






ULTRAPEN™ PTBT1 – Quick Start Guide

Conductivity / TDS / Salinity and Temperature Pen for Use with your Mobile Device

For a complete set of operating instructions, maintenance procedures, calibration procedures, and the **FACTORY CAL** reset procedure download the full the PTBTx Ultrapen App Operation Manual and the PTBT1 Operation Manual from www.myronl.com.

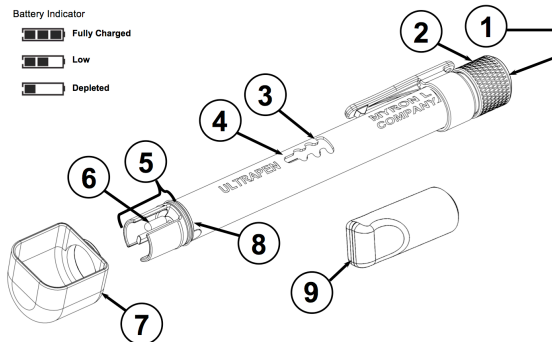
QUICK REFERENCE INSTRUCTIONS

- 1. Turn ON Ultrapen App:** Tap **Ultrapen** icon on mobile device's home screen.
- 2. Turn ON PTBT1:** Press and release the push button on the PTBT1.
- 3. LED flashes rapidly:** Dip PTBT1 in sample solution so cell is totally submerged.
- 4. LED flashes slowly:** Swirl PTBT1 to remove bubbles, keep cell submerged. Avoid contact with sides/bottom of container. Measurement is ongoing.
- 5. LED turns solid ON then turns OFF:** Measurement is complete.

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|  | Returns the App to the Measurement screen. |
|  | Displays a list of saved measurements. |
|  | Places the App in Calibration mode. |
|  | Opens the App's Bluetooth Connect / Disconnect screen. |
|  | Opens the App's Preferences and Settings modes. An internet link to full Operation Manual (Help button) is found here. |

PTBT1 FEATURES

- 1. PUSH BUTTON** – Press to turn ON and select mode settings.
- 2. BATTERY CAP** – Unscrew to change battery.
- 3. WIRELESS TRANSCIEVER WINDOW** – Bluetooth antenna is located here.
- 4. LED INDICATOR LIGHT** – Tells the user when to dip & swirl PTBT1 during measurements and calibration.
- 5. CONDUCTIVITY CELL** – Contains flux field in defined area for accurate measurements
- 6. ELECTRODES** – Injects and measures electric current through test sample
- 7. SCOOP** – Used to hold sample solution when dipping is not possible. To install, push the scoop onto the cell while shifting side-to-side. To remove, pull the scoop off while shifting side-to-side. To use, hold the scoop directly under a vertical stream during measurement, avoiding bubbles
- 8. CAP STOP** – **DO NOT** push the protective cap beyond the cap stop as cell damage could occur.
- 9. PROTECTIVE CAP** – Protects cell from damage when not in used



DOWNLOADING AND OPENING THE MOBILE DEVICE APP

- Go to the Apple App store and search for the "Ultrapen PTBTx" iPhone App.
- Open the Ultrapen page and tap the **Install** button.
- Tap **Ultrapen App** icon on the mobile device's home screen. The App's main **Measurement** screen will appear.

ULTRAPEN APP MEASUREMENT SCREEN

- 1. MOBILE DEVICE STATUS BAR** - Standard status bar for your mobile device.
- 2. MEASUREMENT VALUE FIELD** - Displays the measured value of the solution. When the Ultrapen turns OFF, displays the message, "Ultrapen is Offline" and values gray out.
- 3. UNITS OF MEASURE** - Displays correct units for chosen **Measurement** mode.
- 4. ULTRAPEN BATTERY LEVEL** - Displays battery charge level in %. Flashes RED when battery is ≤ 25%.
- 5. SOLUTION TEMPERATURE** - Measured temperature of the solution.
- 6. MEMORY STORE BUTTON** - Tap here to record the measurement in the App's database.
- 7. MEMORY REPLACE BUTTON** - Tap here to replace a previously stored measurement with data from a new measurement.
- 8. FEATURE NAVIGATION BAR** - These buttons activate various App features.



