

## Turf-Tec Moisture Sensor



Turf-Tec Moisture Sensor - For all turfgrass areas. Specially designed quick probe depth adjustment from zero to four inches deep. Instant read out dial tells you the percentage of moisture in the soil. This is the ideal moisture meter for testing soil moisture as the Turf-Tec Moisture Sensor is simple to use, easy to read meter and very durable.

Stop guessing about soil moisture, find out the amount of water in the pore space within the soil in percentages of soil moisture. If readings are below 25%, there is not enough moisture for the turfgrass roots, if the soil moisture readings are above 75%; there is not enough air space in the soil.



Locate saturated soils deep in the profile. Monitoring soil moisture insures consistency in playing conditions from one golf green to another or one athletic field to another. Excellent tool for use in water audits and in the whole urban ecology.

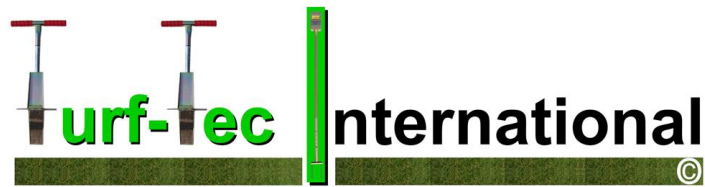
**A quick and convenient way of monitoring soil moisture on all turfgrass areas.**

### Check Soil Moisture on:



- Golf greens, fairways, golf tees.
- Sports fields.
- New construction.
- Lawns.
- Playgrounds.
- Locate dry spots.
- Locate layers.
- Check sprinkler performance.

### Specifications:

- Easy to use.
- Read out in percentages - 0 - 100%
- Instant readings.
- Durable and reliable.
- Adjustable foot from 1-4 inches deep.
- Overall height 48 inches tall.
- Weather proof non-corrosive metal.
- Read out is at eye level to avoid bending down.



Have your irrigation technician's carry one at all times.

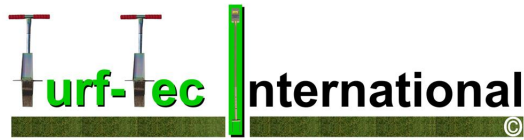
	
<p><b>Close up of Turf-Tec Moisture Sensor Face - Readings in percentages from 0 - 100%</b></p>	<p><b>Top of Turf-Tec Moisture Sensor</b></p>

Check moisture readings at each level of the soil horizon. Adjustable from zero to four inches deep. Check moisture in thatch, mat and soil above and below the root zone. Very useful for checking moisture on golf greens and all turfgrass areas. Small 3/16-inch probes will not damage fine turfgrass areas or stressed turf. Determine if layers are causing a problem with water movement in the soil profile. The Moisture Sensor shows the actual amount of moisture available to the plant. Use the Moisture Sensor to correlate irrigation time with infiltration rate.

### Additional Accessories:

	<p><b>TTMP75</b> - Moisture Sensor Replacement Probe and wire.  <a href="#">Click here to see this item in the catalog.</a>  <a href="#">Click here to order this product.</a></p>
	<p><b>TTMP26</b> - Moisture Sensor Replacement 4 inch Steel Spikes (Set 2)  <a href="#">Click here to see this item in the catalog.</a>  <a href="#">Click here to order this product.</a></p>

## MS1-W - Turf-Tec Moisture Sensor



## Moisture Sensor Probe Re-Calibration

### Cleaning Moisture Sensor Meter Probe

Note: Moisture Sensor probe may need cleaning before use.

The Moisture Sensor probe is suspect able to attracting particles during times of non-use.

