rainmachine™
the forecast sprinkler

RainMachine Touch - User Manual
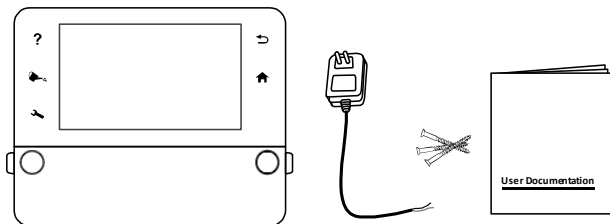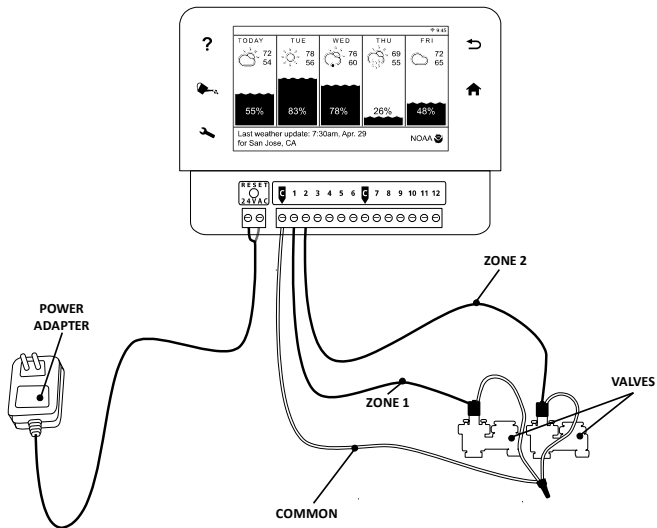
Package Contents

Figure 1, package contents

- RainMachine device (front view)
- 24VAC power adapter (cable 1.5m length)
- 3 drywall screws
- User documentation

Wiring Diagram

TODAY ☀ 72 54

TUE ☀ 78 56

WED ☀ 76 60

THU ☀ 69 55

FRI ☀ 72 65

55% 83% 78% 26% 48%

Last weather update: 7:30am, Apr. 29 for San Jose, CA

NOAA

ZONE 2

POWER ADAPTER

ZONE 1

VALVES

COMMON

Hardware Installation

1. Fastening unit
- Place the Quick Installation Guide printed card on the wall.
- Mark and drill though the holes labeled "DRILL HERE".
- Using the provided 3 Drywall screws, fasten the unit to the wall.

2. Electrical
- Insert and fasten your valve wires.
- You can use any or both of the "C" as common.

3. Power Up
- Connect the power leads to the terminals marked "24VAC".
- Plug transform into AC wall socket.
- System will boot for the first time and will enter in the initial setup.

First Time Setup

RainMachine will boot and enter the First Time Setup Wizard

Follow the on-screen installation wizard steps to configure Wi-Fi
Network, Location, and create login account.

Operation

Creating first program

In order to enable automatic watering you need to setup at least one program:

1. From RainMachine device, go to Settings / Programs / Add New Program
2. Label your program. Example: "Rose Garden"
3. Select a frequency – how often the program runs
4. Select a Start Time – when the program starts
5. Assign a base watering duration[1] for each zone in this program.
6. Save

[1] *Base Watering Duration – duration of watering required for each zone, during a regular summer day. Example: Rose Garden, 5 minutes. The RainMachine will constantly adjust this duration based on weather conditions (temperature, rain, humidity, wind) and time of the year (incoming solar radiation relative to earth rotation and trajectory).*

Advanced program properties

"**Cycle and Soak**": splits the base watering duration in multiple cycles, allowing a soak time between cycles. This feature improves watering efficiency by avoiding run offs.

"**Delay between zones**": sets the amount of time between two consecutive zones in a program, to accommodate specific irrigation systems. (Example: extra time to fill up water tanks or to build up water pressure).

Zones

To manually start watering on a Zone you can either:

From RainMachine app, go to Zones and tap on the ON/OFF switch.
To change the watering duration tap on the zone name before starting.

