ULTRAPEN™
PTBT1

Bluetooth® Enabled

Conductivity / TDS / Salinity and Temperature Pen
for use with your mobile device CE

♦ **ACCURATE**

♦ **RELIABLE**

♦ **SIMPLE**

2014 μS

Temp 24.9 °C   Pen Battery 92.9 %

Available at Apple App Store

PTBTx
MYRON L COMPANY
UltraPen

Professional Water Analysis

- Accuracy of ±1% of READING
  ±0.2% at Calibration Point
- Reliable Repeatable Results
- KCl, NaCl and 442™ Natural Water Modes
- Automatic Temperature Compensation
- Autoranging
- Waterproof
- Powered by 1 N Type battery (included)
- Measurement and Calibration storage with time, date and location
- Export stored measurement data via email

PACKAGE CONTENTS:
- PTBT1 Pocket Tester Pen - battery installed
- Protective Cap
- Scoop
- Pocket Clip
- Holster
- Lanyard
- Operating Instructions

Visit our website:
myronl.com/PTBT1.htm

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™ PTBT1 Conductivity/TDS/Salinity Pen. This instrument is designed to be extremely accurate, fast and simple to use in diverse water quality applications. Advanced features include 3 user selectable solution types that model the most commonly encountered types of water; proprietary temperature compensation; TDS conversion; highly stable microprocessor-based circuitry; waterproof housing; and Mobile Device Application. The PTBT1 is easy to calibrate and easy to use.

Downloading the Mobile Device App
1. Go to the Apple App Store.
2. Search for the "ULTRAPEN PTBTx" iPhone App.
3. Open the ULTRAPEN page and tap the *Install* button.
4. Be sure to read the End User License Agreement (EULA) and the Data Use Liability Agreement (DULA).

Opening the ULTRAPEN App
1. Tap *ULTRAPEN App icon* on the mobile device's HOME screen.
2. The App's main Measurement screen will appear.
   **NOTE:** Apple iOS devices: Activate SIRI and say, "ULTRAPEN."

FEATURES

PTBT1
1. **Push Button** - turns PTBT1 on; enters calibration mode, activates preference menus.
2. **Battery Cap** - provides access to battery for replacement.
3. **Pocket Clip** - holds pen to shirt pocket for secure storage.
4. **Wireless Transceiver Window** - Bluetooth antenna is located here.
5. **LED Indicator Light** - Tells the user when to dip & swirl PTBT1 during measurements and calibration. Indicates PTBT1 is in Configuration mode.
6. **Cap Stop** - Shows how far to push the protective cap when putting it on the PTBT1. **DO NOT** push Protective Cap (not shown) past this point.
7. **Electrodes** - measure electric current of solution.
8. **Cell** - contains flux field in defined area for accurate current measurement.
9. **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.

Not shown: Lanyard, Holster and Protective Cap for Cell.
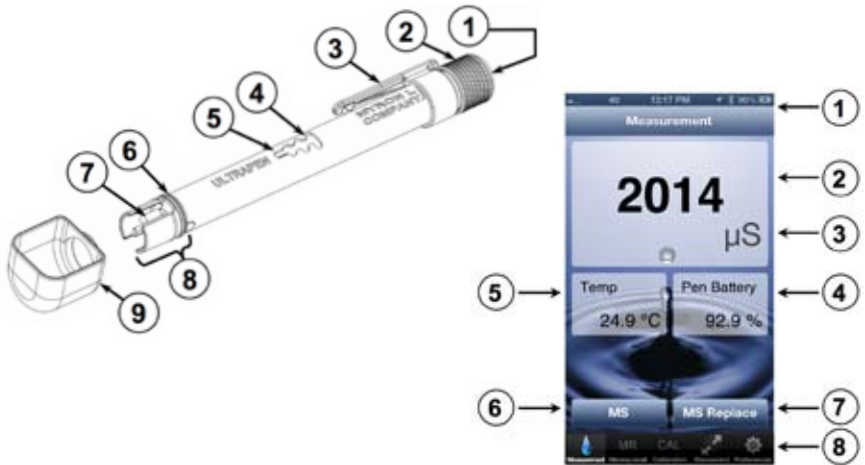
ULTRAPEN App Measurement Screen
1. **Mobile Device Status Bar** - standard Status Bar for your mobile device.
2. **Measurement Value Field** - displays the measured value of the solution. When the ULTRAPEN turns off, displays the message, "*ULTRAPEN is Offline*" and values gray out.
3. **Units of Measure** - displays correct units for chosen Measurement Mode.
4. **ULTRAPEN Battery Level** - flashes RED when ULTRAPEN 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.

