

ULTRAPEN™ PT2 – Quick Start Guide

pH and Temperature Pen

For a complete set of operating instructions, maintenance procedures, calibration procedures, and the **FACTORY CAL** reset procedure, download the full PT2 Operation Manual from www.myronl.com.

QUICK REFERENCE INSTRUCTIONS

1. Press and release Push Button to turn the PT2 ON.
2. LED flashes rapidly: Dip pen in sample solution so sensor is totally submerged.
3. LED flashes slowly: Swirl pen in sample, keeping sensor submerged. Avoid contact with sides/bottom of container.
LIVE Mode: Display will alternate between live pH and temperature readings. Note readings for your records.
HOLD Mode: LED turns Solid ON when Measurement is complete then pen turns OFF.

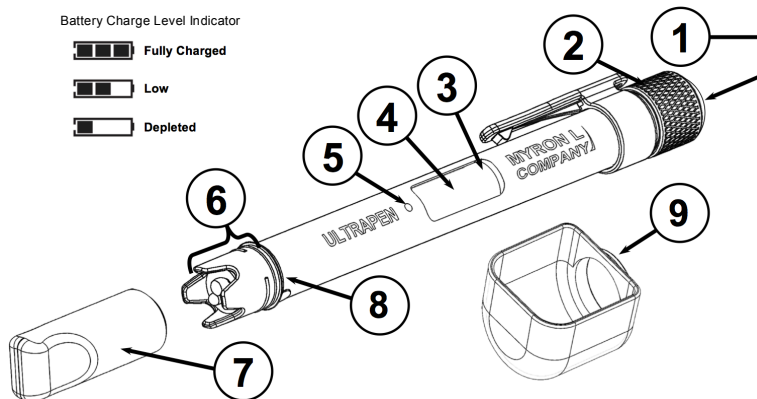
NOTE: After turning the PT2 ON, press and hold the push button to enter either the calibration or configuration mode.

FEATURES

1. **PUSH BUTTON** – Press to turn PT2 ON and select mode settings.
2. **BATTERY CAP** – Unscrew to access battery for replacement.
3. **BATTERY INDICATOR** – Indicates life remaining in battery.
4. **DISPLAY** – Displays measurements and menu options.
5. **LED INDICATOR LIGHT** – Tells the user when to dip & swirl PT2 during measurements and calibration.
6. **pH SENSOR** – Measures test sample's Hydrogen ion concentration and temperature.
7. **PROTECTIVE/HYDRATION CAP** – Contains pH Sensor Storage Solution to maintain sensor hydration. To remove, wiggle the cap back and forth while pulling it off using caution not to spill the Storage Solution. To replace, fill the protective/hydration cap half full with storage solution. Wiggle the cap back and forth while pushing back on using caution as excess Storage Solution may squirt out. Do **NOT** push the cap beyond the **Cap Stop** as sensor damage may occur.

NOTE: The formation of KCl crystals around the protective/hydration cap is normal. These crystals do not affect the sensor life, performance, or accuracy provided they are rinsed off with water prior to a test.

8. **CAP STOP** – **DO NOT** push the protective/hydration cap beyond the Cap Stop as sensor damage may occur.
9. **SCOOP** – Used to hold sample solution when dipping is not possible. To install, push the scoop onto the sensor while shifting side-to-side. To remove, pull the scoop off while shifting side-to-side. Verify the pH sensor remained fully inserted into the PT2. If not, reinstall per pH Sensor Replacement instructions (see Maintenance section of this guide). To use, hold the scoop directly under a vertical stream during measurement, avoiding bubbles.



PT2 DEFAULT SETTINGS

Temperature Units: °C (Temp. value alternates on Display with pH value)

Measurement Mode: HOLD

NOTE: For instructions on changing the temperature units to °F or switching the PT2 to LIVE measurement mode download the full PT2 Operation Manual from the Myron L® Company website.

OPERATING INSTRUCTIONS

MEASUREMENT SETUP: Before you take a reading, make sure the pen is clean, calibrated, and in the desired measurement mode. The sample solution must also be within the specified measurement range.

NOTE: Selecting "ESC" from any menu immediately turns the PT2 OFF without saving changes.

CAUTION: To measure solution at the extremes of the specified temperature range, allow the pen to equilibrate by submerging the sensor in the sample solution for 1 minute prior to taking a measurement.

MEASUREMENT:

1. Rinse the sensor by swirling it in fresh sample solution 3 times.
2. Push and release the push button to turn the PT2 ON.
3. Grasp the pen near the battery cap to avoid sample contamination.
4. Swirl the PT2 in fresh solution while measurement is taking place. If you do not submerge the sensor in solution before the flashing slows, allow the pen to power OFF and retake the reading.
5. The following table explains how to follow LED prompts during measurement and shows the duration of each prompt:

LED Signal	Action	Duration
Rapid Flashing	Dip pen in test sample 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 PT2 turns OFF.	10 - 30 sec in Hold mode Up to 5 min in LIVE mode
Solid Light (Hold mode only)	Measurement is complete. Value is displayed until the PT2 turns OFF.	6 sec

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3-POINT CALIBRATION: Myron L® Company recommends performing a 3-point calibration of the PT2 using pH 7, 4, and 10 Buffers twice a month or any time measurements are not as expected.

