Ultrameter III™ 9P
Abbreviated Instruction Card

⚠️ **WARNING:** Read operating instructions and all MSDS documents completely before proceeding. Detailed instructions and explanations are in the Ultrameter III Operation Manual.

MEASUREMENTS

1. Rinse cell cup (and sensor well if measuring pH or ORP) 3 times with sample to be measured.
2. Refill with sample.

Press **COND** to measure CONDUCTIVITY:
　　0-9999 MICROSIEMENS (μS)/cm, 10-200 mS/cm

Press **RES** to measure RESISTIVITY:
　　10 KILOHM (KΩ)-cm - 30 MEGOHM (MΩ)-cm

Press **TDS** to measure TOTAL DISSOLVED SOLIDS:
　　0-9999 PARTS PER MILLION (PPM), 10-200 PPT

Press **pH** to measure 0-14 pH

Press **ORP/Fr Chl** to measure OXIDATION REDUCTION POTENTIAL (REDOX) ±999 mV in ORP mode or 0.00-10.00 PPM in FREE CHLORINE mode

TEMPERATURE (ºC or ºF) is simultaneously displayed: 0-71ºC/32-160ºF

3. After measuring pH or ORP, refill sensor well with Myron L Storage Solution and reinstall cap.

ORP/FREE CHLORINE MODE SELECTION

1. Press **ORP/Fr Chl**.
2. Press and hold **CAL** key for 3 seconds.
3. Press ▲ or ▼ to toggle between mV and PPM Free Chlorine. Press **CAL** to accept.

PIPETTE INSTRUCTIONS FOR TITRATIONS

Use a new tip when changing solutions. To **DRAW**, depress pipette to **1ST STOP**, then place in solution and release. To **DISPENSE**, depress pipette **COMPLETELY**.

NOTE: Never add more than 100μL of reagent at any titration point.

NOTE: During titration measurements, when display says

"**AGit**" and "**HOLd**", shift instrument up and down 3 times during "**AGit**" and hold instrument steady during "**HOLd**". Repeat agitate and hold until display prompts you to move on.

ALKALINITY TITRATION: 10-800 ppm CaCO$_3$

1. Install cell extender.
2. Rinse cell cup 3 times with sample.
3. Refill with sample and plunge.
4. Press **ALK**. (Display will show alkalinity TDS value then "**PrES CAL**".)
5. Press **CAL**. (Display will indicate "**Add**" alternating with "**A1**" then "**AGit t1**" alternating with "**HOLd**".)
6. Add 100μL of H$_2$SO$_4$-1 (Reagent A1), close cap, agitate and hold. Repeat as prompted. "**PrES CAL**" will display.
7. Press **CAL** to advance to next titration point.
8. Repeat steps 6 and 7 until alkalinity value is displayed.

HARDNESS TITRATION:
　　0-1710ppm (0-100grains) CaCO$_3$

To select hardness units, press **HARD**, then press and hold **CAL** until "**Hard**" and "**SEL**" are displayed. Press ▲ or ▼ to toggle between PPM and grains (no units displayed for grains). Press **CAL** to accept.

NOTE: When display shows "120", this is a timer to allow any carbonate to outgas. Wait for timer to count down then continue to follow prompts.

1. Install cell extender.
2. Rinse cell cup 3 times with sample.
3. Refill with sample and plunge.
4. Press **HARD**. (Display will show hardness TDS value then "**PrES CAL**".)
5. Press **CAL**. (Display will indicate "**Add**" alternating with "**C1**" then "**AGit**" alternating with "**HOLd**".)
6. Add 100μL HCl-3 (Reagent: C1), close cap, agitate then hold. Repeat as prompted. "**OPEN CAP**"

alternating with "**PrES CAL**" will display.
7. Open cap and press **CAL** to start 120 sec timer. (After 120 seconds display will indicate "**Add**" alternating with "**H1 1**" then "**AGit**" alternating with "**HOLd**".)
8. Add 100μL NaOH (Reagent H1), close cap, agitate and hold. Repeat as prompted. "**PrES CAL**" will display.
9. Press **CAL**. (Display will indicate "**Add**" alternating with "**H1 2**" then "**AGit**" alternating with "**HOLd**".)
10. Add 100μL NaOH (Reagent H1), close cap, agitate and hold. Repeat as prompted. "**PrES CAL**" will display.
11. Press **CAL**. (Display will indicate "**Add**" alternating with either "**EdtA LC**" or "**EdtA HC**" then "**AGit t1**" alternating with "**HOLd**".)
12. Add 100μL EDTA-LC (Reagent H2) or EDTA-HC (Reagent H3) as prompted. Close cap, agitate and hold. "**PrES CAL**" will display.
13. Press **CAL** to advance to the next titration point.
14. Repeat steps 12-13 until hardness value displays.

