**USING THE MOISTURE PROBE**

Prepare the test site as described in the Model 4590 Operator’s Manual. When using the moisture probe, drive the drill rod to at least 8 inches (200 mm) to accommodate the probe length.

1. When prompted by the 4590 gauge, insert the moisture probe into the hole until the base plate contacts soil surface. It is important to have a tight fit, so if the hole has expanded or is damaged it is best to prepare a new hole to get an acceptable moisture measurement result.

2. Option A: The EGauge and the moisture probe communicate using Bluetooth technology.

   ![Bluetooth symbol]

   After the probe is positioned in the hole (and the adapter is installed on the gauge port if needed), press the Power button on the probe (the green light illuminates when it is on). The blue light on the probe will remain solid when the Bluetooth connection with the gauge is made.

   Option B: If using the serial cable to communicate with the probe: Connect the serial cable to the probe and the gauge; then power the probe on (green light illuminates on probe when On).

3. Press Enter on gauge keypad to perform the moisture reading.

   **Recommended procedure (to ensure a stable reading):**

   Remove hands from the probe and cables. Observe the moisture measurement (M) on the display. Then turn the probe carefully clockwise 45–90 degrees, remove your hands from the handles and wait a few seconds. If the observed moisture result (M) changed more than 0.5 between the two readings, the contact with the soil may not be consistent and a new test hole may be required. If the result is consistent between the two readings, press Enter on the gauge to accept the moisture result.

4. The gauge then displays the results of the density and moisture measurements.

5. The results can be stored in the gauge memory for later viewing, printing or downloading if a project is active.

6. Carefully remove the probe and set aside in a safe place until the next measurement.

**NOTE:** Always use the drill rod that is provided with the EGauge for preparing the measurement hole. The diameter must be the correct size to provide good contact with the probe.

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**The Moisture Probe must be charged periodically.**

The probe will operate approx. 35 hours per charge. The red LED (3rd light from left) illuminates when low, indicating approx. 4 hours of use remaining. Charge the probe with the charger supplied with the Troxler EGauge. The yellow LED illuminates during charging. The probe fully charges in approx. 4 hours (max.).

**MORE INFORMATION**

See Troxler’s website (www.TroxlerLabs.com) or the Model 4590 Operator’s Manual for more information on the Model 6760 Moisture Probe.
Probe Description

The Troxler Model 6760 Moisture Probe, supplied with the Model 4590 EGauge, uses dielectric measurement technology to indicate the moisture content of the soil being measured. If a moisture value is known by the gauge the moisture content, percent moisture and Dry Density value can be reported and the % Proctor can also be calculated. The EGauge will also allow the moisture value (M) to be entered using the keypad if another moisture measurement method is specified.

The probe is approx. 6.5 inches (16.25 cm) long and the moisture measurement depth is at approx. 3.5 to 4 inches (8.75-10 cm) deep. The probe is inserted in the same predrilled hole that the EGauge uses for the density measurements. It is important that the probe be inserted in the predrilled hole carefully as it requires a tight fit in order to achieve a reliable reading. For this reason it may be best to perform the density measurement first because the probe could damage the hole.

The EGauge is preprogrammed with 3 generic soil profiles; General, Clay and Cr. Aggregate. General is best used when measuring granular and non-clay type materials, Clay is used on materials classified as clay and the Crushed Aggregate profile is for aggregate subbase material. It is also recommended that the user adjust the probe readings to the particular material being measured using either the Moisture Probe Calibration or the Moisture Probe Offset. This will ensure the most accurate results. The Moisture Probe Calibration is the best procedure to use, however it is best if performed using 3 or more known samples (oven dry for example) with a range of moisture contents of 5 pcf M value (or greater) in order to change the calibration rather than a simple offset to the calibration.

SET UP THE GAUGE & PROBE

MEASUREMENT ORDER

The operator can determine what order to perform the density and moisture measurements. To select what order the measurements are taken, press Setup key and then press (3) Measurement Order from the Options menu. Option 1 selects Moisture First, Option 2 selects Density first. The default selection is Density first.

MOISTURE INPUT METHOD

To select how you want to input moisture values, press (2) from the Options menu. Select option 1 for External sensor. This tells the gauge that you will be performing a measurement with the Model 6760 moisture probe. The other options are manual input and none. Manual Input allows the keying in of the percent moisture (M) resulting from another test such as an oven dry analysis. Choosing None tells the gauge that no moisture value will be entered, only a Wet Density measurement is to be performed.

PERFORM A MOISTURE MEASUREMENT

If a ‘stand alone” moisture measurement is needed, the gauge can display the moisture data on the screen with no density measurement needed. In the Setup menu, choose option 8. Moisture Probe. Then select option 1. Take Measurement. Make sure the probe is inserted properly into the prepared hole if a valid moisture measurement is desired. Press ESC to end the moisture measurement.

PERFORM A PROBE CALIBRATION

See the Model 4590 operator’s manual for a more detailed description of the probe calibration process and a worksheet to record the data collected.

Follow these keypresses to perform the material specific probe calibration as described above:

Select Option 3. Probe Calibration, under the Moisture Probe menu, to begin the new calibration for a specific soil.

Next determine if you want to 1. Create a new calibration or 2. Enter calculated constants (use option 2 if you have derived your own constants outside of the gauge software).

If choosing Option 1. Create a new calibration, select 1. Keypad Entry or 2. Gauge Derived then select the number of data points that have been or will be sampled (measurements performed and sample collected for drying). This must be between 3 and 25 measurements in order to have a valid calibration.

If using keypad entry the gauge will prompt for the data from each measurement site, the WD, Diff value and the True %Moisture are all needed.

If using the Gauge derived, the gauge will then prompt you to perform reading #1 to be stored as a partial calibration. Perform the readings as usual.

SELECT A STORED PROBE CALIBRATION

At the Moisture Probe menu, Press 2. Cal Profile for the list of stored, default and partial probe calibrations.

Partial calibrations will be noted by an asterisk, these are probe calibrations that have been started (field measurements performed and stored, but require the true moisture (lab moisture) data to be entered in order to be completed.

MOISTURE PROBE OFFSET

A moisture probe offset should be used when the moisture content of a laboratory sample differs from the reading provided by the Troxler Moisture Probe Model 6760 after a moisture probe calibration has been performed or as a “fine tune” tool when using a default profile (General, Clay and Cr. Aggregate).

To change the Moisture Offset value press 1 at the Offset Menu.

The gauge then asks for the Probe Moisture value (M) in lb/ft$^3$ or kg/m$^3$. Press Enter after entering the M value from the probe reading.

Next enter the Wet Density value from the initial measurement site. Press Enter to accept.

Last enter the True Moisture percent (M) resulting from the lab moisture analysis (oven dry or Speedy for example) on the soil taken from the initial site.

The gauge then displays the new moisture offset value and returns to the Offset menu.