is used to display held measured values for increased ease of use.
4. Recall Data Mode.--Recall Data mode is used to display measured data which have been stored in memory.
5. Store mode.--Can save up to 50 set data in non- volatile memory.
6. Date and Time Set Mode.--Date and Time Set Mode is used to change date and time.
7. Erase Mode.--Can erase 50 set data in non- volatile memory.

B. Keypad Operations

Key	Operation Mode	Duration	Function
HOLD	All, except Hold	2 seconds or more	Turns meter on/off.
	Measure	0 second	Holds current measurement reading. Press again to resume measuring.
	Hold	0 second	Returns to Measure Mode.
	Date and Time Set	0 second	Moves cursor to next set of data.
	Calibration	0 second	Moves cursor to next digit or sign.
MODE	Measure	2 seconds	Enters Calibration Mode.
	Measure	10 seconds or more	Enters Date and Time Set Mode.
	Calibration	0 seconds	Increases current number.
	Date and Time Set	0 seconds	Increases current number.
STORE	Measure	2 seconds	Stores Temperature, current absolute & relative ORP reading, date and time into memory.
	Calibration	2 seconds or more	Leaves Calibration Mode.

Key	Operation Mode	Duration	Function
STORE	Recall Data	2 seconds or more	Leaves Recall Data Mode.
	Date and Time Set	2 seconds or more	Leaves Date and Time Set Mode.
	Erase	0 second	Erases all user data then Exits Erase Mode.
SCROLL	Measure	2 seconds	Enters Recall Data Mode.
	Recall Data	0 second	Scrolls through stored data.
	Calibration	0 second	Decreases current number.
	Date and Time Set	0 second	Decreases current number.
	Measure	10 seconds or more	Enters Erase 50 set non-volatile memory mode.
	Erase	0 second	Exits Erase Mode

USING PCE-ORP 3

A. Power ON/OFF & Shutdown

Press "HOLD" key for 2 seconds or more. The unit will turn on and enter the "Measure Mode". Repeat the process to turn off the unit. The unit will also automatically turn off after 10 minutes of no key activity.

B. Set Date and Time

1. Press "MODE" key for 10seconds or more to enter"Date and Time Set Mode".

2. Press "HOLD" key to selectcalendar or time parameters.

3. Press "MODE" and "SCROLL" keys to increase and decrease values respectively.

```

09-18-03  12:45

HOLD  : ↗
MODE  : ↕
SCROLL: ↓
STORE :2SEC EXIT

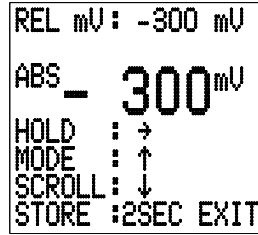
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4. Press "STORE" key for 2 seconds to exit and return to"Measure Mode".

C. Relative ORP Calibration

If the user requires a relative ORP calibration, follow these steps:

1. Clean and dip meter into standard solution .
2. Wait reading stable, press "MODE" key for 2 to 3 seconds to enter "Calibration" mode and enter new relative ORP value.
3. Press "HOLD" key to move the digit position (polarity & digit).
4. Press "MODE" and "SCROLL" keys to increase and decrease values respectively.
5. Press "STORE" key for 2 seconds to exit and return to measure mode displaying absolute ORP value.
6. Press "MODE" key to display relative ORP value.



```
REL mV: -300 mV
ABS - 300mV
HOLD : →
MODE : ↑
SCROLL : ↓
STORE :2SEC EXIT
```

Note:

1. The ORP offset calibration is only needed in some applications.
2. *Don't enter calibration mode when absolute reading is over ± 1000 mV range.*

D. Measure

The ORP/TEMP can be used to measure absolute or relative ORP values.

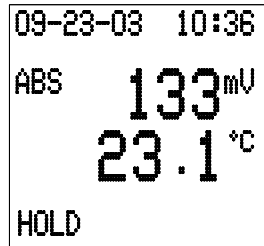
1. Dip the meter into the test solution in the "Measure Mode".
2. Press "MODE" key to select absolute or relative ORP readings.

E. Hold Data

1. When the ORP reading is stable, press "HOLD" key once to lock the reading.

Note: The unit cannot be power off in "Hold Mode".

2. Press "HOLD" key again to unlock reading and the unit will return to "Measure Mode". The unit is now ready for another measurement.