LSI TITRATION: -10 to +10

1. Perform an alkalinity titration of the sample solution as in ALKALINITY TITRATION. Press **MS** to store the reading in memory.
2. Perform a hardness titration of the sample solution as in HARDNESS TITRATION. Press **MS** to store the reading in memory.
3. Measure the pH of the sample solution. Press **MS** to store the reading in memory. The temperature of the solution is automatically stored with this reading.
4. Press **LSI**.
5. The last stored alkalinity value is displayed.
6. Press **CAL** to accept value and advance to the hardness value screen. The last stored hardness value is displayed.

7. Press **CAL** to accept value and advance to the pH value screen. The last stored pH value is displayed.
8. Press **CAL** to accept value and advance to the temperature value screen. The last stored titration temperature value is displayed.
9. Press **CAL** to accept and calculate LSI. The saturation index value will display.

LSI CALCULATOR

1. Press **LSI**.
2. Display will indicate an alkalinity value.
3. Press ▲ or ▼ to adjust the value or leave as displayed.
4. Press **CAL**. (Display will indicate a hardness value.)
5. Press ▲ or ▼ to adjust the hardness value or leave as displayed.
6. Press **CAL**. (Display will indicate a pH value.)
7. Press ▲ or ▼ to adjust the value or leave as displayed.
8. Press **CAL**. (Display will indicate a temperature value.)
9. Press ▲ or ▼ to adjust the value or leave as displayed.
10. Press **CAL** to accept and calculate LSI. A saturation index value will display.

If you want to modify any of the input values and recalculate LSI based on those changes, press **CAL** again and repeat steps 2-10.

CALIBRATION
CONDUCTIVITY/RESISTIVITY/TDS

NOTE: Resistivity is the reciprocal of Conductivity. To calibrate resistivity, calibrate conductivity for the solution type you wish to measure.

1. Rinse cell cup 3 times with proper standard.
2. Refill cell cup with standard.
3. Press **COND** or **TDS**; then press **CAL**. "**CAL**" will appear.
4. Press ▲ or ▼ until display agrees with standard.
5. Press **CAL** to accept value.

pH/ORP

NOTE: ORP is automatically calibrated with the 7 pH.

1. Rinse sensor well and cell cup 3 times with 7.0 buffer solution.
2. Refill sensor well and cell cup with 7.0 buffer solution.
3. Press **pH**, then **CAL**. "**CAL**", "**7**" & "**BUFFER**" display.
4. Press ▲ or ▼ until display agrees with buffer value.
5. Press **CAL** once to accept the value.
6. Rinse 3 times with either ACID (**Acd**) (pH 1-6) or BASE (**bAS**) (pH 8-14) buffer solution.
7. Refill and repeat steps 4 & 5.
8. Rinse 3 times with opposite buffer solution, refill and repeat steps 4 & 5 or press **CAL** to exit.
9. When calibration is complete, refill sensor well with Myron L Storage Solution and reinstall cap.

A deviation of more than 10% CONDUCTIVITY/TDS or 1 pH unit from factory calibration will produce "**FAC**" on the display. Press **CAL** to accept factory calibration, or reduce the deviation by pressing ▲ or ▼. For pH/ORP this condition may indicate the need for sensor replacement.

ALKALINITY/HARDNESS CALIBRATION

1. Perform an Alkalinity or Hardness titration using Myron L standard solution instead of sample. Use 100 for alkalinity and 200 for hardness.
2. When measurement is displayed, press **CAL**. "**CAL**" icon displays at top of screen.
3. Adjust the displayed value to within ±10% of the reading to match the calibration standard value using ▲ or ▼ key.
4. Press **CAL** to accept.

SOLUTION SELECTION

1. Press **COND**, **RES** or **TDS** to select the parameter that you want to change the solution type for.
2. Press and hold **CAL** key 3 seconds until "**SEL**" displays.
3. Use ▲ or ▼ key to obtain type of solution desired.

The selected solution type will be displayed: "**KCl**", "**NaCl**", "**442**" or "**User**".
4. Press **CAL** to accept new solution type.

