RainMachine Pro-16
Quick-Start Guide

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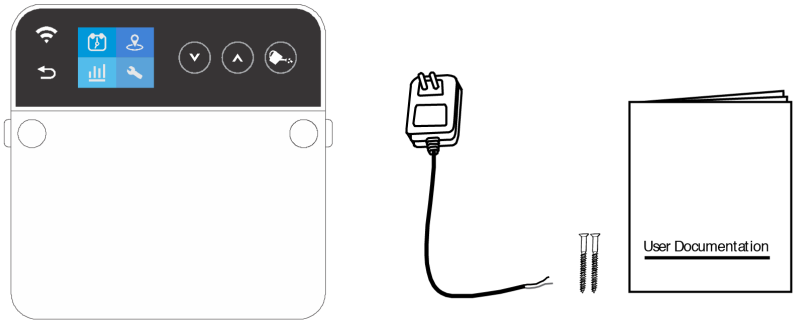
Inside the box



- RainMachine Pro-16 device (front view)
- 24VAC power adapter (cable 1.5m length)
- 2 drywall screws
- Printed “Quick Start Guide” booklet

For support, please visit us at www.rainmachine.com, browse our Knowledge Base articles or contact our support team.

Installation

Tip: Take a photo of your old timer wiring for reference!
For an installation video please visit our RainMachine YouTube channel.

1. Fasten the unit

Using the provided drywall screws, fasten the unit to the wall at 4 to 5 feet high or eye level.

2. Electrical Wiring

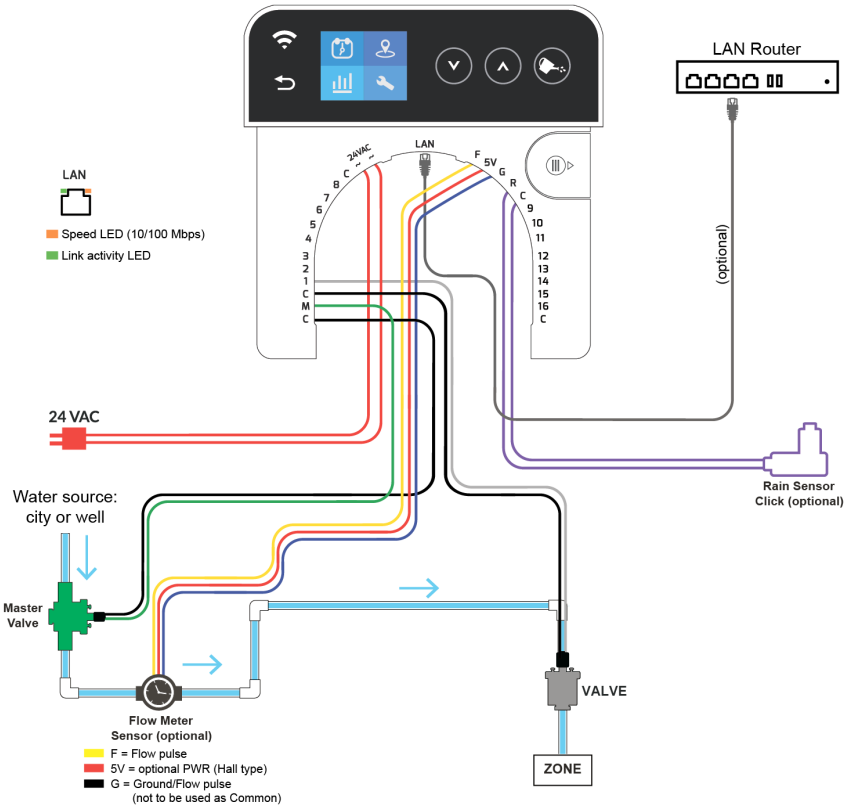
Insert your valve wires by pressing the push buttons.
You can use any or all of the “C” terminals as common terminal.

3. Power Up

Connect the power leads to the terminals marked “24VAC” and plug transformer into AC wall socket.

The system will boot up and will enter in the initial setup mode.

Wiring Diagram



Initial Setup

① Install RainMachine mobile app on your phone from App Store or Play Store.

