



EC/TDS/SAL

TRACER POCKETESTER™

Waterproof Series



CODE 1749

TRACER

EC/TDS/SAL POCKETESTER™ • CODE 1749

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Introduction

Congratulations on your purchase of the EC/TDS/SAL (Electro Conductivity/Total Dissolved Solids/Salinity) TRACER PockeTester. The TRACER is a revolutionary, first of its kind measurement device that offers direct reading of conductivity, TDS and salinity with one electrode. Careful use and maintenance will provide years of reliable service.

Specifications

Display	2000 count LCD with Bar Graph
Conductivity Range	0 to 199.9 μ S 200 to 1999 μ S 2.00 to 19.99 mS
TDS Range	0 to 99.9 ppm and mg/L 100 to 999 ppm and mg/L 1.00 to 9.99 ppt and g/L
Salinity Range	0 to 99.9 ppm S 100 to 999 ppm S 1.00 to 9.99 ppt S
TDS Ratio	0.4 to 1.0, adjustable
Salinity Ratio	0.5
Temperature Range	32.0 to 149.0 °F, 0.0 to 65.0 °C
Accuracy	Conductivity: \pm 2% FS TDS: \pm 2% FS Salinity: \pm 2% FS Temperature: \pm 1.8°F/1°C
Automatic Temperature Compensation	2% per °F
Measurement Storage	15 readings
Low Battery Indication	'BAT' appears on the display
Power	Four SR-44W button batteries
Auto Power Off	After 10 minutes of no button presses
Operating Conditions	32 to 122 °F, 0 to 50 °C
Dimensions	1.4 X 6.8 X 1.6 inches, 36 X 173 X 41 mm
Weight	3.8 oz, 110 g

Contents

EC/TDS/SAL TRACER PockeTester Kit Code 1749

Includes:

Sample Cup w/cap[†]

[†]Not sold individually. See below.

Parts & Accessories

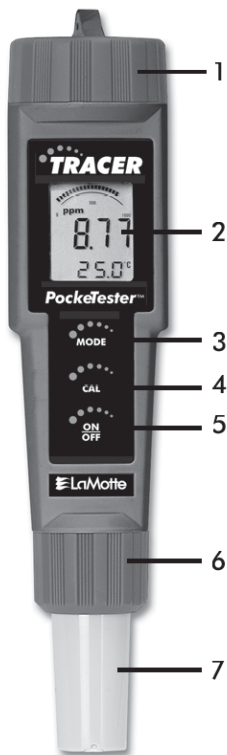
EC/TDS/SAL Replacement Electrode	Code 1765
Weighted Stand w/Sample Cups (5)	Code 1746
Sample Cups w/caps (24)	Code 1745-24
Conductivity Standard, 84 μS	Code 6312-G
Conductivity Standard, 1413 μS	Code 6354-G
Conductivity Standard, 12,880 μS	Code 6317-G

Meter Description

Front Panel Description

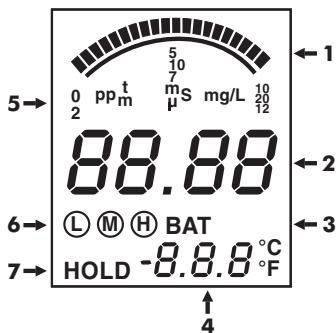
1. Battery compartment cap
2. LCD Display
3. MODE/HOLD button - change mode, hold data, store data
4. CAL button - calibration, change temperature units, recall data
5. ON/OFF button
6. Electrode Collar
7. Electrode

(Note: The Electrode cap is not shown)



TRACER Display

1. Bar graph reading
2. Measurement reading
3. BAT (low battery) indicator
4. Temperature display
5. Measurement units
6. Calibration range indicator
7. HOLD indicator



Basic Operation

Powering the TRACER

The tab located in the battery compartment must be removed before use. If the batteries are weak, the BAT indicator will appear on the display. Press the ON/OFF key to turn the TRACER on or off. The auto power off feature will shut the TRACER off automatically after 10 minutes after the last button push.

Electrode Recognition

When the TRACER is turned on, it will recognize the type of electrode that is connected and will display the appropriate unit of measure.

Automatic Calibration

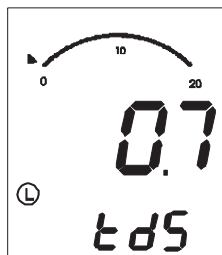
When the TRACER is turned on, it will enter the Automatic Calibration mode. SELF and CAL will appear while the calibration is in progress. After the calibration is completed, the SELF and CAL display icons will extinguish.

TDS Conversion Ratio

The TDS value is determined by multiplying the conductivity measurement by a known conversion ratio factor. The meter allows the selection of a conversion ratio factor in the range of 0.4 to 1.0. The selected ratio will vary with application but is typically set between 0.5 and 0.7. In the salinity mode, the ratio is fixed at 0.5. The stored ratio factor will briefly appear in the lower temperature display when the meter is first turned on.