For maximum accuracy, fill 2 clean containers with each pH buffer. Arrange them in such a way that you can clearly remember which is the rinse solution and which is the calibration buffer. If you don't have enough buffer, you can use 1 container of each buffer for calibration and 1 container of clean water for all rinsing. Always rinse the pH sensor between buffer solutions. Ensure the pH sensor is clean and free of debris.

1. Thoroughly rinse the pen by submerging the sensor in pH 7 buffer rinse solution and swirling it around.
2. Push and release the push button to turn the PT2 ON.
3. Push and hold the push button to go into menu mode.
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 pen in pH 7 buffer calibration solution so that the sensor is completely submerged.
6. While the LED flashes slowly, the pH calibration point will display along with "CAL". Swirl the pen around to remove bubbles, keeping the sensor submerged.
7. If the pH 7 calibration is successful, the display will indicate "SAVEd", then "PUSHCONT" will be displayed.
8. Push and release the push button to continue. The LED will begin flashing rapidly.
9. Repeat steps 5 through 8 with pH 4 and 10 buffer calibration solutions.
10. After the 3rd calibration point is successfully saved, the display will indicate "SAVEd" and power OFF.
11. Verify calibration by retesting the calibration solution.
 - If "Error" is displayed, check to make sure you are using a proper pH buffer solution. If the solution is correct, clean the sensor. For sensor cleaning instructions, download the full PT2 Operation Manual from the Myron L® Company website for troubleshooting instructions.

1 AND 2 POINT CALIBRATION: To perform a one or two point calibration, follow the above procedure, but let the PT2 time out after the last point you wish to calibrate.

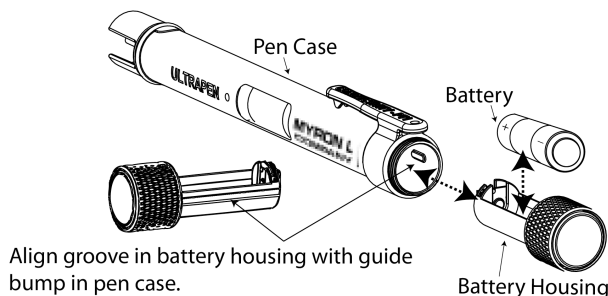
FACTORY CALIBRATION: Factory Calibration (FAC CAL) resets the PT2 to its factory settings. For instructions on how to perform a FAC CAL, download the full PT2 Operation Manual from the Myron L® Company website.

MAINTENANCE

I. BATTERY REPLACEMENT

The PT2 display has an indicator that depicts the pen battery's charge level. When the charge level indicator only shows one bar, IMMEDIATELY replace the battery with a new N type battery.

1. In a **CLEAN DRY** place unscrew the battery cap in a counter-clockwise motion.
2. Slide the cap and battery housing out of the pen.
3. Remove the depleted battery from 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 pen case and slide the battery housing in.
6. Screw the pen cap back on in a clockwise direction. Do not over tighten.




II. ROUTINE MAINTENANCE

1. **ALWAYS** rinse the pH sensor with clean water after each use.
2. **ALWAYS** replace the protective/hydration cap half filled with pH Sensor Storage Solution to prevent the sensor from drying out after each use.
3. If the sensor becomes dirty, clean the sensor surface with an isopropyl soaked cotton swab. Then rinse thoroughly with clean water.
4. Do not drop, throw or otherwise strike the pen. This voids the warranty.
5. Do not store the pen in a location where the ambient temperatures exceed its specified Operating/Storage Temperature limits.

III. PH SENSOR REPLACEMENT (Follow the instructions that come with your Replacement Sensor.) Only remove or replace the pH sensor in a CLEAN and DRY environment!

1. To remove the pH sensor: Remove the protective/hydration cap; make sure the PT2 (including the pH sensor) is clean and dry. Loosen the battery tray (to allow pressure equalization).
2. Firmly grasp the pH sensor body and slowly pull the pH sensor out.
3. To install a new pH sensor: Line up the alignment tabs on the pH sensor with the alignment slots on the PT2 unit. Gently push the pH sensor into position, then close the battery cap.

SPECIFICATIONS

Measurement Ranges	0.00-14.0 pH, Temp: 0-71°C / 32-160°F	Accuracy (after wet Cal)	±0.01 pH, Temp. Accuracy ±0.1°C
Resolution	0.01 pH, Temp: 0.1°C / F	Repeatability	±0.01 pH, Temp: ±0.1°C / F
Operating/Storage Temp	0-55°C / 32-131°F	Calibration Solutions	4.0 pH, 7.0 pH, 10.0 pH
Temp Compensation	Automatic to 25°C	Time to Reading Stabilization	10-30 seconds
Power Consumption	Active Mode: 30-140 mA, Sleep Mode: 2 µA	Battery Type	One N type, Alkaline, 1.5 V
Physical Dimensions	17.15 cm L x 1.59 cm D / 6.75 in. L x .625 in. D; Weight: 54 g / 1.9 oz.	Case Material	Anodized Aircraft Aluminum with Protective Coating
Enclosure Rating	IP67 and NEMA 6	EN61236-1: 2006 -Annex A: 2008 Electrostatic discharge to case of instrument may cause the PT2 to power ON. In this case, the PT2 will power OFF after several seconds. 	

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