② Wire and then power up the RainMachine.
(See the wiring diagram from page 4)

③ Using your phone go to Settings / Wi-Fi and connect to RainMachine network. Skip this step if using LAN.

④ Launch RainMachine mobile application and continue setup. Enjoy!

Note: ③ If LAN cable is connected to RainMachine, skip to step ④. Make sure your mobile device is connected to the same local Wi-Fi network in order to continue setup.

Basic Interface

After the initial set up is successful you can operate the RainMachine Pro directly from the local interface (Basic Operation).

Note: For advanced settings, you will be required to use the RainMachine mobile app (iOS or Android) or web app located at https://my.rainmachine.com

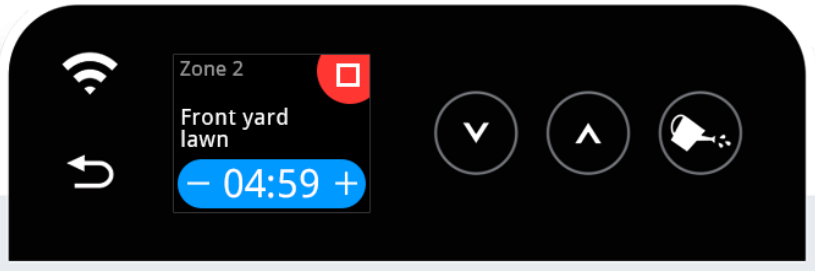


Fig 1, Local RainMachine Pro interface layout

Wi-Fi

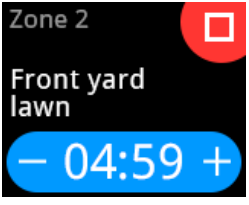
If Wi-Fi icon is lit, the RainMachine is connected to your Wi-Fi or LAN network. If Wi-Fi icon it is OFF or blinking, Wi-Fi is not connected or not setup. Tap icon to open RainMachine Pro network status.

Back
Tap on it to go back to the previous screen.

UP and DOWN
Use these buttons to cycle through Zones and Program list and to change them. When in use, Up and Down buttons will be fully lit.

Water Can
Tap to manually start or stop a zone or a program.

Touch screen
Use Tap action to select options on the screen, like Stop watering a zone, increase or decrease its watering time.



How It Works

Weather-Adaptive Watering

RainMachine programs will dynamically adjust watering duration using Evapotranspiration calculations based on forecasted temperature, wind, rain and humidity, sun exposure, etc. In short, we are following environmental conditions, decreasing or increasing water output when necessary.

Compared with regular timer controllers that use fixed watering duration, RainMachine allows you to save substantial amounts of water and maintain healthy plants.

For simple fixed timer operation uncheck Weather-Adaptive Watering.

For a full explanation of how Weather-Adaptive Watering works visit our Knowledge Base at www.rainmachine.com

Operations

Creating Your First Program

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

1. From the RainMachine app, go to **Programs > Add New Program**
2. Label your program such as “Rose Garden”.
3. Select a **Frequency**: Determines how often the program runs.
4. Set **Start Time**.
5. For each zone choose a base watering duration (**Suggested** or **Custom**).
6. Save.

Note: Suggested duration is the amount of watering required for each zone, during a regular summer day based on the zone advanced settings. The RainMachine will constantly adjust this Suggested duration based on weather and celestial conditions (temperature, rain, humidity, wind, etc. and number of daylight hours). See next page for details.

Suggested vs Custom Duration

Watering durations for each programmed zone can be set by:

Suggested duration (recommended): Pre-calculated from the properties of your zone (soil type, plant type, sun exposure and location) for a typical summer day. If Weather-Adaptive option is enabled this duration will be constantly adjusted based on weather.

Custom duration: If you transition from on old controller you might find it easier to use your previous duration. If Weather-Adaptive option is enabled this duration will be constantly adjusted based on weather.

The RainMachine will then adjust these durations based on three weather choices: live, seasonal or “do not adjust”.

For example, during hot days more watering is required in contrast with cool days. If rain is forecasted watering will be reduced or completely suspended, achieving substantial water savings.

