



Model 200SS WATERMARK Sensor

shown here
actual size



US Patent
No. 7,705,616

Specifications –

MATERIALS: ABS plastic caps with stainless steel body over a hydrophilic fabric covered granular matrix.

DIMENSIONS – DIAMETER: .875 in. (22 mm)

LENGTH: 3.25 in. (83 mm)

WEIGHT: .147 lb. (.067 kg) – with 5 ft. lead

WIRE LEADS: AWG 20, 2 leads

WARRANTY: One year

ORDERING INFORMATION: Catalog #200SS

Standard length leads: –5 = 5 ft. (1.5 m), –15 = 15 ft. (4.5 m) –or– _ _ _ = custom length.

Catalog #200SS-X = without leads.

WATERMARK Soil Moisture Sensors are shipped bulk unless specified to be in retail packaging (add **-PKG**).

In use since 1978, the patented WATERMARK sensor is a solid-state electrical resistance sensing device that is used to measure soil water tension. As the tension changes with water content the resistance changes as well. That resistance can be measured using the WATERMARK Sensor.

The sensor consists of a pair of highly corrosion resistant electrodes that are imbedded within a granular matrix. A current is applied to the WATERMARK to obtain a resistance value. The WATERMARK Meter or Monitor correlates the resistance to centibars (cb) or kilopascals (kPa) of soil water tension.

The WATERMARK is designed to be a permanent sensor, placed in the soil to be monitored and “read” as often as necessary with a portable or stationary device. Internally installed gypsum provides some buffering for the effect of salinity levels normally found in irrigated agricultural crops and landscapes.

Features:

- **Proven stable calibration**
- **Range of measurement from 0 to 239 cb (kPa)**
- **Fully solid-state**
- **Will not dissolve in soil**
- **Not affected by freezing temperatures**
- **Internally compensated for commonly found salinity levels**
- **Inexpensive, easy to install and use**
- **Compatible with AC or DC reading devices (specialized circuit required)**
- **NO maintenance required**

APPLICATIONS INCLUDE –

- Irrigation Scheduling • Water Table Monitoring
- Leak Detection • Agronomy Research • Environmental Monitoring
- Anywhere you need to know when or if the soil moisture status is changing

OPERATING PRINCIPLE: The WATERMARK sensor is a resistive device that responds to changes in soil moisture. Once planted in the soil, it exchanges water with the surrounding soil thus staying in equilibrium with it.

Soil water is an electrical conductor thereby providing a relative indication of the soil moisture status. As the soil dries, water is removed from the sensor and the resistance measurement increases. Conversely, when the soil is rewetted, the resistance lowers.

The WATERMARK sensor is unique in that it takes its resistive measurement within a defined and consistent internal matrix material, rather than using the surrounding soil as the measurement medium. This unique feature allows the sensor to have a stable and consistent calibration that does not need to be established for every installation.

