











# WATERMARK

## MONITOR

### AUTOMATIC SOIL MOISTURE DATA RECORDING

-  **Automatically Reads Sensors**
-  **8 Sensor Capacity**
-  **Reading Frequency from Every Minute to Every Day**
-   **WATER GRAPH Software Included**
-  **In-Field Display of Current Reading**
-  **Download History to a Computer**
-  **Outdoor Mount**
-  **9 Volt Battery Included**
-  **Complete with 8 Sensors**  
( 1 Temperature & 7 Watermarks)



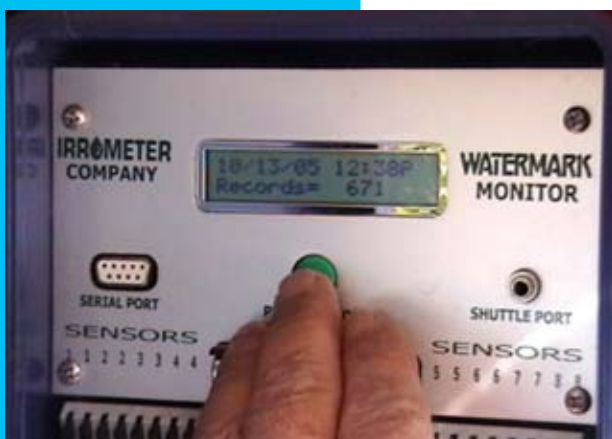
**The Watermark Monitor is a Data Logger, a device that automatically takes soil moisture readings. This reading history provides a vivid picture of the soil moisture profile your irrigation practices have created.**

This data can be evaluated to determine ways to improve the irrigation scheduling for optimum results. Individual sensor readings display on the Monitor and can be taken at any time manually. The In-Field display allows you to make on the spot checks as necessary for scheduling purposes while periodic readings are being taken to record the performance history.

Record soil moisture, soil temperature and switch positions for an accurate record of the performance of your irrigation schedule. Irrrometer switching pressure gauges are used as switch position sensors to indicate when the system pressure is on and off to display the irrigation events. Temperature compensation of the soil moisture reading is automatic by using one or more temperature sensors or programming a default value. The Irrrometer Model RSU (4-20mA transducer) can also be read (wiring adapters and auxilliary sensor power required).

Spring-loaded terminal strips are provided for sensor connections, which allow for easy installation and never need tightening. Included wire entry strain relief connectors keep enclosure sealed and retain wires. Data can be downloaded directly to a computer, with a PDA or via wireless telemetry.

### EASILY VIEW READINGS IN THE FIELD

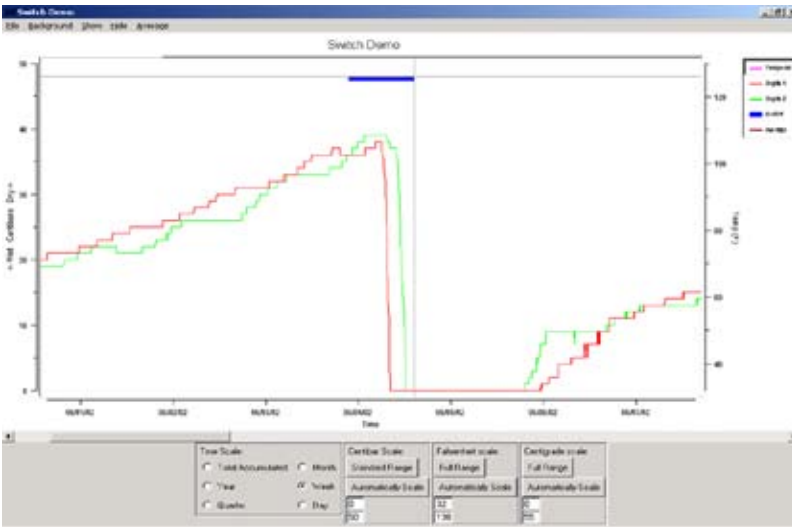


The Watermark Monitor is user programmed for the individual characteristics of the site to be monitored:

- A unique location name
- The time interval to automatically take readings, from once every minute to once every day
- A unique name for each sensor being read
- The date and time you want readings to begin
- The selection of sensor type for each input port:
  - Watermark Soil Moisture Sensor
  - Temperature Sensor in Fahrenheit
  - Temperature Sensor in Centigrade
  - Switch Position
  - Irrrometer Model RSU (4-20mA transducer)
  - Off



Example of SETUP screen



Stored readings are downloaded to a computer for display, as in this sample. Other display options are available.

The **WATERGRAPH** software, included with the Watermark Monitor, is used to set up your individual site profile, launch the data-logger, download recorded history and graphically display the results.

The data file created can also be opened by some spreadsheet or graphing programs, like Microsoft Excel®.

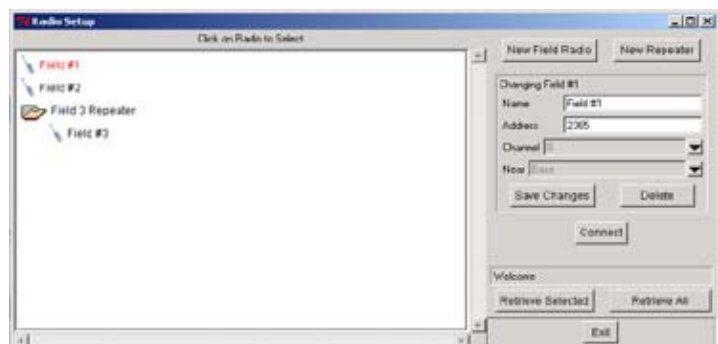
The above graph illustrates the trends of soil moisture at two different depths in the root zone. This graphical representation makes it easier to interpret the site conditions as you schedule irrigations. Proper management of the soil moisture will produce better quality and higher yields, while often saving water and labor costs. Irrigation events can also be displayed as indicated by the blue line.

