

ULTRAPEN™ PT3

ORP & Temperature Pen

CE

- ACCURATE
- RELIABLE
- SIMPLE

Professional Water Analysis

- Accuracy of ±10 mV ORP
- Proprietary Sensor Design
- 99.9% Pure Platinum Electrode
- 3 Calibration Options with Automatic Solution Recognition
- Automatic Temperature Compensation in Calibration Mode
- Temperature Readout
- Waterproof

PACKAGE CONTENTS:

- PT3 Pocket Tester Pen - Battery Installed
- Scoop
- Soaker Cap
- Pocket Clip
- Holster
- Lanyard
- ORP Electrode Cleaning Paper
- Operating Instructions

Visit our website:
myronl.com/pt3.htm

ALSO AVAILABLE!

ULTRAPEN™ PT1
Conductivity, TDS, Salinity & Temperature



ULTRAPEN™ PT2
pH & Temperature



ULTRAPEN™ PT4
Free Chlorine Equivalent (FC^E) & Temperature



myronl.com

MADE IN USA

MYRON L COMPANY
Water Quality Instrumentation
Accuracy • Reliability • Simplicity
. . . Since 1957

INTRODUCTION



Thank you for purchasing the Myron L ULTRAPEN™ PT3 ORP Pen. This instrument is designed to be extremely accurate, fast, and simple to use in diverse water quality applications. Advanced features include highly stable microprocessor-based circuitry; automatic temperature compensation from 15ºC to 30ºC while in calibration mode; user-intuitive design; and waterproof housing. A true one-handed instrument, the PT3 is easy to calibrate and easy to use. To take a measurement, you simply push a button then dip the PT3 in solution. Results display in seconds.

FEATURES

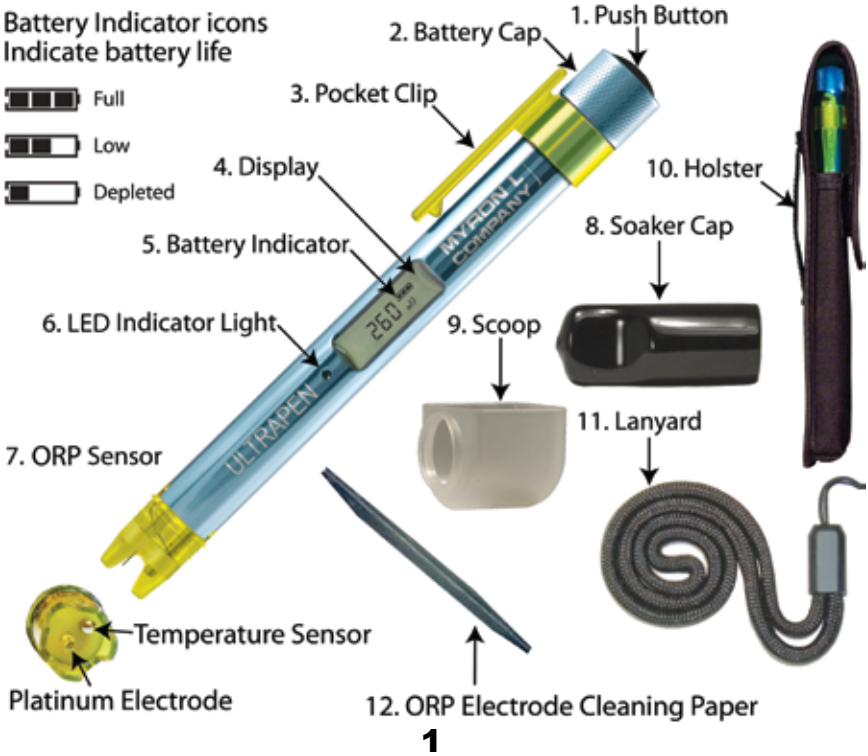
1. **Push Button** — turns PT3 on; selects mode and unit of measurement preferences.
2. **Battery Cap** — provides access to battery for replacement.
3. **Pocket Clip** — holds PT3 to shirt pocket for secure storage.
4. **Display** — displays measurements, menu options, battery indicator, and firmware revision (during power-up).
5. **Battery Indicator** — indicates life remaining in battery.
6. **LED Indicator Light** — indicates when to dip PT3 in solution, when measurement is in progress, and when to remove PT3 from solution.
7. **ORP Sensor** — measures oxidation-reduction potential or redox of solution.
8. **Soaker Cap** — contains a sponge soaked with Sensor Storage Solution to maintain sensor hydration. To remove, twist soaker cap while pulling off. To replace, fill soaker cap with storage solution just until sponge is covered. Squeeze and release tip of soaker cap so sponge will saturate with solution, then pour out any excess solution. Twist soaker cap while pushing back on.