PTBT1 DEFAULT SETTINGS



TEMPERATURE UNITS: °C

SOLUTION MODE: Conductivity – KCl

NOTE: For or a full description of the PTBT1 and Mobile App settings, download the PTBTx App Operation Manual by tapping the **Preferences** button on the **Feature Navigation Bar**, select the **Help** option, then select **PTBTxOM** Operation Manual.

OPERATING INSTRUCTIONS

I. CONNECTING THE ULTRAPEN TO THE MOBILE DEVICE



- Tap the **Connect** button in the **Feature Navigation Bar**.
- Press and release the push button on the PTBT1 to turn it ON.
- When the PTBT1's name appears on the **Connect** screen, select that line. A checkmark will appear next to PTBT1's name.

NOTE: The default name for all PTBT1's is, "MLC-PTBTx". For instructions on editing the PTBT1's name, tap the **Preferences** button on the **Feature Navigation Bar**, select the **Help** option and refer to the **Ultrapen Settings** section.



NOTE: To unpair from a PTBTx, tap the red **Unpair** button next to the PTBT1's name then select **Disconnect**.

II. MAKING MEASUREMENTS: Make sure the PTBT1 is clean.

- Myron L® Company recommends that you calibrate the PTBT1 before taking measurements.
- To measure solution at the extremes of the specified temperature range, allow the PTBT1 to equilibrate by submerging the cell in the sample solution for 1 minute prior to taking a measurement.
- When testing a vertical stream of sample, use the scoop. Recalibrate the PTBT1 using the scoop to retain accuracy.



- Rinse the cell by swirling it in clean water (preferably DI, RO, or purified water) patting it dry with a clean cloth or tissue.
- Open the Ultrapen App.
- Tap the **Measurement** button in the **Feature Navigation Bar**. The screen will say, "Paired Ultrapen is Offline".

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- Press and release the push button to turn the PTBT1 ON.
- Grasp the PTBT1 near the battery cap to avoid sample contamination.
- Follow the PTBT1 LED prompts as shown in the following table.

LED SIGNAL	ACTION	DURATION
Rapid Flashing	Dip PTBT1 in solution and swirl.	6 sec
Slow Flashing	Measurement in process; continue to swirl.	20 sec
Solid Light (HOLD mode only)	Measurement is complete. Values are displayed until the PTBT1 turns OFF.	6 sec

III. MEASUREMENT DATA RECORDS: Measurement data records may be created, sorted, filtered and exported by the Ultrapen PTBTx App. For Instructions tap the **Preferences** button on the **Feature Navigation Bar** and select the **Help** option refer to the **Measurement Records** section.

IV. CALIBRATION: Small bubbles trapped in the cell may give a false calibration.

- Rinse the PTBT1 cell in Myron L[®] Company calibration solution. If possible do not use the same container of solution to perform the calibration that was used as a rinse.
- Open the Ultrapen App. Tap the **CAL** button in the **Feature Navigation Bar**.
- Press and release the push button to turn the PTBT1 ON.
- Press and hold the button down.

- When the App prompts you to, press and hold the PTBT1 button,
- Grasp the PTBT1 near the battery cap to avoid sample contamination.

7. Select the green **CAL** button from the App display.

8. While the LED flashes rapidly, dip the PTBT1 in fresh sample solution so that the cell is completely submerged.

- If you do not submerge the cell in solution before the flashing slows, allow the PTBT1 to power OFF and retake the reading.

9. While the LED flashes slowly, swirl the PTBT1 around to remove bubbles, keeping the cell submerged.

- If possible, keep the PTBT1 at least 1 inch (2½ cm) away from sides/bottom of container.

10. When the LED turns ON solid, remove the PTBT1 from solution.

- The display will read “1800 µS CAL SAVED”.
- If “Error” is displayed, check to make sure you are using a proper reference solution. If the solution is correct, download the full PTBT1 Operation Manual for instructions on cleaning the cell.