USER SOLUTION
USER PROGRAMMABLE TEMPCO

1. Select "**User**" mode as in **SOLUTION SELECTION**.
2. With "**User**" selected, press **CAL**. Adjust temperature compensation from .00%/ºC to 9.99%/ºC by pressing ▲ or ▼.
3. Press **CAL** twice (3 times in TDS mode) to skip calibration adjustment and accept the new tempco. You are now ready to measure samples with your new temperature compensation factor.

DISABLING TEMPERATURE COMPENSATION

1. Select "**User**" mode as in SOLUTION SELECTION.
2. With "**User**" selected, press **CAL**. If tempco is not set to .00%/ºC, hold the ▼ key until tempco reaches .00%/ºC.
3. Press **CAL** twice (3 times in TDS). Temperature compensation is now disabled (= 0) for measurements in "**User**" mode.

USER PROGRAMMABLE CONDUCTIVITY TO TDS RATIO

To select a custom conductivity to TDS conversion ratio for "**User**" mode:

1. While in "**User**" mode, press **TDS**. "**User**" and "**TDS**" are displayed.
2. Press **CAL** twice (to skip over tempco adjustment), and "**RATIO**" will display.
3. Press ▲ or ▼ until desired conversion ratio is displayed.
4. Press **CAL** twice (to skip over calibration adjustment) to accept new conversion ratio.

USER CALIBRATION CONDUCTIVITY/TDS

1. Rinse conductivity cell 3 times with your standard.
2. Refill conductivity cell with same standard.

3. Press **COND** or **TDS**, then press **CAL** twice in COND or 3 times in TDS. "**CAL**" icon will appear on the display.
4. Press ▲ or ▼ to step the displayed value toward the standard's value or press and hold a key **DOWN** to cause rapid scrolling of the reading.
5. Press **CAL** once to confirm new value and end the calibration sequence for this particular solution.

MEMORY STORAGE

1. Press **MS** to store a displayed measurement value in memory.
2. "**MEMORY**" will appear and the temperature display will be momentarily replaced by a number (1-100) showing the position of the record.

MEMORY RECALL

1. Press any parameter key.
2. Press **MR**; "**MEMORY**" will appear and the display will show the last record stored.
3. Use the ▲ or ▼ key to scroll to the record location desired. (The temperature display alternates between temperature recorded and location number.)
4. Press **CAL** to change display to date and time.
5. Press any measurement key to leave memory recall or allow to automatically turn off.

CLEARING A RECORD/MEMORY CLEAR

1. Press **MR** and scroll to record location.
2. Press and HOLD **MCLR** to clear old record.
3. To replace memory location with a new value, add solution and take new reading.
4. Press **MS** to store the new reading in old location. The next reading stored will go into next available location.
5. To clear all records: After pressing **MR**, scroll down to "**CLr ALL**" (displayed in measurement and temperature area).
6. Press **CAL**. All records will be cleared.

CHANGING FROM CENTIGRADE TO FAHRENHEIT

1. Press any parameter key.
2. Press **MR** to display the stored memory records.
3. Press ▼ key repeatedly until you pass the memory "**CLr ALL**" location. The display will show a "**C**" or "**F**".
4. Press **CAL**. The display will change to the other unit.
5. Press **COND**. All temperature readings are now in degrees last displayed.

FACTORY SETTINGS "FAC SEL"

To change ALL settings back to "as received from the factory" and erase ALL wet calibrations.

1. Press any parameter key.
2. Press **MR** to display the stored memory records.
3. Press ▼ key to scroll past "**CLr ALL**" and the "**C-F**" locations to "**FAC SEL**".
4. Press **CAL** to accept the reset to factory settings.

RELOADING FACTORY CALIBRATION TO INDIVIDUAL MODES

NOTE: The "**FAC**" internal electronics calibration (which bypasses the electrodes and cell) is not intended to replace calibration with conductivity standard solutions.

CONDUCTIVITY/TDS

1. Press **COND** or **TDS**.
2. Press **CAL** key. (In "**User**" mode press 2 or 3 times until "**CAL**" icon appears).
3. Press ▼ key until "**FAC**" appears on the display and release.
4. Press **CAL** to accept the factory calibration setting.

If another solution type requires resetting, change solution type and repeat this procedure.

"**LOBATT**" FLASHES: replace 9V alkaline battery.

For additional information on the Ultrameter III or on other products, visit our website: **www.myronl.com**