



OMEGA

Installation and Operation Guide

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1. SAFETY

This chapter reviews the Omega safety concerns and includes:

- [Safety Conventions](#)
- [Safety Instructions](#)
- [FCC Notice](#)
- [Declaration of Conformity](#)
- [Omega Controller Nameplate](#)

Safety Conventions



WARNING: Indicates a potentially hazardous situation, which, if not avoided, could result in injury or death.



CAUTION: Indicates that the equipment or environment can be damaged, or data can be corrupted.



DANGER: Indicates an immediate hazardous situation, which, if not avoided, will result in serious injury or death. This signal word is limited to extreme situations.



NOTE: Indicates additional information to help the user obtain optimum performance. Notes are not safety-related to the equipment or personnel.



Tip: Indicates useful information to simplify steps or procedures.

Safety Instructions

Prior to performing any work on the Omega controller, become familiar with the following safety concerns:

General Safety Instructions

- Read this installation and operation guide prior to installing and servicing the system.
- Pay careful attention to all cautions and warnings in this guide.
- Installation must comply with all local electrical and plumbing codes.
- It is recommended that a licensed electrician performs all electrical connections. Improper installation could result in shock or fire hazard.
- Omega is not intended for use by children.

Battery Safety Instructions

- BERMAD is not responsible for battery failures due to mishandling.
- Do not crush, break, or disassemble the batteries.
- Do not damage the battery label, which acts as an electrical insulation for the battery can.
- Do not install the batteries backwards, put in fire, submerge in fluids, or mix with other battery types.
- Do not weld or solder the batteries onto the battery compartment.
- Dispose of batteries in accordance with local regulations.
- Internal batteries are intended for operating in offline mode.
- Contact BERMAD for battery replacement when depleted or damaged.

External Power Source Safety Instructions

- Before connecting to an external power source, ensure the external power polarity matches the one marked on the Omega connector board.
- The power supply cables must first be connected to the Omega power connectors before plugging into an external power source.
- The Omega controller must first be unplugged from the external power source before disconnecting the power supply cables from the power connectors.



WARNING: Contact with electrical equipment and connections can cause electric shock if the power supply is turned on.

FCC Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.



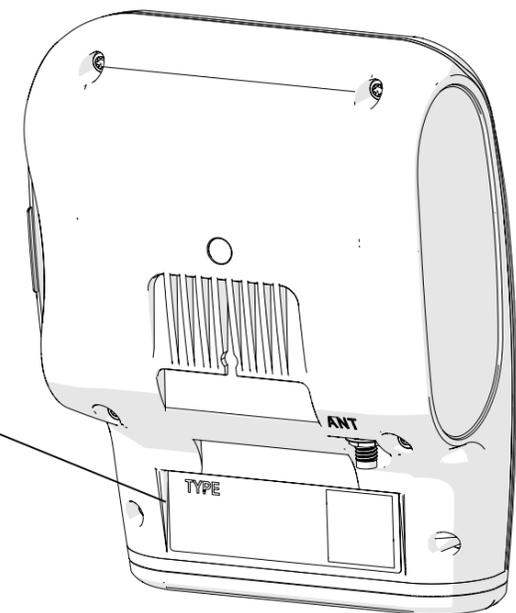
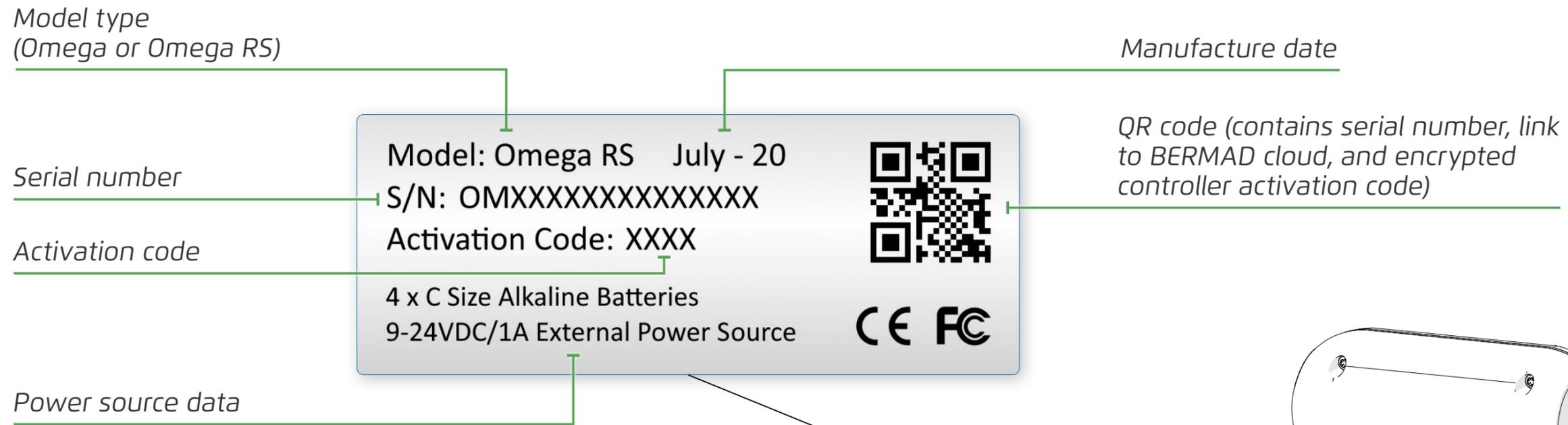
Declaration of Conformity