To Change the TDS Conversion Ratio:

1. Turn the TRACER on.
2. Press and release the CAL button twice. The stored ratio will appear in the display.
3. Press the MODE/HOLD button to change the ratio value in steps of 0.1.
4. When the desired ratio is displayed, press and release the CAL button to store the value and return to the normal mode.



Changing the Displayed Temperature Units

To change the displayed temperature units between °C or °F:

1. With the TRACER off, press and hold the CAL button.
2. Press the ON/OFF button. When SELF CAL appears in the display, release the CAL button.

Data Hold

Press the MODE/HOLD button to freeze the current reading. The HOLD icon will appear. Press the MODE/HOLD key to return to normal operation.

TESTING

Getting Started

1. Twist off the battery compartment cap to access the battery tab. Remove the plastic tab before first use.
2. Remove the cap from the bottom of the TRACER to expose the electrode.

Changing the Measurement Function

The meter can be set to measure Conductivity, TDS (ppm), TDS (mg/L) or Salinity. To change the mode:

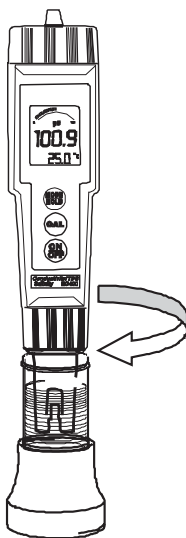
1. Turn the TRACER on.
2. Press and hold the MODE/HOLD button for 3 seconds. The display will begin to scroll through the units.
 - μS or mS (Conductivity)
 - ppm or ppt (TDS)
 - mg/L or g/L (TDS)
 - ppm or ppt (Salinity "S")

NOTE: 1 part per thousand (ppt) equals 1000 parts per million (ppm).
Example: 3.1 ppt = 3,100 ppm

3. Release the MODE/HOLD key when the desired mode is displayed.

Measurement

1. Fill a sample cup to the 20 mL line with the test sample. Sample depth must be greater than or equal to 1.5 inches.
2. Immerse the TRACER electrode in the sample. Make sure the electrode is completely submerged.
3. Press the ON/OFF button. (8888 and then SELF CAL will appear in the display during the initial diagnostics).
4. Slowly stir the sample with the TRACER to remove air bubbles.
5. The meter will autorange to the proper range and the reading will be displayed. The display will flash "0000" while autoranging.
6. Rinse the electrode in distilled water. Replace the cap.



Conductivity



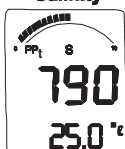
TDS (ppm)



TDS (mg/L)



Salinity



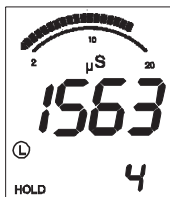
Measuring the TDS of Soil

1. Fill a 50 mL beaker with the soil sample. Tap the beaker lightly on a hard surface to remove trapped air. Remove excess soil from the surface.
2. Empty the soil into a 250 mL wide-mouth flask.
3. Add 100 mL of distilled water. Stopper and shake vigorously.
4. Wait 30 minute. (Shake the flask vigorously three or four times during this period.)
5. Filter the contents of the flask. Collect the filtrate in a beaker.
6. Rinse the electrode with distilled or deionized water to remove impurities.
7. Press the ON/OFF button to turn the TRACER on. Make sure the meter is in the TDS mode.
8. Immerse the electrode in the filtrate. Make sure the tip of the electrode is completely immersed.

9. Stir the filtrate with the electrode to create a homogeneous solution.
10. Gently stir the filtrate with the electrode. Read the TDS value of the filtrate from the display.
11. Rinse the electrode in distilled water. Replace the cap.

Storing Readings

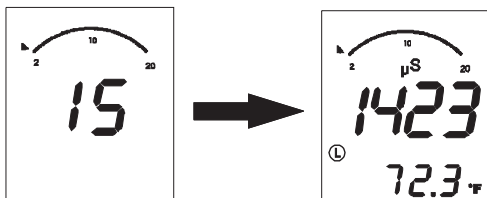
1. After the reading is displayed press and hold the MODE/HOLD button to store the current reading. The meter will enter the HOLD mode and HOLD will be displayed. The storage location number will be displayed on the lower display followed by the reading being stored.
2. Press the MODE/HOLD button to exit the HOLD mode and return to normal operation.
3. If an attempt is made to store more than 15 readings, the stored readings will be overwritten starting with the first reading.



Recalling Stored Readings

NOTE: First ensure that the HOLD symbol is not displayed. If it is, exit the HOLD function by pressing the MODE/HOLD button.