OPERATING INSTRUCTIONS

The following are basic instructions for operating the PTBT1 ULTRAPEN & App. To access a full Operations Manual:

1. Inside the App tap the *Preferences* button on the Feature Navigation Bar.
2. Select *Help* from the Settings Menu screen.
3. The browser of your mobile devices will open and link to the Myron L® Company website page where the PTBTx Operations Manual can be viewed, downloaded and/or printed.

I. Connecting the ULTRAPEN to the Mobile Device

To pair and connect the PTBT1 to your mobile device:

1. Inside the App tap the *Connect* button in the Feature Navigation Bar.
2. Push and release the button on the PTBT1 to turn unit ON.
3. When the PTBT1's name appears on the Connect Screen, select that line.
4. A checkmark will appear next to PTBT1's name.

NOTE: The default name for all PTBT1's is, "*MLC-PTBTx*". To edit the name, Tap the *Preferences* button and go to ULTRAPEN Settings section. See the PTBTx Operations Manual for full instructiions.

To unpair from a PTBT1:

1. Tap the red *Unpair* button next to the PTBT1's name.
2. An Unpair Instrument dialogue box will appear.
3. Tap the *Disconnect* button in the dialogue box.

II. Solution Mode Selection

The PTBT1 allows you to select from several preprogrammed measurement modes. The following table lists the available modes with their corresponding parameters, temperature compensation and solution models as well as units of measure:

Mode	Parameter	Solution Model	Units
Cond KCl	Conductivity	potassium chloride	microSiemens (μS)
TDS 442	Total Dissolved Solids (TDS)	442™ Myron L® Natural Water Standard	parts per million (ppm)
TDS NaCl	TDS	sodium chloride	ppm
Salinity 442	Salinity	442™ Myron L® Natural Water Standard	parts per thousand (ppt)
Salinity NaCl	Salinity	sodium chloride	ppt

To select the Measurement Mode:

1. Inside the App tap the *Preferences* button on the Feature Navigation Bar.
2. Select *ULTRAPEN Settings* from the list of settings topics.
3. Push and release the button on the PTBT1 to turn it ON.
4. When the PTBT1 LED begins to flash, The App will display, "*Press and hold the button on the ULTRAPEN to enter Preferences*".
5. Press and hold the PTBT1's push button.
6. When the LED goes to solid ON the ULTRAPEN Settings screen will appear.
7. Select *Solution Mode* from the ULTRAPEN Settings screen. The Solutions screen will appear.
8. Tap the *Solution Name* field on the Solutions screen.
9. Swipe up and down the list of available modes and tap the choice you wish to select.
10. Tap the *Apply* button next to the list of Solution Modes.

III. Temperature Unit Selection

The PTBT1 allows you to select either Centigrade (°C) or Farenheit (°F) when displaying temperature on the iOS screens.

To select the Temperature Units:

1. Inside the App tap the *Preferences* button on the Feature Navigation Bar.
2. Select *Application Preferences* from the list of settings topics.
3. Slide the Temperature Units switch left or right to display temperature values as either °C or °F.

IV. Normal Operation / Taking a Measurement

Before you take a reading, make sure the pen is clean, calibrated, in the appropriate measurement mode and connected to the App. The sample solution must also be within the specified measurement range. Keep all foreign material away from the sample to avoid contamination.

NOTE: If you cannot dip the pen in the sample solution, pour the sample into a clean container. If you don't have a sample container and need to test a vertical stream of solution, use the scoop.

The following table explains the LED Indicator signals and typical durations.

