



Water Management Highlight

Know what's happening in your soil, so that you can make better decisions on how to irrigate and conduct other turf management activities. Don't guess at how much water to apply for flushing an area, let Turf Guard tell you when enough water has been applied to push the salts out of the root zone. Don't wonder if you need to irrigate an area tonight, let Turf Guard tell you if the area is in an acceptable moisture level range.

Toro® Turf Guard Wireless Soil Monitoring System helps you improve your turf, soil and water efficiency.

The revolutionary Turf Guard technology lets you know what's going on beneath the surface of your course, so you can make timely, more informed adjustments.

In addition to great water-saving benefits, Turf Guard provides soil temperature and salinity information, to help you prevent and fight damaging turf diseases, pests, salinity problems and other stresses.

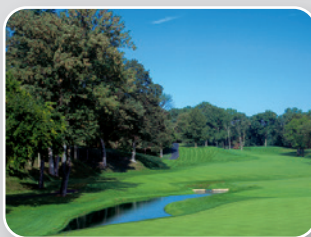
Turf Guard enables you to: schedule salt flushing events and monitor the flush itself at two depths, identify heat stress conditions to regulate soil moisture during those times, monitor turf for risks of fungal infections and track soil thaw or freezing. The Turf Guard system can even be programmed to alert you when defined thresholds are exceeded.

Features & Benefits:



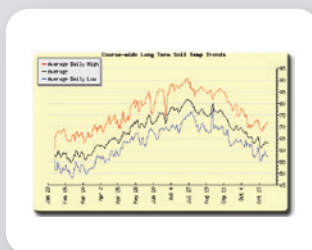
MONITOR MOISTURE LEVELS AND ADJUST IRRIGATION

Reduce water usage and improve playability without risking turf quality. Promote root growth by avoiding over watering. Detect dry areas before it impacts the turf's health.



TRACK SALT BUILD-UP AND SCHEDULE FLUSHING

Take the guesswork out of monitoring and managing salinity levels. Get positive confirmation that your flushing has reduced soil salts. Know when and how much water to flush with.



MONITOR DAILY SOIL TEMPERATURES

Predict peak soil temperatures early in the day to start remediation activities before an emergency. Schedule fungicide applications and pesticides for optimal effectiveness. Understand evaporation rates and syringing needs.



WIRELESS NETWORK

No wires between the repeaters and the sensors, or the sensor and the probes means that sensors can be installed anywhere on the course without disrupting play. Install sensors in greens, fairways, tees and other areas without having to trench or run wires.

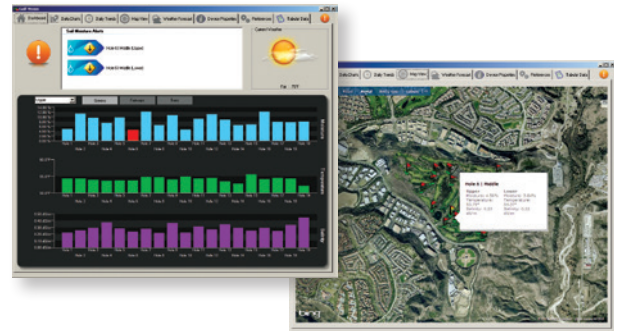
Turf Guard® Wireless Soil Monitoring System

How it works:

The Toro Turf Guard monitoring system uses an integrated network of wireless, underground sensors to constantly tell you exactly when you need to water each part of your course. Because Turf Guard sensors transmit data wirelessly, you avoid having to dig up greens, fairways or other critical areas of your course.

Turf Guard is very high tech, but a simple concept:

- Special sensors continually monitor subsoil moisture volume plus salt content and temperature
- Measurements are taken at two depths, 125mm apart
- Data from two depths can track water/salt movement and soil dry-down through the root zone
- Strategically placing the sensors allows for variations in slope, shade, etc. in any area of your course
- The sensors transmit data every five minutes so you have access to current soil conditions



Easy installation, no wires - use standard cup cutting tool



Cut hole using standard cup cutting tool



Insert sensor into hole



Gently push sensor prongs into hole wall

Operational Features

- Immediately ready for play after installation
- Repeater mounts in most Toro irrigation satellite pedestals
- External repeater available for other models including non Toro pedestals
- Supports up to 500 sensors per course
- Expected sensor battery life of 3 years, field replaceable
- Sensor reading sent every 5 minutes
- Measures two distinct depths in the soil profile
- Automatic network configuration and failure recovery
- Graphical course overview displays sensor data at-a-glance
- Plots trends and compares historical and current readings
- Move quickly from course-wide averages to individual sensor readings
- Advanced MESH routing technology provides complete coverage on difficult topography

NSN Support

- 1 year of NSN support standard (extended support plans available)

Electrical Specifications

- Input Power:
 - Repeater: <0.02A @ 6 VDC
 - Base Station: <0.1A @ 120 VAC, 50/60 Hz
- Dimensions:
 - Body: 50 x 92 x 155mm
 - Spikes: 44 x 4.8mm
 - Installation Hole Diameter: 108mm
- Temperature:
 - Operating: 0°C to 60°C
 - Storage: -30°C to 82°C
- Sensing:
 - 0.1°C Temperature resolution
 - 0.1 % Volumetric soil moisture content resolution
 - 0.1 dS/m Soil conductivity resolution (Salinity)
- Communication:
 - Repeater Range: 457m line-of-sight
 - Buried Sensor Range: 152m line-of-sight
 - 915.5 to 927.5 MHz Communication
 - Additional licensing not required

Ordering Information

Model	Description
TG-S2-R-AU	Turf Guard Sensor With Replaceable Battery
TG-R-INT-AU	Repeater-Internal Mount
TG-R-EXT-AU	Repeater-External Mount
TG-B-AU	Base Station
TG-S2-BAT	Turf Guard Sensor Replacement Battery
TG-PS-AU	Turf Guard Power Conversion Board

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**For more information, phone 1300 130 898
or visit www.toro.com/turfguard**