1. Press the CAL button once and then press the MODE/HOLD button immediately after CAL is displayed; the location number (1 through 15) will briefly appear and then the value stored in that location will appear. The displayed units will flash, indicating that the storage recall mode is active.



2. The last stored reading taken will be displayed first. To advance to the previously stored readings, press the MODE/HOLD button. The location number is displayed first, followed by the reading stored in that location.
3. To exit the storage mode, press the CAL button and the TRACER will return to normal operation.

CALIBRATION

Meter accuracy verification should be performed on a periodic basis as needed. If calibration is required, the meter must be in the conductivity mode to perform the calibration. The meter can perform a calibration and store the data for each of the three ranges – low, medium and high. The automatic calibration recognition procedure will recognize conductivity standards of 84 μ S (Low), 1413 μ S (Medium) or 12,880 μ S (12.88mS) (High). (See Page 5). Always calibrate in the range closest to the expected measurement value. For salinity samples within the range of 1.00 to 9.99 ppt salinity, calibrate with a 12,880 μ S calibration standard.

1. Fill a sample cup to 20 mL line with a conductivity standard.
NOTE: The meter allows for a 1, 2, or 3 point calibration. If calibration is done for more than one point, the lowest concentration should be done first to obtain the best accuracy.
2. Insert the electrode into the standard.
3. Press and hold the CAL button for approximately 5 seconds until the display begins to flash.
4. The meter will automatically recognize and calibrate to the conductivity standard. The display will briefly indicate “SA”, END and then return to the measurement mode
NOTE: “SA” will not appear if the calibration fails.
5. The calibration range indicator will appear on the display for each range that is calibrated during a power on cycle.

- Ⓕ Low Range, 84 μ S
- Ⓜ Medium Range, 1413 μ S
- Ⓗ High Range, 12.88 mS (12,880 μ S)

NOTE: Each time the calibration mode is entered all calibration range indicators will be cleared, but only the calibration data for the currently selected range will be replaced. The calibrations for the other two ranges will be saved even though the indicators for those ranges are no longer displayed. Calibration of all three ranges must be performed during one power on period for all three calibration range indicators to be displayed.

MAINTENANCE

Storage

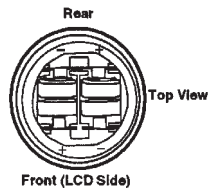
1. Rinse the electrode in distilled or deionized water.
2. Store the electrode dry with the cap on.

Battery Replacement

For maximum battery life, use battery style SR-44 (Silver Oxide) such as Energizer™ No. 356 or Duracell™ No. 303/357.

1. Twist off the battery compartment cap.
2. Replace the four (4) SR-44 button batteries. Observe polarity.
3. Replace battery compartment cap.

NOTE: If the batteries are removed, stored readings will be lost. Calibration data will be retained.



Electrode Care

1. Always rinse the electrode in distilled or deionized water between measurements to avoid cross-contamination of the samples. Double rinsing is recommended when high accuracy is required.
2. Do not touch the electrodes. Touching the surface of the platinized electrodes may damage and reduce the life of the electrodes.

TROUBLESHOOTING

Problem	Check	Action
Power on but no display	Batteries	Insert batteries
		Verify correct polarity
		Replace batteries
Unstable readings	Electrode	Immerse probe more deeply in sample
		Remove air bubbles caught under electrode
		Replace electrode
Unexpected results	Standards	Calibrate with fresh standards
		Calibrate with standard in range similar to sample
Display frozen	HOLD function	Press MODE/HOLD button or turn meter off
	Button response	Remove then reinsert batteries (stored data will be lost)

Replacing the Electrode

1. Unscrew and remove the electrode collar. Turn collar counter-clockwise.
2. Gently rock the electrode side to side, while pulling it away from the meter, until it disconnects from the electrode socket.
3. To attach an electrode, align the slots and carefully plug the electrode into the meter socket.
4. Firmly tighten the electrode collar to create a seal with the rubber gasket between the electrode and the meter.

Warranty

LaMotte Company warrants this instrument to be free of defects in parts and workmanship for one year from date of shipment (a six month limited warranty applies on electrodes and cables). If it should become necessary to return the instrument for service during or beyond the warranty period, contact our Technical Service Department at (800) 344-3100 for a return authorization or visit our website at www.lamotte.com. The sender is responsible for shipping charges, freight, insurance and proper packaging to prevent damage in transit. This warranty does not apply to defects resulting from action of the user such as misuse, improper wiring, operation outside of specification, improper maintenance or repair, or unauthorized modification. LaMotte Company specifically disclaims any implied warranties or merchantability or fitness for a specific purpose and will not be liable for any direct, indirect, incidental or consequential damages. LaMotte Company's total liability is limited to repair or replacement of the product. The warranty set forth above is inclusive and no other warranty, whether written or oral, is expressed or implied.



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