CAUTION: Do NOT overfill the soaker cap as solution can squirt out while you are pushing the cap back on.

9. **Scoop** — used to hold sample solution when dipping is not possible. To install, push scoop onto sensor while shifting side-to-side. To remove, pull scoop off while shifting side-to-side. Verify ORP sensor remained fully inserted into PT3. If not, reinstall per ORP Sensor Replacement on page 5. To use, pour solution into scoop or hold scoop directly under a vertical stream to collect sample.



10. **Holster** — feed belt through strap in back of holster for hands-free portability.
11. **Lanyard** — attach through hole in top of pocket clip.
12. **ORP Electrode Cleaning Paper** — for deep cleaning the platinum electrode.



OPERATING INSTRUCTIONS

NOTE: Selecting "ESC" from any menu immediately turns the PT3 off without saving changes.

I. Temperature Unit Selection

The PT3 allows you to select the type of units used for displaying temperature: °C (Degrees Celsius) or °F (Degrees Fahrenheit).

To set the preference:

1. Push and release the push button to turn the PT3 on.
2. Push and hold the button. The display will alternate between "CAL", "FAC CAL", "ºCºF TEMP", "ModE SEL" and "ESC".
3. Release the button while "ºCºF TEMP" is displayed. The display will alternate between "PUSHnHLD" and "ºCºF TEMP".
4. Push and hold the button. The display will alternate between "°C", "°F" and "ESC". Release the button when desired unit preference displays.
5. "SAVEd ºC" or "SAVEd ºF" will display; then the PT3 will turn off.

II. ORP Mode Selection

The PT3 allows you to select the ORP measurement mode you prefer:
Hold Mode (default) — once stabilized, the readings are captured then displayed.
LIVE Mode — real-time readings are displayed continuously during measurement.
To set the pH measurement mode preference:

1. Push and release the push button to turn the PT3 on.
2. Push and hold the button. The display will alternate between "CAL", "FAC CAL", "ºCºF TEMP", "ModE SEL" and "ESC".
3. Release the button when "ModE SEL" is displayed. The display will alternate between "PUSHnHLD" and "ModE SEL".
4. Push and hold the push button. The display will alternate between "Hold", "LIVE" and "ESC".
5. Release the button when desired mode displays.
6. "SAVEd" will display, then the PT3 will turn off.

III. ORP Measurement

The following table explains what the LED Indicator Light signals indicate and gives the duration of each signal:

LED Signal	***Action***	***Duration***
Rapid Flashing	*Dip pen in solution and swirl.*	*6 sec*
Slow Flashing	*Measurement in process; continue to swirl.* ***In Hold mode*** *no values are displayed until the LED is on solid.* ***In LIVE mode*** *real-time readings are displayed until the PT3 turns off.*	*10-45 sec* ***in Hold mode*** *90 sec* ***in LIVE mode***
Solid Light (Hold mode only)	*Measurement is complete. Values are displayed until the PT3 turns off.*	*6 sec*

CAUTION: To measure solution at the extremes of the specified temperature or ORP range, or when changing between solutions that have extreme differences in ORP values, or from high to low ionic strength: Rinse the sensor thoroughly with clean water then allow it to soak in a sample of the solution to be tested for a minimum of 1 minute. ***(In some applications you may want to allow the sensor to soak in solution for an hour or more.)***
NOTE: If you cannot dip the sensor in the sample solution, pour the sample into a clean container. If you don't have a container or need to test a vertical stream of solution, use the scoop to hold sample solution.