LED Indicator Signal	Meaning	Duration
Rapid Flashing	Dip pen in solution	6 sec
Slow Flashing	Swirl Pen. Measurement in process	10-20 sec
Solid ON Light	Measurement is complete	≤ 6 sec

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

1. Rinse the cell by swirling it in fresh solution sample.
2. Open the ULTRAPEN App. If it does not open to the Measurement screen, tap the ***Measurement*** button in the Feature Navigation Bar. The Measurement screen will say, "*Paired ULTRAPEN is Offline*".
3. Grasp the pen near the pen cap to avoid sample contamination.
4. Remove pen from the rinse solution.
5. Press and release the PTBT1's push button to turn it ON.
6. When the LED flashes rapidly, IMMEDIATELY dip the pen in the sample solution so that the cell is completely submerged. (If you do not submerge the cell in solution before the flashing slows, allow the pen to power off and retake the reading).
7. The App screen will display "*Measuring ...*"
8. When the LED flashes slowly, swirl the pen to remove bubbles, keeping the cell submerged and preferably at least 1 inch (2½ cm) away from sides/bottom of container.
9. When the LED turns Solid ON, the App display will show the measurement and temperature. Remove the pen from solution and rinse it in clean water.
10. The ULTRAPEN will turn OFF once the measurement is completed.

V. Recording and Recalling Measurements

1. Once a measurement is finished, tap the ***MS*** button (Memory Store).
2. The App screen will display the measurement as an unsaved record.
3. Tap the ***Save*** button in the upper right corner of the record display.
4. The record will be saved and the App will return to the Measurement screen.
5. Tap the ***MR*** button (Memory Recall) in the Feature Navigation Bar to display a list of stored records.
6. Swipe up and down to scroll through stored records. Tap any record on the list to see view it's details.

VI. Calibration

The PTBT1 is designed to be very reliable and require only infrequent calibration. The Myron L® Company recommends calibrating in each solution mode you use. Check the calibration monthly. The PTBT1 is programmed for two calibration options: Wet Calibration or Factory Calibration (FAC CAL). Wet calibration is the most accurate, but if a high quality standard is not available FAC CAL can be used to returned the PTBT1 to factory settings.

WET CALIBRATION NOTES: If an incorrect solution is used or the measurement isNOT within calibration limits for any reason, the App's screen will display, "*Error. Clean sensor. Check Solution.*" If the calibration solution is correct, clean the cell by submerging it in a 1:1 solution of Lime-A-Way® and water for 5 minutes. Rinse the cell thoroughly and start over.

Small bubbles trapped in the cell can give a false calibration. Measure the calibration solution again to verify correct calibration. If the reading is not within ±1% of the calibration solution value, repeat calibration.

A. Wet Calibration

Use a calibration solution specified for the measurement mode (see the Specification table). Calibrating TDS calibrates Salinity for the same value and vice versa.

1. Pour Myron L® Company calibration solution into a clean container.
2. Rinse the cell 3 times by swirling it around in fresh calibration solution.
3. Open the PTBTx App.
4. Tap the *CAL* button in the Feature Navigation Bar. The App
     screen will appear and say, *"Paired ULTRAPEN is Offline"*.
5. Grasp the pen near the pen cap to avoid sample contamination.
6. Remove pen from the rinse solution, then empty and refill the container with fresh solution.
7. Press and release the pen's push button. The Calibration screen will display, *"Press and hold the button on the ULTRAPEN to enter CAL mode."*
8. Press and Hold the pen's button. The LED will go to solid ON and the App's Calibration screen will appear.
9. Tap the green *CAL* button on the Calibration screen.
10. When the pen's LED flashes rapidly, IMMEDIATELY dip
     the pen in calibration solution so that the cell is completely submerged.
     The Calibration screen will display. *"Calibrating Conductivity ..."*
11. When the LED flashes slowly, swirl the pen around to remove bubbles, keeping the cell submerged. Keep pen at least 1 inch (2½ cm) away from sides/bottom of container.
12. When the LED light goes solid ON, the Calibration screen will display
     "CAL SAVED" along with the before and after calibration values.

B. Factory Calibration

If you do not have the proper calibration solution or wish erase the stored wet calibration constants, use the FAC CAL function
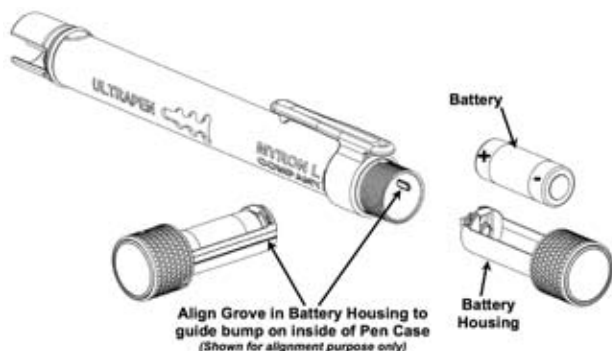
1. Open the PTBTx App.
2. Tap the CAL button in the Feature Navigation Bar. The App screen will say, *"Paired ULTRAPEN is Offline."*
3. Press and release the push button. The screen will display, *"Press and hold the button on the ULTRAPEN to enter CAL mode".*
4. Press and Hold the ULTRAPEN's button. The LED will go to solid ON and the App's Calibration screen will appear.
5. Tap the red **FAC CAL** button. A warning dialogue box
     will appear.
6. Tap the **OK** button in the dialogue box. The App's Calibrating screen will display, *"FAC CAL Reset".*

