IRRIGATION ASSOCIATION

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www.irrigation.org

Smart Water Application Technology™ (SWAT™) Performance Report

Testing Agency: Center for Irrigation Technology **www.californiawater.org**

Product: Rain Bird ET Manager with ESP-TM Controller

Product Type: Climatologically Based Controller

Product Description: Rain Bird ET Manager uses weather information broadcast hourly to calculate ET, and allows or prevents irrigation by any controller connected through the common wire, based on calculated ET and local site conditions

SWAT™ Protocol*: Turf and Landscape Equipment Climatologically Based Controllers 6th Draft Testing Protocol (December 1, 2004)

The concept of climatologically controlling irrigation systems has an extensive history of scientific study and documentation. The objective of this protocol is to evaluate how well current commercial technology has integrated the scientific data into a practical system that meets the agronomic needs of turf and landscape plants. The evaluation is accomplished by creating a virtual landscape subjected to a representative climate to evaluate the ability of individual controllers to adequately and efficiently irrigate that landscape. After initial programming and calibration the controller is expected to perform without further intervention during the test period. Performance results indicate to what degree the controller maintained root zone moistures within an acceptable range. If moisture levels are maintained without deficit, it can be assumed the crop growth and quality will be adequate. If moisture levels are maintained without excess it can be assumed that scheduling is efficient.

***All SWAT™ Protocol may be viewed at www.irrigation.org**

Rain Bird ET Manager with ESP-TM Controller SWAT™ Performance Summary

Irrigation Adequacy	Irrigation Excess
Minimum of 6 test zones: 100% **Maximum of 6 test zones: 100%** **Mean/Average of 6 test zones: 100%** **Irrigation Adequacy** represents how well irrigation met the needs of the plant material. This reflects the percentage of required water for turf or plant material supplied by rainfall and controller-scheduled irrigations. Research suggests that if this value is between 80% and 100%, the acceptable quality of vegetation will be maintained.	**Minimum of 6 test zones: 0%** **Maximum of 6 test zones: 0%** **Mean/Average of 6 test zones: 0%** **Irrigation Excess** represents how much irrigation water was applied beyond the needs of the plant material. This reflects the percentage of water applied in excess of 100% of required water according to data from CIMIS station #43 McArthur, Shasta County during the test period.

Product Detail Supplied by Manufacturer

Rain Bird ET Manager **www.rainbird.com**

Installation	Data Source	Data Link	Initial Purchase	Additional Hardware	Additional Fees
Retrofits with an existing controller or installs on a new system	Weather Reach Signal Provider accesses a weather station and sends local weather information hourly to the ET Manager	Wireless paging	ET Manager wireless receiver is integral	❑ Optional tipping bucket rain gauge ❑ Optional external antenna ❑ Outdoor enclosure	Varies depending on Weather Reach Signal Provider.

Additional Features

Zones	Time of Day	Day of Week	Other	If Data Link is Discontinued
Available number of zones contingent upon type of interconnected controller	Capable of restricting watering time to a user-defined water window, independent of connected controller	Capable of restricting watering days by odd, even or custom, independent of connected controller	❑ ET Manager Scheduler software included ❑ ET Manager resource CD included ❑ Compatible with virtually any standard sprinkler controller ❑ Built-in historical weather database ❑ Programmable delay for excessive weather conditions (wind, rain, freezing) ❑ Based on IA recommended ASCE* formula for determining ET using all required weather parameters	The ET Manager features an historical weather database that is used in the event the Weather Reach Signal is interrupted.

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Weather Reach Signal Provider

- ❑ Accesses a weather station(s) and broadcasts the weather information via commercial paging to an unlimited number of ET Managers
- ❑ Uses Irrigation Association recommended ASCE*-standardized ET equation using all required weather parameters; solar radiation, temperature, wind, and humidity
- ❑ ET Manager is compatible with virtually any standard sprinkler controller

ET Manager Scheduler

- ❑ Walks a user through generating initial ET Manager settings
- ❑ Uses site specific information (plant, soil, slope and the sprinkler system) to create a zone-specific watering schedule, based on Irrigation Association recommended parameters
- ❑ Supports user-defined water windows, water days and manual watering
- ❑ Incorporates cycle and soak times according to soil type and slope

*American Society of Civil Engineers