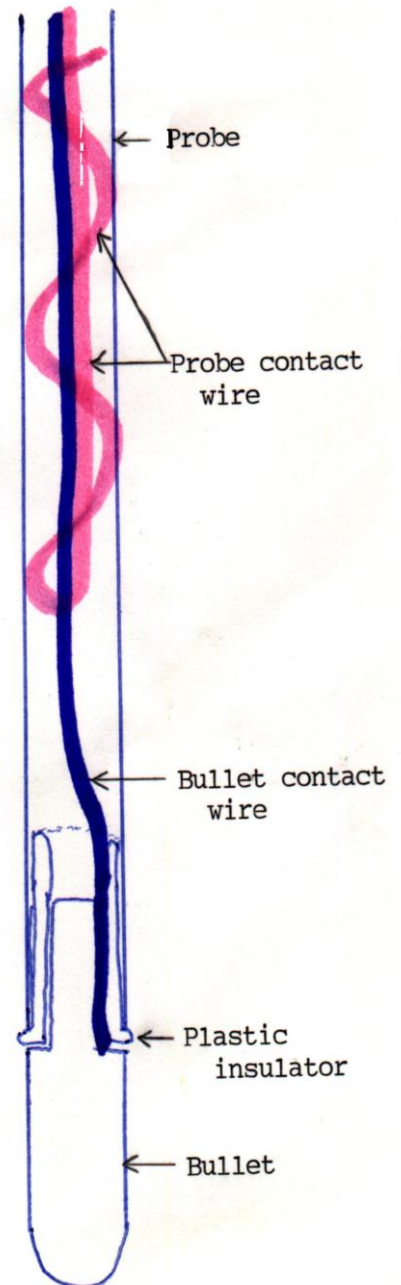
If meter is reading a lower percentage then anticipated, oxides have built up on the probe and are hampering its contact with the soil.

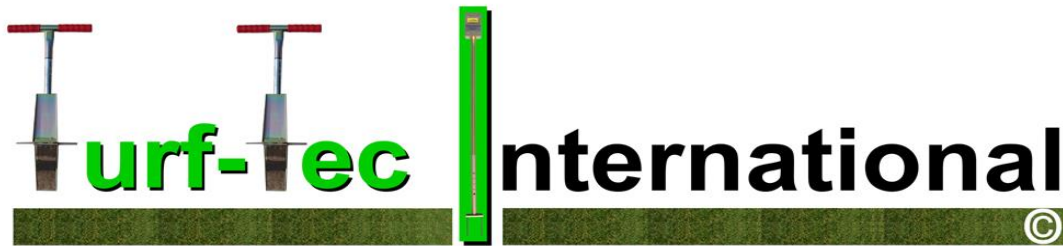
A 3-M brand abrasive pad can be used to buff clean the probe and bullet to a bright shine. (The bullet material will not become as bright as the probe shaft.) **DO NOT USE SAND PAPER.**

### Re-Calibration

Note if readings are still weak after cleaning probe to a shine, or if needle is reading sporadic, follow this procedure.

- 1) Extend the probe out of the foot portion of meter or remove foot entirely.
- 2) Take a pair of pliers and gently grasp the bullet portion of the probe. (The bullet portion is at the end of the probe just beyond the plastic insulator.)
- 3) Gently turn the bullet a half turn. (This will allow the probe contact wire inside the probe to gently scrape against the inside of the probe wall and insure proper contact similar to using the abrasive pad on the outside of the probe as mentioned above.)
- 4) Be sure bullet is not pulled away from plastic insulator.
- 5) Test again. A test may be made with a paper towel moistened with water.
- 6) If readings are still sporadic, repeat steps # 2 through # 5.





## TURF-TEC MOISTURE SENSOR INSTRUCTIONS AND USE

### Specifications



water.

Construction: Anodized aluminum and high impact plastic.  
 Dimensions: 48 Inches tall.  
 Read out: Meter reads 10%, 25%, 50%, 75%, & 100% Moisture.

- 10 - 25 indicate low moisture. In this range, plant roots have difficulty absorbing moisture. Therefore, this must be considered a danger condition.
- 25 — 75 indicate medium moisture or the ideal range.
- 75 - 100 indicate a wet soil, which denotes too much

Normally, after irrigation or rain, the read out will indicate wet or saturated soil. This condition will change in about an hour, when dealing with normally draining soils, to the 25 - 75% range.

### Operating Instructions

Adjusting the depth of the Turf-Tec Moisture Sensor.



- (1) Push pin in with thumb and turn outer tube slightly to one side.
- (2) Slide tube to desired depth, (Each hole is in inch increments) and lock into place.
- (3) Insert tines and probe slowly into turf. If resistance is met, DO NOT FORCE, either move to a new location or make a hole for the probe with a suitable tool.
- (4) Read needle position and record.
- (5) Take several different readings to get an average idea of moisture content at each level in the soil.

### Correlating Readings

Remember that a soil in good tilth consists of 50% solids, 25% air spaces and 25% water. Rain or irrigation water will temporarily fill all of the voids in the soil. Depending on the porosity of the soil or its capacity to hold water, good soils will drain in about an hour. This is gravitational water and will move down into the soil profile. Normally, it will take about an hour for gravitational water to move down after it is applied to turfgrass areas.