Program Properties

Weather-Adaptive Watering: When enabled, the base watering duration (Suggested or Custom) will be adjusted based on weather.

Rain Restriction: Do not water if Rain exceeds a certain amount. Use this feature if you absolutely don't want any watering during rain exceeding a certain set amount. (e.g. if rain > 1/8inch then stop watering). Rain Restriction is a binary decision (water or not water) and sometimes is required by water company / city regulation.

While we do not agree with using rain restriction it might be required by some municipalities. Keep in mind that Weather-Adaptive Watering takes in account rain anyway but in cases when light rain is present, the system might still trigger a short watering cycle. If the rain amount is large, the Weather-Adaptive feature will prevent watering for that day and possibly few days after this.

Cycle and Soak: Splits the base watering runtime into multiple cycles separated by soak times. This feature improves watering efficiency by allowing time for the soil to absorb water and thus avoid runoff.

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).

Note: Advanced Program Features are available via RainMachine mobile/web apps.

Manually Watering Zones

From RainMachine app, go to Zones and tap on the play button, and select a desired duration. Alternatively, from the RainMachine device, touch the UP/DOWN buttons to select the zone number and start watering.

Zone Properties & Master Valve

Note: If you have a Master Valve or a Pump it can be directly connected to the M terminal. Each time you start a zone, the Master Valve will also be activated.

Live Weather and Seasonal Adjustments

Select Live Weather or Seasonal Adjustments for your zone. Live Weather (default) takes in consideration current weather, Seasonal Adjust are a series of fixed watering durations representative for the

Winter/Spring/Summer/Autumn seasons. If both options are disabled, the RainMachine will use fixed watering durations. This is useful for zones that are not exposed to all weather elements (example: a patio where rain doesn't reach).

NOTE: If Live Weather data is temporarily not available, the system will roll to Seasonal Adjustments. Seasonal Adjustment values for your location are stored on your RainMachine.

Soil Type, Slope and Exposure

Different soil types have different water retention properties; clay soils tend to experience runoff, while loamy soils may hold water for a longer duration. The amount of water content held in the soil is referred to as Field Capacity. Sun Exposure directly affects the evaporation rate (more sun requires more water). Slope increases runoff.

Vegetation Type

Different vegetation and plant types require different amounts of water. The RainMachine algorithm uses different variables associated with each type of vegetation to make accurate water consumption calculations.

Sprinkler Head Type
Sprinkler head type determines the flow rate or how much water a sprinkler can deliver to your plants over a given duration.

Certain head types have high flow rates, and can irrigate your yard quickly, while other types are slower.

RainMachine mobile app
Dashboard

The dashboard screen allows you to view past and future weather and water consumption statistics. Tap or swipe left/right on each graph to view detailed info.

Weather Chart shows you weather status with high and low temperatures and rain amount for each day.

Programs Chart shows the watering output for that respective program. Each program graph shows both recorded and forecasted water output.

Week/Month/Year tabs changes the timespan of the Dashboard graphs. Settings > Dashboard allows you to toggle various graphs.

NOTE: Press the upper right "**Edit**" button to rearrange the graphs order or hide from the Dashboard.

Weather Data

Settings > ***Weather***: Weather data for your location is fetched several times per day from various weather sources such as NOAA (US) or MET.NO (Global). Default is NOAA for US and MET.NO only for EU and Global. If two or more weather data sources are used at the same time, the result will be an average of the two data sets.

Available weather sources are: NOAA (default), METNO, The Weather Channel (WUndergroud), DarkSky (ForcecastIO), Netatmo, CIMIS (California only) and FAWN (Florida only), Personal Weather Stations.

Note: NOAA is default. For ultra-local weather use local weather sensors such as personal weather stations from WUnderground network, NetAtmo, DarkSky or future RainMachine sensors.

Restrictions

Restrictions are a set of rules for the running programs. Example: Specific time spans (Days, Months, Hours) where no watering takes place.

Snooze
This is a temporary restriction that skips programs for a set number of days, hours or minutes.

Freeze Protect
Set a temperature threshold below which watering activity will be stopped. This is based on lowest forecasted temperature for the day, usually occurs at night.