This equipment has been tested and found to comply with EN 61010-1:2010 and IEC 61010-1:2010, AMD1:2016 standards



Omega Controller Nameplate

The Omega controller nameplate is located on the back of the controller. It contains the following information:



2. INTRODUCTION

This chapter reviews the Omega controller and includes:

- [Overview](#)
- [Typical Connection Layout](#)
- [Omega Controller](#)
- [Cloud Management System](#)



NOTE: This guide reviews all possible Omega controller configurations. Specific controller configuration varies by model.

Overview

Omega is an advanced cloud-based irrigation controller. It provides a user-friendly and cost-effective solution for irrigation heads as well as water distribution, data acquisition, and pre-paid systems.

Controller Features

- Offline and online control.
- Volumetric and time-based irrigation.
- High/low flow monitoring (when used with a water meter pulse sensor).
- Leak detection.
- Up to five latch outputs, four digital inputs, and two analog inputs.
- Option to connect up to ten extension controllers in parallel via RS-485, allowing for a total of 44 latch outputs, 44 digital inputs, and 22 analog inputs. (RS models only)
- Option to connect up to forty RF remote units via an RF gateway, each with a single latch output. (RS models only)
- Comprehensive log registry allows for long periods of offline operation.
- Up to 5 years battery-powered operation in low-energy mode, with option to connect to external power source.
- Industrial grade electronic components (-35 °C to 75 °C).
- IP65 rated with UV protection for outdoor installation.
- CE and FCC standard compliant.

Communication Features

- Built-in GSM modem with global data SIM card for worldwide Internet connectivity.
- Secured end-to-end communication using 4G modem with 2G fallback.
- Supports NB-IoT, CAT-M, and GPRS protocols.
- Real-time alert notifications to a PC, tablet, and smartphone.
- BLE communication, enabling local smartphone connection to the Omega controller.