1. Rinse the PT3. If measuring from a container, submerge the sensor and swirl it around in FRESH sample solution 3 times. Alternatively, 30 seconds under a stream or swirling in a body of water is sufficient to prepare the sensor for measurement.
2. Remove PT3 from solution. (Fill the container one more time with FRESH sample solution, if applicable.) Then push and release the push button.
3. Grasp the PT3 by its case with your fingers positioned between the display and the battery cap to avoid sample contamination.
4. While the LED flashes rapidly, dip the PT3 in FRESH sample solution so that the sensor is completely submerged.
5. While the LED flashes slowly, swirl the PT3 around to remove bubbles, keeping the sensor submerged.

a. **In Hold mode** when the LED turns on solid, remove the PT3 from solution. The display will alternate between the final ORP and temperature readings. Note the readings for your records.
b. **In LIVE mode** allow the PT3 to remain in solution while the LED flashes slowly. The display will alternate between live ORP and temperature readings. Note the readings for your records. LIVE measurement will time out after 90 seconds OR push and release the push button to turn the PT3 off at any time during LIVE measurement.

IV. Calibration

The Myron L Company recommends calibrating twice a month, depending on usage. However, you should check the calibration whenever measurements are not as expected.

The PT3 has automatic temperature compensation in calibration mode (from 15ºC to 30ºC). Temperature affects the reaction potentials for all chemicals differently. True ORP is the direct measurement of electron activity during an oxidation-reduction reaction, regardless of temperature. However, for maximum accuracy and ease of calibration, the Myron L Company has developed three calibration solutions with known dissolved species and embedded automatic temperature compensation for those solutions into the calibration function of your PT3. To verify calibration while in measurement mode, you must manually correct for temperature variations. For more information, visit www.myronl.com/pt3.htm.

NOTE: If the measurement is NOT within calibration limits for any reason, "Error" will display. Check to make sure you are using a proper ORP Standard Solution. If the solution is correct, clean the sensor as described on page 4 under Routine Maintenance. (Reconditioning the sensor should not be necessary due to the high ionic strength of the calibration solutions.) Restart calibration.

NOTE: Small bubbles trapped in the sensor may give a false calibration. After calibration is completed, measure the ORP Standard Solution again to verify correct calibration. Remember, in measurement mode you must manually correct for temperature variance from 25ºC. Example: At 25ºC, ORP2602OZ Standard Solution will read 260mV; however, at 20.0ºC ORP2602OZ will read 265mV.

NOTE: If at any point during calibration, you do not submerge the sensor in solution before the flashing slows, allow the PT3 to turn off and start over.

A. Calibration Preparation

1. Ensure the ORP sensor is clean and free of debris.
2. For maximum accuracy, pour a small amount of the calibration solution into a separate container to rinse the sensor in prior to calibration. If this is not possible, rinse the sensor in clean water prior to calibration.

B. Calibration

Use Myron L Company 80mV Quinhydrone, 260mV Quinhydrone, or 470mV MLC Light's ORP Standard Solution.

1. Thoroughly rinse the PT3 by submerging the sensor in ORP calibration rinse solution and swirling it around.
2. Push and release the push button to turn the PT3 on.
3. Push and hold the push button. The display will alternate between "CAL", "FAC CAL", "ºCºF TEMP", "ModE SEL" and "ESC".
4. Release the button when "CAL" displays. The display will indicate "CAL" and the LED will flash rapidly.
5. While the LED flashes rapidly, dip the PT3 in ORP Standard Solution so that the sensor is completely submerged.
6. While the LED flashes slowly, the display will indicate " [value] CAL"; swirl the PT3 around to remove bubbles, keeping the sensor submerged.
7. If the ORP calibration is successful, the display will indicate "CAL SAVEd", then time out.
8. Verify calibration by retesting the calibration solution.

