Solinst® TLC Meter Operating Instructions

Model 107

Operating Principles

The Solinst Model 107 TLC Meter measures temperature, level and conductivity. Temperature and conductivity readings are displayed on the LCD screen and water level is read from the tape as with a conventional Water Level Meter. When the probe is immersed in a conductive fluid, a circuit is completed and the water level is indicated by a tone and light.

Conductivity measurements are read from 0-80,000 µS/cm with readings giving accuracy of 5% of reading or 100 µS (which ever is greater). The 'smart probe' displays conductivity which has been standardized to 25°C, i.e. Specific Conductance (displayed as EC). Temperature Coefficient is 2.0%. Temperature measurements are read from -15°C to +50°C. The TLC will not operate outside this temperature range and displays "^^^^^^^^" to indicate that temperature is outside the operational range.

Equipment Check

Upon receipt of your Solinst Model 107 TLC Meter, and always before heading out to the field, the following checks are recommended:

1. Turn the meter on. If the battery is low, a 'LOW BATT' warning appears and the 9 volt alkaline battery should be replaced. If 'No Comm' appears, check the Probe connection to the tape (call Solinst if message persists).
2. Ensure the probe tip and shroud are clean.
3. Test probe in fresh calibration solution close to the range you expect to measure in the field. Allow suitable time for equilibration. If readings are not within an acceptable range, conduct a user calibration. (See Calibration Instructions).

Taking Measurements

Notes:

1. The zero measurement point of the TLC Meter is the tip of the shorter sensor pin visible within the shroud at the bottom of the probe.
2. If the display indicates 'LOW BATT' there is still some life left in the battery, but it is recommended that you change the batteries as soon as possible.

1. Turn the meter on and lower the probe into water. A tone and light indicate that water has been reached and the depth can be read off the tape and recorded. The LCD screen is blacked out for about one second as the probe enters water. A weaker tone sounds as the probe is removed from water. Lower and raise the probe slowly a few times to verify the depth.

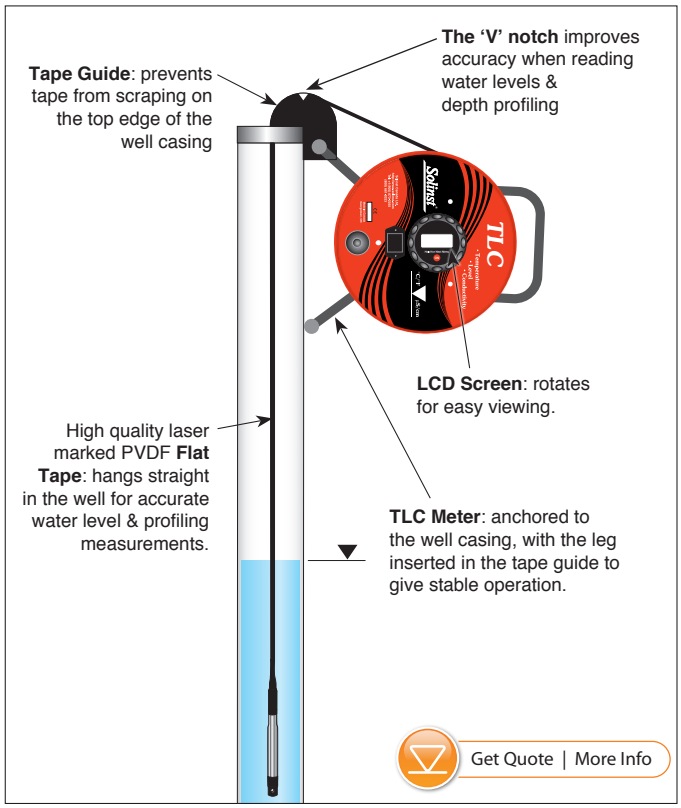
   Notes:

   1. The water level sensor has a slight delay (~1 sec.).
   2. Measure static water level on entry into water only (i.e. not on removal) and wait 1 second before repeat measurements.

2. Once in water, the screen displays specific conductance (EC) and temperature of the water at the zero point. Lower the probe to the desired depth. Record the depth and the associated conductivity and temperature readings when stabilized. Allow at least 30 seconds/°C of temperature change for stabilization.

   To conserve battery power, the display has an auto off after 8 minutes of use. If the display is blank when you wish to take a measurement, click the ON button to display temperature and conductivity readings.

3. Repeat at each desired depth allowing 30 seconds/°C temperature change for stabilization.
4. After each use remove the probe shroud and clean the sensor pins with a soft cloth, then rinse thoroughly with de-ionized water (see cleaning section for more details).
5. To turn the TLC Meter off, press and hold the ON button to display "Press 2X for OFF, then press the ON button 2 times quickly.



Notes:

1. If 'No Comm' appears in place of a conductivity reading during measurement, it indicates communication has been lost with the probe. Check probe connection (call Solinst if message persists).
2. If this device is used in a manner not specified by Solinst, the protection provided by the equipment may be impaired.

Tape Guide Instructions

1. Fit the Tape Guide over the top of the well, small end in.
2. Insert the leg of the TLC Meter into the hole on the Tape Guide and rest the TLC Meter on the side of the well casing (see diagram).
3. Take all measurements at the 'V' notch on the Tape Guide, and adjust readings according to the offset stamped on the Tape Guide.
4. When finished, store the Tape Guide by clipping it onto the support bracket on the back of the TLC Meter.