From the RainMachine device, touch the watering can button to select
the zone and then start watering.

Zones Properties

To modify zone properties, tap on the "**Edit**" button on top right corner:

- Assign a name to each zone
- Change the vegetation type
- Disable / Enable dynamic Weather adjustments for a specific zone.
- Use historical averages in case the weather data is not available
  (automatic seasonal adjustment)

Dashboard (RainMachine Application)

The dashboard screen allows you to view both past and future watering and weather statistics.

"**Water Need**" shows you a reference amount of water needed for that respective day. Please note that actual irrigation might vary based on irrigation frequency as defined by your programs. Swipe right/left to see more.

"**Programs**" shows the output of watering for that respective program. Each program has a graph showing you both historical and predicted water output. Swipe right/left to see more.

"**Rain**": This graph shows you past and future forecasted rain amounts (inch/day). Swipe right / left to see more.

NOTE*: By pressing the "**Edit**" button, you can rearrange the graphs order or hide them from the dashboard view.*

How it works

Program the RainMachine with the number of minutes (per zone) that are necessary to keep your plants happy in an average summer day. That's all!

Example: Roses, 5 minutes.

The RainMachine will then dynamically adjust this base watering duration (*Roses, 5 minutes*) using Evapotranspiration calculations based on weather data such as forecasted Temperature, Wind, Rain and Humidity as well as solar irradiation relative to earth rotation and inclination at any given point of the year. In short, we simulate Nature water cycle and when necessary, we supplement the missing water.

When compared with regular timer controllers with fixed watering duration, the RainMachine allows you to save water and maintain healthy plants.

Weather Data
Weather data is being fetched several times per day from various weather sources such as NOAA (US) or MET (Global). Default is NOAA for US and MET only for EU. If two or more weather sources are used at the same time, the result will be an average of the two data sets.

Restrictions
Restrictions are a set of rules the user can impose on the running programs. Specific time spans (Days, Months, Hours) where no watering takes place.

Snooze
This is a temporary restriction that skips programs for 1, 2 or more days.

Freeze Protect
Set a temperature threshold below which watering activity is stopped.

Hot Days
If this option is selected, extra watering will be allowed during extreme heat waves. If this option is not checked the maximum watering amount is capped to 100% of programmed runtime.

Sensitivity
Sensitivity settings allow you to adjust the forecasted amount of Rain or Wind.

Example: Buildings can provide shelter from wind; as a result the wind amount can be adjusted downward. Setting wind or rain sensitivity to zero eliminates rain or wind forcing from the EvapoTranspiration calculations. Please do not change default values unless you have a good reason to do so. These settings are global (applies to all zones).

Field Capacity
Maximum number of days allowed to accumulate rainfall in the ground to be used for future water need calculations. (Default = 2 summer days).

NOTE: During Spring/Autumn the field capacity is automatically adjusted to a higher number of days to reflect slower evapo-transpiration.

Specifications

Features
- 12/16 Zones, Weather Aware, WIFI Irrigation controller
- Projected Capacitive Keypad
- 4.3", 16M color TFT display
- Forecast spatial resolution up to 1.5 Km
- EvapoTranspiration method: American Society of Civil Engineers - ASCE Standardized.
- Freeze control and heat wave protection
- WaterSense, EPA certified.
- iPhone and Android apps

Environmental
- Indoors operating temp: -20C to 50C (-4F to 120F)

Mechanical
- Dimensions: 150 x 115 x 27mm
- Weight: 295g

Electrical
- WIFI: USB 802.11N, 2.4Ghz, US/Japan/EU
- Wire: AWG 14-22, 0.75 -1.5mm
- AC Input: 24VAC, 50/60Hz, 750mA (adapter included)
- Valve output: 24VAC, 50/60Hz, max 10VA
- Master valve: 24VAC, 50/60Hz

Certification
- FCC, CE.

Warranty
- 2 years standard warranty

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