Data from the **WATERMARK MONITOR** can be downloaded directly to a laptop in the field, transferred by a PDA or remotely retrieved via telemetry. Radio and cellular telemetry are available as options that can be purchased with a Monitor, or easily retrofitted to an existing Monitor already installed.

Radio Management software is included with Radio Telemetry Options.

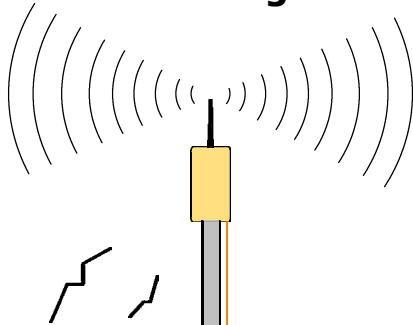
This screen shows a sample radio configuration. New radios can easily be entered as the system is expanded.

Radio telemetry systems can be ordered pre-programmed for ease of installation.

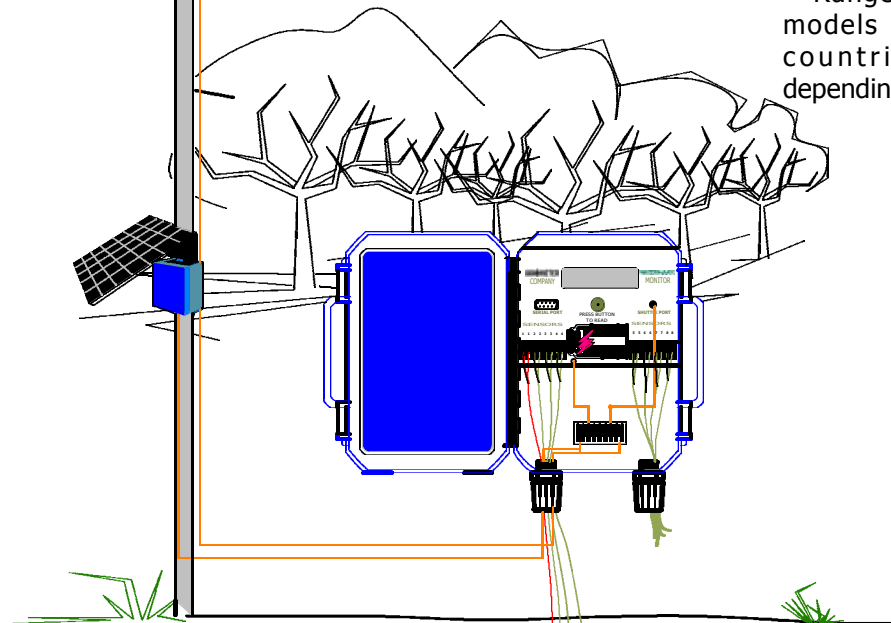


# Accessories for the **WATERMARK** Monitor

Provides wireless data collection with 900 MHz spread spectrum "line of sight" radio telemetry not requiring FCC licensing.

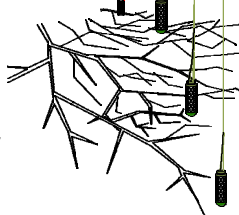


\* Range listed is for USA version. Other models are available for use in different countries and may vary by output depending on individual country requirements.



Drawing shows the Monitor with Field Radio (900M-FR) installed on mounting post including optional Battery Pack (900M-BP) supplying power for the radio

Monitor easily mounts in the field. Sensors are placed in the crop root zone at depths where monitoring is desired. Sensor wiring can be extended to any length.



# Monitor Options & Accessories

## Telemetry Options

**For recording Switch Positions to indicate irrigation events:**

**7 Series** Switching Pressure Gauges:  
7-\*/Switch-DC

\* Pressure Ranges from 30 to 400 PSI



**For recording Irrrometer tensiometers:**

**RSU Irrrometer** - Tensiometer equipped with a 4-20mA transducer, requires 900-RSU Adapter and power supply for connection to Monitor.



**Quick Disconnect** - Option for easy removal of the Monitor from field sensor wiring. Makes it easy to bring the Monitor to your computer for programming and downloading.



**900M-PDA** Software and cable for connecting a PDA for data transfer. Requires a PDA capable of serial communication.

The Data Shuttle option for the Watermark Monitor will allow you to download data from multiple Monitors with a PDA and then transfer that downloaded data to a computer for display. The PDA will not display the data, it only collects and transfers data.



Radio signal is "line of sight" and varies with site conditions, such as topography, buildings, plant canopy and electrical interference. Range is increased the higher the Field Radio module is installed.

Component parts required for a complete telemetry system:

**900M-FR** Field Radio Transmitter Module - mounts at the Monitor, includes 10' (3m) cable and 115 VAC plug-in style transformer.

**900M-BR** Base Radio Receiving Module - mounts at the computer used to communicate with the Monitor, includes 115 VAC plug-in style transformer. Or make your truck a portable office with a DC adapter.

**900M-BP** Battery Pack - connects to 900M-FR to provide power to the radio transmitter, if 115 VAC is not available, includes solar recharging panel.

**900M-RR** Repeater Radio Module - mounts between Field and Base radios to enhance range, includes 2 radio modules with 10' cable and 115 VAC plug-in style transformer that must be mounted near each other.

**900M-DC** - Optional DC power adapter for 900M-BR to allow mounting the Base Radio Module in a vehicle, requires 12 VDC input.

**900M-CM** Cellular Modem - For GPRS or CDMA cellular communication. Includes modem in weatherproof enclosure. Requires separate power source or use cellular version of battery pack (900M-BP-CM).



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