11. Tap the **DONE** button on the App display to exit the **CAL** mode and turn OFF the PTBT1.

Mode	Calibration Solution
Conductivity KCl	KCl: 1800 µS;
TDS 442	442™: 3000 ppm
TDS NaCl	Displays as 2027 ppm NaCl mode
Salinity 442	442™: 3000 ppm
Salinity NaCl	Displays as 3,000 ppt; 2,027 ppt in NaCl mode

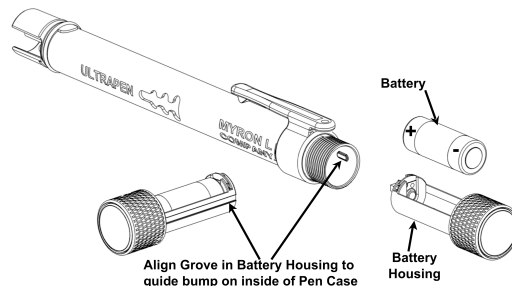
V. FACTORY CALIBRATION: Factory Calibration (FAC CAL) resets the PTBT1 to its factory settings. Tap the **Preferences** PTBT1 on the **Feature Navigation Bar** and select the **Help** option refer to the **Factory Calibration** section.

MAINTENANCE

I. BATTERY REPLACEMENT

When PTBT1 charge level falls below 25% Immediately replace the battery with a new N type battery.

- In a **CLEAN DRY** place unscrew the battery cap in a counter-clockwise motion.
- Slide the cap and battery housing out of the PTBT1.
- Remove the depleted battery from its housing.
- Insert a new battery into the battery housing oriented with the negative end touching the spring.
- Align the groove along the battery housing with the guide bump inside the PTBT1 case and slide the battery housing back in.
- Screw the PTBT1 cap back on in a clockwise direction. Do not over tighten.



II. ROUTINE MAINTENANCE

- After each use, **ALWAYS** rinse the cell with clean water (preferably DI, RO, or purified water), then carefully blot the cell with a soft, clean cloth to remove any water drops.
- ALWAYS** replace the Protective Cap on the cell after each use. **DO NOT** push the cap past the Cap Stop.
- Do not drop, throw or otherwise strike the PTBT1. This voids the warranty.
- Do not store the PTBT1 in a location where the ambient temperatures exceed its specified Operating/Storage Temperature limits.

SPECIFICATIONS

Measurement Ranges	1 - 10000 µS or ppm (0.0010 -10.000 ppt salinity) Temp: 0°-71° C / 32-160° F	Accuracy after Cal	± 1% of reading, Temp. Accuracy ± 0.1°C / ± 0.1°F
Resolution	Conductivity and TDS: 0.1 for 1.0 - 99.9 µS or ppm 1 for 100 - 9999 µS or ppm Salinity: 0.0001 for 0.0010 - 0.0999 ppt 0.001 for 0.100 - 9.999 ppt Temperature: 0.1 °C or °F	Repeatability	< 1000 µS or ppm ± 1 Count ≥ 1000 µS or ppm ± 0.3% of reading, ± Temp: ± 0.1°C / ± 0.1°F
Operating/Storage Temp	0° - 55°C / 32° - 131°F	Calibration Solutions	1800 µS KCl; 3000 ppm 442™ (2047 ppm NaCl)
Temp Compensation	Automatic In Calibration Mode at 25°C	Time to Stable Reading	10 - 20 seconds
Power Consumption	Active Mode: 30 - 140 mA, Sleep Mode: 2 µA	Battery Type	N type, Alkaline 1.5 V
Physical Dimensions	17.15 cm L x 1.59 cm D or 6.75 in. L x .625 in. D Weight: 55g / 1.94 oz. (without soaker cap & lanyard)	Case:	Anodized Aircraft Aluminum with Protective Coating
Water Resistance	IP67 and NEMA 6		EN61236-1: 2006 -Annex A: 2008; 1999/5/EC Annex III
FCC ID: T7VPAN17: The Bluetooth transceiver device meets the requirements for modular transmitter approval as detailed in FCC public Notice DA00-1407.		Canada (IC), license: IC: 216Q-PAN17: The Bluetooth transceiver device meets the requirements for modular transmitter approval as detailed in RSS-GEN.	

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