Typical Connection Layout

The following can connect to the Omega controller's connection terminals (see [Connecting Peripherals](#)):

- **Latch output connection terminals:**
 - Latch solenoids - irrigation valves and master valve
 - Latch relay - water pumps
- **Digital input connection terminals:**
 - Water meters
 - Dry contact and open collector digital sensors

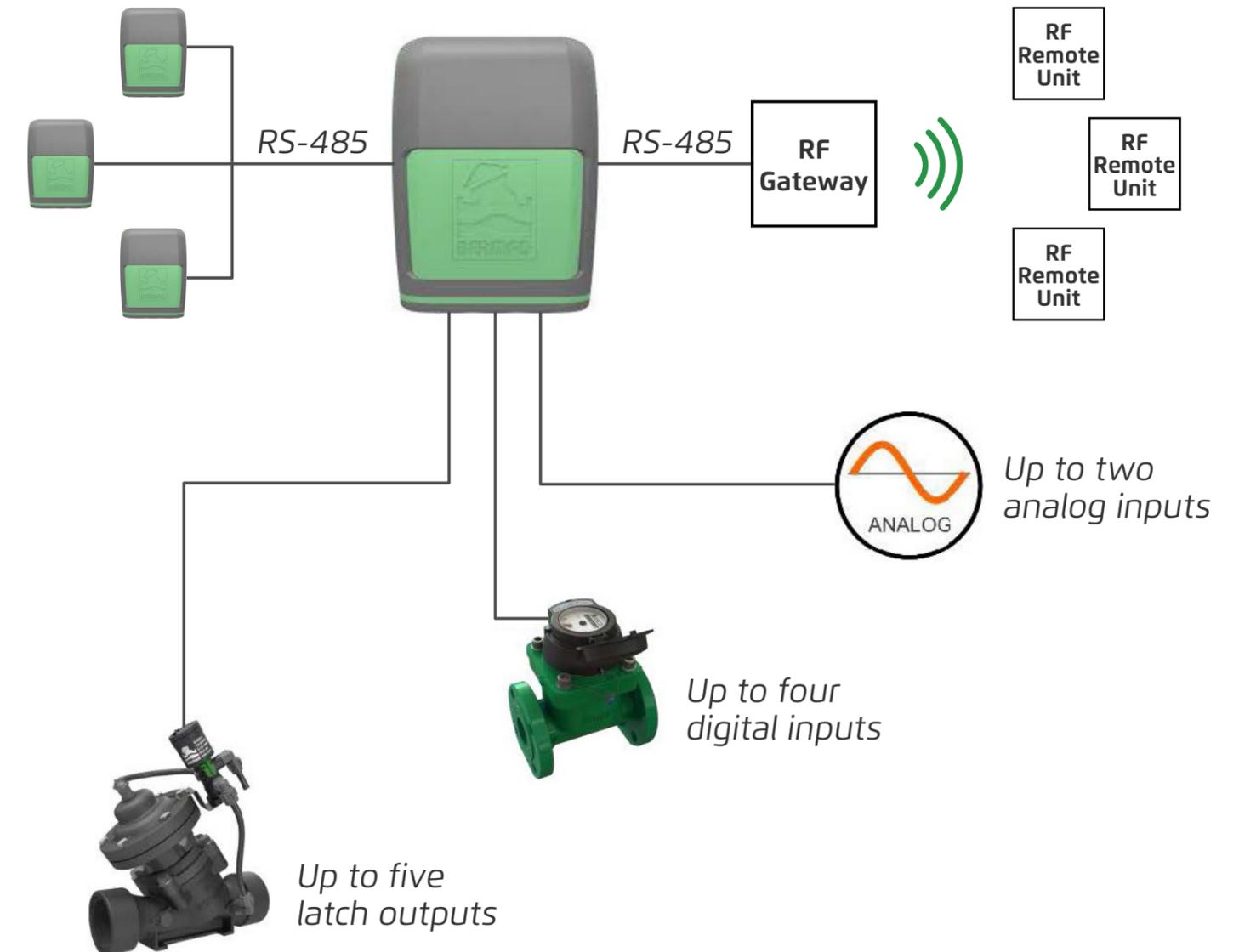


Tip: When installing open collector sensors, verify the polarity matches what is marked on the Omega connector board