MAINTENANCE
I. Battery Replacement

The PTBT1 App display has an indicator that depicts the pen battery's charge level. When the charge level falls below 25%, the indicator will flash red. imediately replace the battery with a new N type battery.

Align Grove in Battery Housing to guide bump on inside of Pen Case
(Shown for alignment purpose only)

1. In a **CLEAN DRY** place unscrew the pen cap in a counter-clockwise direction.
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 back in.
6. Screw the pen cap back on in a clockwise direction. **Do not over tighten.**

II. Routine Maintenance

1. Always rinse the cell and electrodes with clean water after each use.
2. If the electrodes develop scaling or become dirty, clean the cell by submerging the probe end in a 1:1 solution of Lime-A-Way® and water for 5 minutes. Then rinse thoroughly with clean water.
3. Do not drop, throw or otherwise strike the pen. This voids the warranty.
4. Do not store the pen in a location where the ambient temperatures exceed its specified Operating/Storage Temperature limits.

SPECIFICATIONS

App Requirements	Apple iOS 6 or iOS 7. Optimized for iOS 7.
Measurement Range:	Conductivity & TDS: 1-10,000 μS or ppm; Salinity 0.0010-10.000 ppt; Temperature: 0°-71°C / 32°-160°F
Accuracy (After Wet Calibration):	± 1% of reading; Temperature ± 0.1ºC / ± 0.1ºF
Resolution:	Conductivity and TDS: 0.1 for 1.0 - 99.9 μS or ppm 1 for 100 - 10.000 μS or ppm Salinity: 0.0001 for 0.0010 - 0.0999 ppt 0.001 for 0.100 - 10.000 ppt Temperature: 0.1 ºC or ºF
Repeatability:	< 1000 μS or ppm ± 1 Count ≥ 1000 μS or ppm ± 0.3% of reading
Time to Reading Stabilization:	10 - 20 seconds
Active Mode Power Consumption:	Active Mode 30 - 140 mA, Sleep Mode 2 μA
Temperature Compensation:	Automatic to 25ºC
Physical Dimensions:	17.15 cm L x 1.59 cm D or 6.75 in. L x .625 in. D
Weight:	55 g or 1.94 oz
Case Material:	Anodized Aircraft Aluminum with Protective Coating
Battery Type:	N type, Alkaline 1.5 V
Calibration Standard Solution:	KCl: 1800 μS for COND; 442™: 3000 ppm (2027 ppm NaCl) for TDS and Salinity.
Operating/Storage Temperature:	0 - 55ºC / 32 - 131ºF
Water Resistance:	IP67 and NEMA 6
EN61236-1: 2006 - Annex A: 2008; 1999/5/EC Annex III $\mathsf{C}\mathsf{E}$	Electrostatic discharge to the PTBT1 may cause it to spontaneously power on. If this occurs, the PTBT1 will power off after several seconds
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.

QUICK REFERENCE INSTRUCTIONS

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

Feature Navigation Bar

This button always returns the App to the Measurement Screen.

This button displays a list of saved measurements.

This button places the App in Calibration mode.

This button opens the App's Bluetooth Connect / Disconnect screen.

This button opens the App's preferences and settings mode.

An internet link to full Operations Manual (*Help* button) is found here.

ACCESSORIES

The ULTRAPEN™ PTBT1 uses the following solutions for wet calibration.
Order MODEL#s: KCL-1800, 442-3000 (2027 ppm NaCl)

MYRON L® WARRANTY

Excepting the battery, the Myron L® Company PTBT1 Conductivity/TDS/Salinity ULTRAPEN is warranted to be free from manufacture defect for 1 year.

MADE IN USA

©2014 MYRON L® COMPANY
PTBT1TFM 08-14a