```
09-23-03 10:36
ABS 133mV
23.1 °C
HOLD
```

F. Save Data

1. Either in the "Hold Mode" or the "Measure Mode", press "STORE" key for 2-3 seconds. The "SAVE" and "M-XX" icons will appear indicating the reading has been saved and stored in memory location XX. The unit will automatically returns to "Measure Mode" and ready to perform other task.

Note: The PCE-ORP 3 is equipped with a non-volatile memory that can store up to 50 different sets of readings

(ABSolute & RELative mV, temperature, Time and date). Non-volatile memory will be retained even if power is lost. When all 50 memory locations are used up, the next set of data saved will overwrite the data stored in the first location and so on.

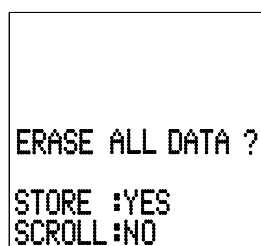
G. Recall Data

1. In "Measure Mode", press "SCROLL" key 2-3 seconds, the last set (assume it is M12) of saved data will appear.
2. By pressing the "SCROLL" key, previous (M11) saved data will appear.
3. Press "STORE" key for 2 seconds to exit and return to "Measure Mode".

09-18-03 12:45	09-18-03 12:42
ABS 550 mV	ABS 1400 mV
REL 240 mV	REL 700 mV
M12 25.0 °C	M11 25.0 °C
SCROLL:NEXT DATA	SCROLL:NEXT DATA
STORE :2SEC EXIT	STORE :2SEC EXIT

H. Erase Data

1. Press "SCROLL" key over 10 seconds to enter erase mode. See the figure below.
2. Press "STORE" key, the unit will display "DATA CLEAR" and erase **all** data in the non-volatile memory.
3. Press "SCROLL" key to leave the erase mode and return to "Measure Mode".

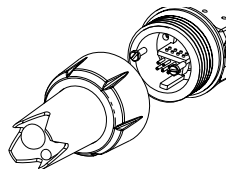


ONGOING MAINTENANCE

A. Replace Electrode

It is recommended the ORP electrode be replaced every 6 to 12 months or as needed. Some applications can severely limit the life span of an ORP electrode.

1. Unscrew the electrode collar to remove the electrode & ATC assembly as shown in the right figure.
2. Remove the old electrode from the electrode collar.
3. Insert a new electrode, make sure the electrode fit back into the meter correctly.
4. Screw back the electrode collar.



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ERROR DISPLAYS AND TROUBLESHOOTING

ORP LCD Display	ATC Display	DISPLAY Mode	Possible cause(s) [Action(s)]
Any Value	"OVER" or "UNDER"	Measure	a. Temperature outside -10.0 to +100.0°C range. [Bring solution to a lower/higher temperature.] b. Bad sensor. [Replace new electrode module.]
"OVER" or "UNDER"	-10.0~100.0°C	Measure	ORP value outside -1100 to +1100 mV value. [Clean or Replace electrode]

SPECIFICATIONS

ORP

Absolute Range	Resolution	Accuracy
-1100 to +1100mV	1 mV	1 mV ± 1 LSD

Temperature

Range	Resolution	Accuracy
-10.0 to 100.0 °C	0.1 °C	±0.3 °C
14.0 to 212.0	0.2	±0.6

ORP

Relative ORP calibration range -999 to 999 mV
(User programmable)

Input impedance >10¹²

Temperature

Temperature sensor Thermistor, 10K@ 25°C

Temperature unit Default in factory (°C or °F)

General

Power Meter : LR44 x 4
Calendar : CR2032

Battery life Meter: 200 Hours
Calendar: 5 years

Ambient temperature range 0.0 to 50.0 °C

Display 98x64 graphic LCD

Case IP67 water-tight Case

Weight 107 g