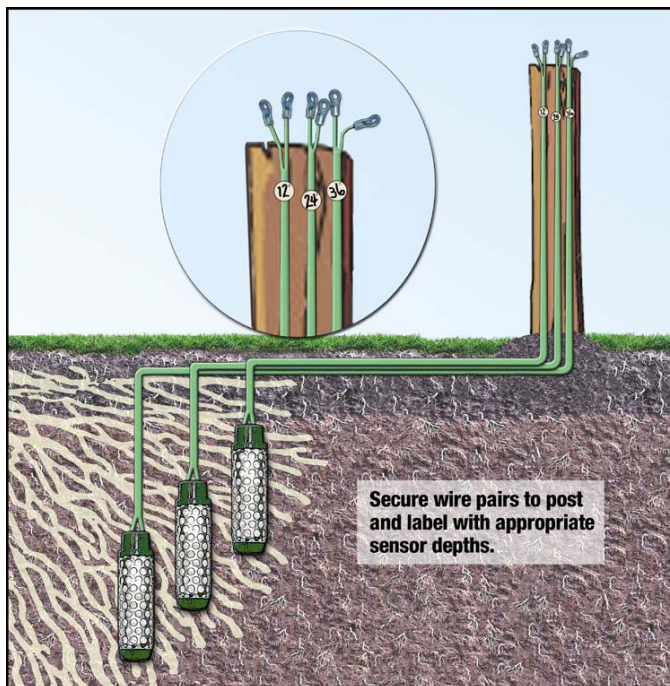
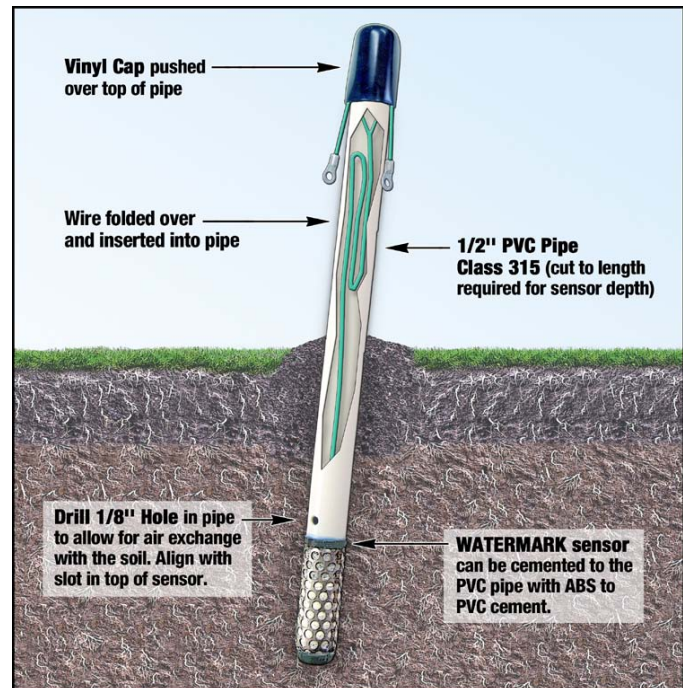
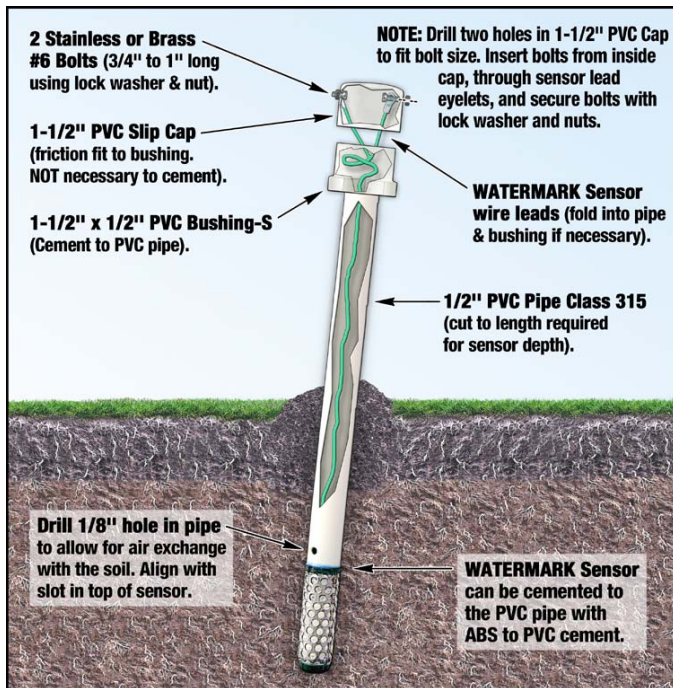
The relationship of ohm of resistance to centibars (cb) or kilopascals (kPa) of soil water tension is constant and built into the reading devices that are used to interrogate the sensor. The sensor is calibrated to report soil water tension, or matric potential, which is the best reference of how readily available soil

water is to a plant. The WATERMARK sensor consists of stainless steel electrodes imbedded in a defined and consistent internal granular matrix material that acts like a soil in the way it moves water. This matrix is encased in a hydrophilic material that establishes good hydraulic conductivity with the surrounding soil and is held in place by a durable stainless steel perforated shell with plastic end caps.

SPECIFICATION INFORMATION: The soil moisture measurement device, or sensor, shall represent soil moisture status in units of soil water tension or matric potential, registering in centibars (cb) or kilopascals (kPa) when read with a compatible reading device. Its construction shall be of the Granular Matrix Sensor (GMS) type and require no on-site calibration or routine maintenance. It shall be durable, long-lasting, not subject to dissolving in a wet soil environment with an outer surface of stainless steel and ABS plastic. It shall be the WATERMARK sensor as manufactured by the IRROMETER Company, Inc. of Riverside, California.

MODEL 200SS - WATERMARK Soil Moisture Sensor

Installation Examples:



WATERMARK

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