C. Factory Calibration

When ORP Standard Solution is not available, the PT3 can be returned to factory default calibration using the FAC CAL function. This will erase any stored wet calibration.

NOTE: default factory calibration resets the electronics only and does NOT take the condition of the sensor into consideration.

To return your PT3 to factory calibration:

continued on page 4 ...

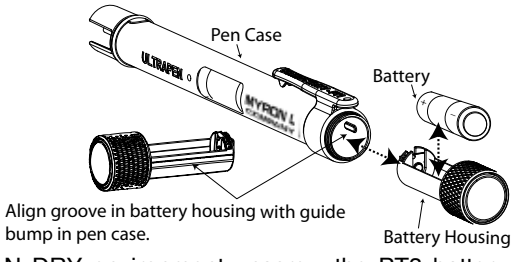
... continued from page 3

1. Push and release the push button.
2. Push and hold the push button. The display will alternate between “CAL”, “FAC CAL”, “ºCºF TEMP”, “ModE SEL” and “ESC”.
3. Release the button when “FAC CAL” displays. The display will alternate between “PUSHnHLD” and “FAC CAL”.
4. Push and hold the push button until “SAVEd FAC” displays indicating the PT3 has been reset to its factory calibration.

MAINTENANCE

I. Battery Replacement

The PT3 display has a battery indicator that depicts the life remaining in the battery. When the indicator icon is at 3 bars, the battery is full. When the indicator icon falls to 1 bar, replace the battery with an N type battery.



1. In a CLEAN DRY environment unscrew the PT3 battery cap in a counter-clockwise motion.
2. Slide the cap and battery housing out of the PT3.
3. Remove the depleted battery out of its housing.
4. Insert a new battery into the battery housing oriented with the negative end touching the spring.
5. Align the groove along the battery housing with the guide bump inside the PT3 case and slide the battery housing back in.
6. Screw the battery cap back on to the PT3 in a clockwise direction. Do not over tighten.

II. Routine Maintenance

1. ALWAYS rinse the ORP sensor with clean water after each use.
2. ALWAYS replace the soaker cap with sponge filled with Sensor Storage Solution to prevent the sensor from drying out after each use.
3. Cleaning the sensor: The Myron L Company recommends cleaning your sensor every two weeks, however this depends on application and frequency of use. Indications of a dirty sensor are slower and/or erroneous readings. Always recondition your sensor after cleaning.
   To clean your sensor, select one of the following methods:
   a. Basic Cleaning:
      Using a solution made of dish soap mixed with water and a cotton swab, gently clean the inside of the sensor body and platinum electrode, rinse thoroughly with clean water, then recondition the sensor.
   b. Moderate Cleaning:
      Using a paste made of Comet® cleanser mixed with water and a cotton swab, gently clean the inside of the sensor body and platinum electrode, rinse thoroughly with clean water, then recondition the sensor. (If Comet® Cleanser is not available, use another mildly abrasive household cleanser).
   c. Deep Cleaning:
      Using ORP electrode cleaning paper and water, gently clean the platinum electrode, rinse thoroughly with clean water, then recondition the sensor.
4. Reconditioning the sensor: For greatest accuracy and speed of response, the Myron L Company recommends reconditioning the sensor after cleaning.
   To recondition the sensor:
   Rinse the sensor thoroughly with clean water, then allow it to soak in Storage Solution for a minimum of 1 hour (for best results allow the sensor to soak in Storage Solution overnight).
5. Do not drop, throw, or otherwise strike the PT3. This voids the warranty.
6. Do not store the PT3 in a location where the ambient temperatures exceed its specified Operating/Storage Temperature limits.