Hot Days
During hot days increased watering might be required. Capping at 100% is default and allows you to save water.

Rain and Flow Sensors
A rain or flow sensor can be wired directly to the RainMachine (see Wiring Diagram on page 4). If rain is detected during a scheduled program, the program will not start at all. This feature bypasses forecasted weather data.

Sensitivity
Sensitivity settings adjust the responsiveness to forecasted amounts of rain or wind. For example, buildings can provide blockage from wind, and as a result, wind has less impact on evaporation. Setting wind or rain sensitivity to zero eliminates their impact. Only change the default values if you have a good reason to do so. These are global settings and apply to all zones.

Field Capacity
Field Capacity is the amount (measured in inches) of soil moisture or water content held in the soil after excess water has drained away. It is determined from Soil Type. Please be sure to set your soil type accordingly under zones properties.

Resetting Wi-Fi Settings, Password and data

To change your RainMachine Pro Wi-Fi settings tap on:
Wi-Fi button > ***upper right corner wheel*** > ***Change***.
Then follow the on-screen instruction.

To change/reset your RainMachine Pro password tap on ***Settings*** > ***Advanced*** > ***Password reset***. Open the RainMachine mobile app on your phone to set a new password.

To reset the RainMachine Pro to its factory default settings (all the previous settings will be lost) tap on: ***Settings*** > ***Advanced*** > ***Factory reset***. After reboot, follow the on-screen wizard steps.

Remote Access Issues

Open RainMachine mobile app, go to ***Settings*** > ***System Settings*** > ***Remote Access*** to change or resend your confirmation.

Note: Make sure that the 8000 port is not blocked by your firewall.

Poor Wi-Fi signal strength

Please consider getting a Wi-Fi signal booster or relocate your Wi-Fi Router or RainMachine. You can check signal level by tapping on the Wi-Fi icons.

For more support, please visit us at www.rainmachine.com

Specifications

Features

16 Zones, Weather Aware, Wi-Fi Irrigation Controller
Separate Master Valve (Pump) connector
Forecast spatial resolution up to 1.5 Km
Evapotranspiration method: American Society of Civil Engineers (ASCE) Standardized
Freeze control and heat wave protection
EPA WaterSense℠ certified
iPhone and Android mobile apps

Environmental

Indoors operating temp: -40C to 60C (-40F to 140F)
To 85% relative humidity, non-condensing
Indoor use only

Mechanical

Dimensions: 115 x 115 x 27mm
Weight: 170g
Electrical
Wi-Fi: USB 802.11N, 2.4Ghz, US/Japan/EU.
Wires: AWG 18-22
AC Input: 24VAC, 50/60Hz, 750mA (adapter included).
Valve output (compatible with all 24VAC irrigation valves): 24VAC, 50/60Hz, max 10VA.
Master valve : 24VAC, 50/60Hz.

Certification

FCC, CE

Warranty

1 Year standard warranty

Legal & Warranty

GREEN ELECTRONICS LLC WARRANTS THAT MANUFACTURED EQUIPMENT WILL BE FREE OF ANY DEFECT IN MATERIALS OR WORKMANSHIP FOR THE PERIOD OF 2 YEARS. WARRANTY BEGINS FROM THE DATE OF DELIVERY OF THE PRODUCT FROM GREEN ELECTRONICS OR ITS DISTRIBUTORS.

THE WARRANTY IS EXTENDED TO CUSTOMERS AND APPLIES TO ALL GREEN ELECTRONICS MANUFACTURED EQUIPMENT PURCHASED INSTALLED AND USED FOR THE PURPOSE FOR WHICH SUCH EQUIPMENT WAS ORIGINALLY DESIGNED.

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rainmachine

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FCC Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-Reorient or relocate the receiving antenna.

-Increase the separation between the equipment and receiver.

-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-Consult the dealer or an experienced radio/TV technician for help.

To assure continued compliance, any changes or modifications not expressly approved by the party.

Responsible for compliance could void the user's authority to operate this equipment. (Example- use only shielded interface cables when connecting to computer or peripheral devices).

This equipment complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

RF warning statement:

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.