The soil will then be at “field capacity”, which means that the soil is holding all of the water it can after the gravitational water has drained into the profile. As the turfgrass plant uses the water held in the soil, which is at “field capacity”, air begins to fill the voids occupied by the water, allowing the root system to take in oxygen. As water is used up in the “field capacity” range, it can be noted on the meter.

When the meter indicates less than 25%, it means that there may be still moisture in the soil, but the plant roots cannot retrieve it, since it is too tightly held by the soil particles. Water should be applied at this point. Learning to use your Turf-Tec Moisture Sensor as a guide to irrigation practices will greatly reduce the guesswork in developing and managing quality turf grass areas.

## **Golf Tournaments**

The Turf-Tec Moisture Sensor tells the amount of water in the air space that is in the soil. A one to two year old sand based golf green that is saturated will show a very small amount of moisture because of the air space in the soil. A soil green or fairway will show 100% when saturated. In most soil conditions, with the exception of sand based construction, the reading best suited for turfgrass is anywhere between 25% and 75% on the scale. Any reading below 25% there is not enough water available for the roots and any reading above 75%, there is not enough air space in the soil.

The main objective before tournament play is not an actual percentage reading but to look for consistency. If all the greens have the same percentage of soil moisture and they all have the same reading on the Turf-Tec Penetrometer, they will all respond to the ball impact the same way. The key to playability is consistency from green to green with the relationship of soil moisture and compaction.

## **Care of probe**

The main reason for probe replacement should be wear, not breakage. Wear will occur when bullet portion of probe is worn about half way down. Here are some tips to keep probes from breaking.

1. Stress to employee using the tool that it is a scientific instrument. Care must be used when using the tool as it is built to be durable, but readings are on a very small scientific scale therefore internal parts are still delicate.
2. Insert meter into soil so all three spikes are straight. If the outside support spikes become slightly bent, straighten carefully so all three are in alignment. If units are used rough, the outside spikes will break first and they are easier to replace as compared to probe.
3. Do not use unit without outside spikes.
4. Do not put foot on bottom of unit to insert into the soil. This will cause unit to go into the soil at an angle and bend spikes. Use only downward hand pressure on shaft to put unit into the soil.
5. Do not push into soil from top of box, use only downward hand pressure on shaft to put unit into the soil. You can place hand on top of unit to guide into the soil but do not push down on top of box.
6. Here is a video showing the tool in use -  
<http://www.youtube.com/watch?v=wqg3wwhf34c>
7. If soil is excessively dry or hard, pre-make a hole for center probe with a ice pick or similar tool that is smaller in diameter than the center probe.

#### **LIMITED WARRANTY OF TURF-TEC INTERNATIONAL PRODUCTS**

Turfgrass Products Corporation - dba - Turf-Tec International ("Seller") warrants to the final purchaser, that all Turf-Tec International tools will be free from defects in material or workmanship for a period of one year from date of purchase. SELLER'S SOLE OBLIGATION AND YOUR EXCLUSIVE REMEDY under this Limited Warranty and, to the extent permitted by law, any warranty or condition implied by law, shall be the repair or replacement of parts, without charge, which are defective in material or workmanship and which have not been misused, carelessly handled, or improperly repaired by persons other than Turf-Tec International. To make a claim under this Limited Warranty, you must return the complete tool, transportation prepaid, to Turf-Tec International after contacting Turf-Tec International and receiving a return authorization number. Please include a dated proof of purchase with your tool.

ANY IMPLIED WARRANTIES SHALL BE LIMITED IN DURATION TO ONE YEAR FROM DATE OF PURCHASE. IN NO EVENT SHALL SELLER BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING BUT NOT LIMITED TO LIABILITY FOR LOSS OF PROFITS) ARISING FROM THE SALE OR USE OF THIS PRODUCT.

#### **Hold Harmless Agreement**

The seller shall protect, defend, indemnify and hold the purchaser and their respective assigns and their attorneys, accountants, employees, officers and directors harmless from and against all losses, costs, liabilities, claims, damages and expenses of every kind and character, as incurred, resulting from or relating to or arising out of the inaccuracy of results, injury of user, injury of sports participant, turfgrass loss, warranty, covenant or any agreement made by the seller in this agreement.