SPECIFICATIONS

	ORP	Temperature
Range:	-1000mV to +1000mV	0 - 71°C / 32 - 160°F
Accuracy:	± 10mV	± 0.1ºC / ± 0.1ºF
Resolution:	1mV ORP	0.1ºC / 0.1ºF
Time to Reading Stabilization: 10 - 45 seconds		
Power Consumption: Active Mode 37mA, Sleep Mode 2μA		
Temperature Compensation: Automatic In Calibration Mode From 15ºC to 30ºC		
Physical Dimensions: 17.15cm L x 1.59cm D / 6.75in. L x 0.625in. D		
Weight: 50.4g / 1.78oz. (without soaker cap and lanyard)		
Case Material: Anodized Aircraft Aluminum with Protective Coating		
Battery Type: N type, Alkaline, 1.5V		
Calibration Standard Solutions: ORP80, ORP260, ORP470		
Operating/Storage Temperature: 0 - 55ºC / 32 - 131ºF		
Enclosure Ratings: IP67 and NEMA6		
EN61236-1: 2006 – Annex A: 2008: Electrostatic discharge to the PT3 may cause it to spontaneously turn on. If this occurs, the PT3 will turn off.		

QUICK REFERENCE INSTRUCTIONS

1. Push and release the push button to turn the PT3 on.
2. While the LED flashes rapidly, dip the PT3 in sample solution so that the sensor is completely submerged and begin swirling the sensor around in solution to remove bubbles.
3. While LED flashes slowly, measurement is in process. Continue to swirl the PT3 around in solution, keeping the sensor submerged.
   In Hold mode — no values will be displayed until the LED turns on solid. When the LED is on solid, the measurement is complete, and values are displayed for 6 seconds. The PT3 will then power off automatically.
   In LIVE mode — real-time readings are displayed continuously for 90 seconds. The PT3 will then power off automatically.

III. ORP Sensor Replacement

CAUTION: Only Remove/Replace the ORP sensor in a CLEAN and DRY environment!

To remove the ORP sensor: Remove the soaker cap with a twisting motion; make sure the PT3 (including the ORP sensor) is clean and dry. Loosen the battery tray (to allow pressure equalization). Then firmly grasp the ORP sensor body and slowly pull the ORP sensor out.

To install a new ORP sensor: Line up the alignment tabs on the ORP sensor with the alignment slots on the PT3 case. Gently push the ORP sensor into position, then close the battery cap.

ACCESSORIES

STANDARD SOLUTIONS FOR CALIBRATION:
The ULTRAPEN™ PT3 requires Myron L Company 80mV Quinhydrone, 260mV Quinhydrone, or 470mV MLC Light's ORP Standard Solutions for wet calibration and Sensor Storage Solution for proper storage.
Order Model Numbers:

ORP802OZ	80 mV, Kit, Quinhydrone/pH7	2oz
ORP2602OZ	260 mV, Kit, Quinhydrone/pH4	2oz
ORP4701OZ	470 mV, MLC Light's Solution	1oz
ORPCALKIT	Calibration Kit, ORP, 80mV, 260mV, 470mV	

For additional calibration kits available, contact the Myron L Company.

PHSS	Storage Solution
RPT3	Replacement ORP Sensor (with instructions)
OECP-25/-100	ORP Electrode Cleaning Paper, QTY 25 or QTY 100

MYRON L WARRANTY

The PT3, excluding the ORP sensor, has a one (1) year limited warranty.
The ORP sensor has a six (6) month limited warranty.

MYRON L COMPANY
2450 Impala Drive
Carlsbad, Ca 92010-7226
Phone: +1-760-438-2021
Customer Service E-Mail: info@myronl.com
Technical Support E-Mail: techquestions@myronl.com
Website: www.myronl.com

©2012 MYRON L COMPANY