Cleaning

1. Pull the plastic shroud straight off the probe (do not twist).
2. Clean probe and sensors with a cloth or paper towel.
3. To remove hard deposits or stains on the probe and sensor pins, use either pure white vinegar (acetic acid) or CLR diluted by 50%. Try a 30 minute soak followed by gently rubbing with Q-tip, or soft cloth.
4. Rinse thoroughly with de-ionized water.
5. If about to calibrate rather than storing the TLC, rinse in the calibration solution you are using according to the instructions overleaf.
6. Replace the shroud by rotating it until it seats, then push to lock in place. This is important as it can affect conductivity readings.

Conductivity Sensor

User calibration allows for adjustment of a TLC Meter accurately when the probe has been degraded slightly due to mechanical, biological or chemical affects. If readings of calibration solutions are outside the 5% accuracy range, the user can conduct a recalibration at 1, 2, 3, or 4 separate conductivity levels, using standard solutions (1413, 5000, 12,880, or 80,000 µS/cm).

Calibration Video
2-Point using
1413 & 5000 µS/cm
www.solinst.com/Prod/107/107ins/107insd3.html

Calibration Instructions

Notes:

1. **The de-ionized water, calibration solutions and the probe should all be at room temperature when conducting the calibration.**
2. Calibrate only with 1413, 5000, 12,880 and 80,000 µS/cm solutions. Calibrating with other solutions will cause errors.
3. Clean probe **thoroughly** before each calibration step by rinsing in de-ionized water until the conductivity reading reaches ~ 20 µS or less.
4. Do not let the probe rest on the bottom of the cylinder.
5. **Always ensure that no bubbles are trapped inside the probe shroud. Air bubbles will result in inaccurate calibrations.**

1. Select fresh calibration solution of the range(s) closest to what you expect to measure in the field.
2. Starting with the lowest conductivity calibration solution, clean and rinse the probe with DI water, then rinse with the calibration solution.
3. Insert the probe into the calibration solution, stir to remove any bubbles from the sensor, and wait until the sensor has reached equilibrium.
4. Press and hold the ON button repeatedly to scroll through the menu until you see the appropriate calibration point i.e: "Cal. @ 1413µS".
5. Press and hold the ON button once more until it says, for example, "Press 2x for 1413". Press the ON button 2 times quickly to calibrate the probe at the specified point.
6. After "Cal Now Wait..." appears, the value of the conductivity calibration point will be shown on the main EC/T display.
7. Repeat Steps 2-5 for each calibration solution you are using.
8. Turn off the TLC Meter. The TLC Meter is now ready for field use.

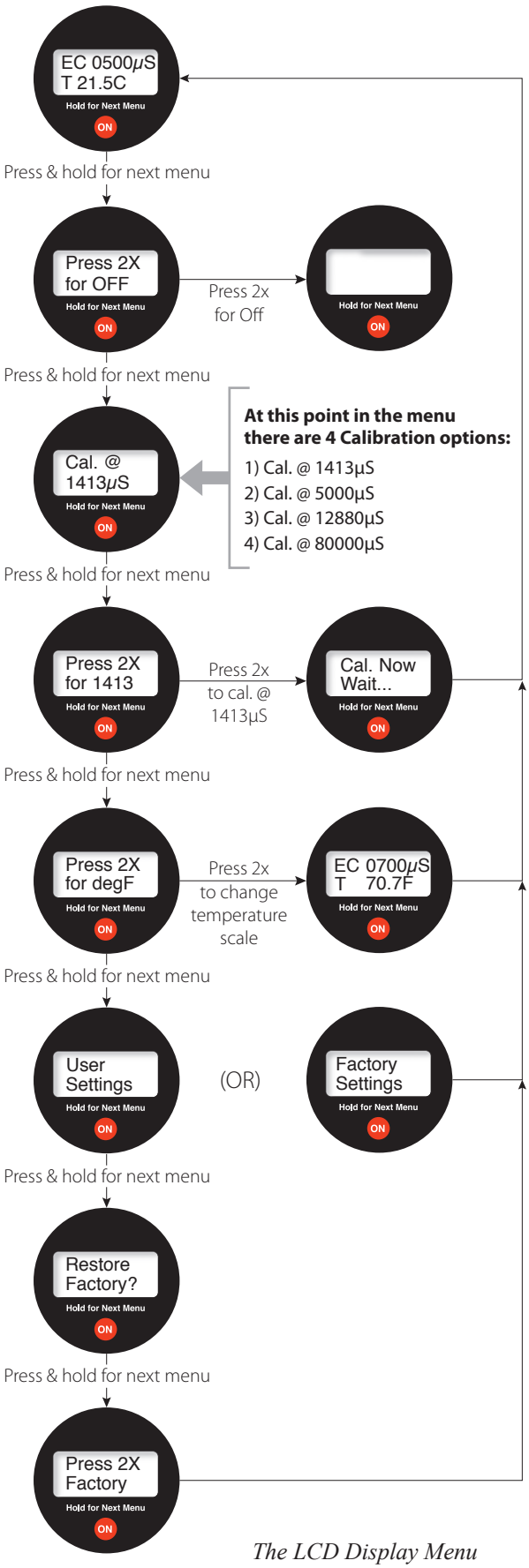
Restore Default Factory Settings

Note: To determine if you are using default factory settings or user calibrated settings, hold the ON button to scroll to the 12th menu item that will display "Factory Settings" or "User Settings". If in "User Settings", the next menu will allow you to restore the factory default settings.

Follow these steps to restore the TLC probe back to factory default settings:

1. Turn the TLC Meter ON. Press and hold the ON button repeatedly to scroll through the menu until you see "Factory Restore?".
2. Press and hold the ON button until "Press 2X Factory" appears.
3. Press two times quickly to restore the unit to the default factory settings. The screen will return to the main EC/T display.

Note:
To change the temperature scale between °C and °F, press and hold the ON button repeatedly until "Press 2X for degF" displays. Press the ON button 2 times quickly to change the scale.



The LCD Display Menu

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