- **Analog input connection terminals:**
 - Analog sensors

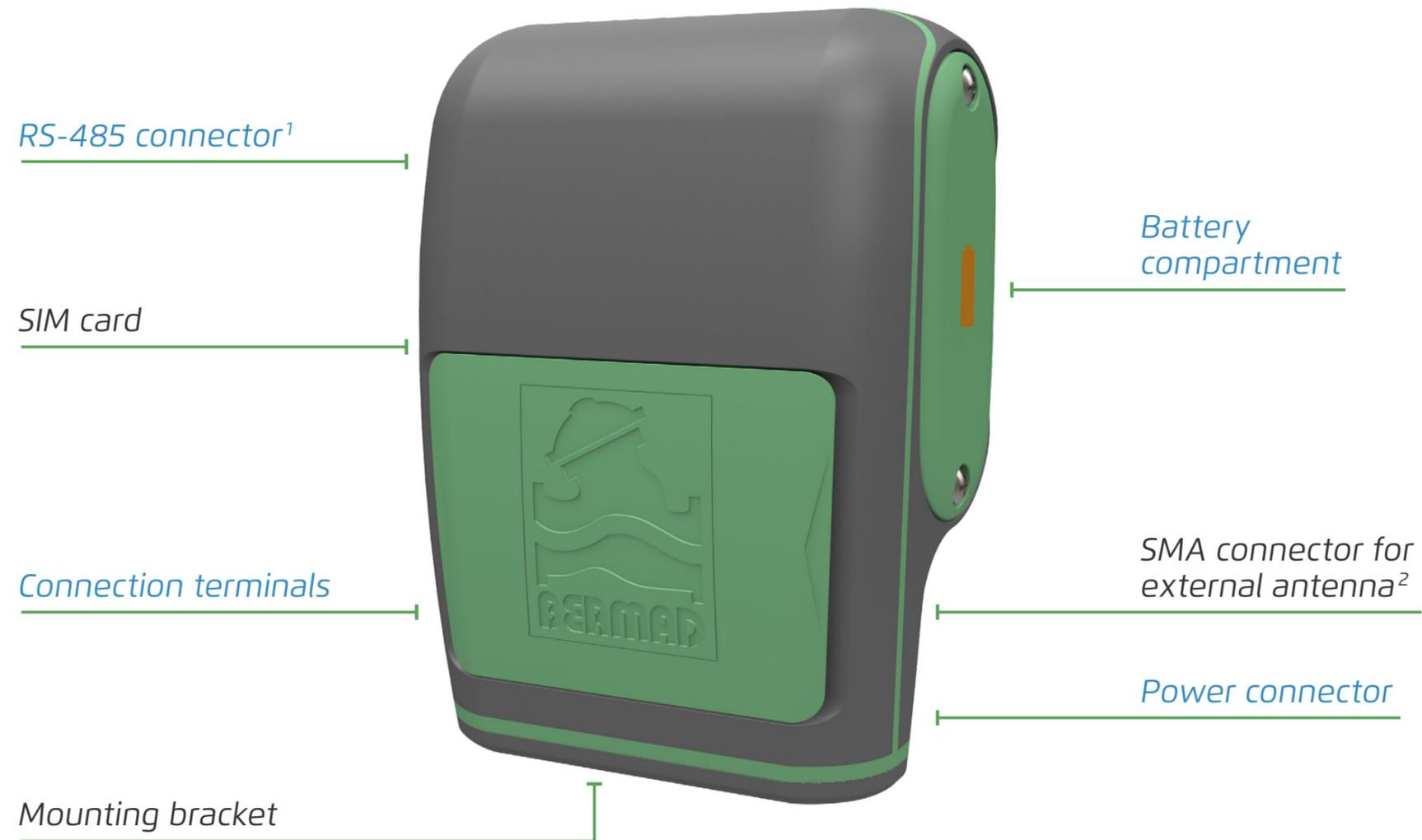
Up to ten extension controllers –
total of 44 latch outputs, 44 digital
inputs, and 22 analog inputs
(RS models only)

Up to forty RF remote units
– total of 44 latch outputs, 4
digital inputs, and 2 analog
inputs (RS models only)



Omega Controller

The Omega controller includes the following:



¹ Available in Omega RS, RF, and X models only

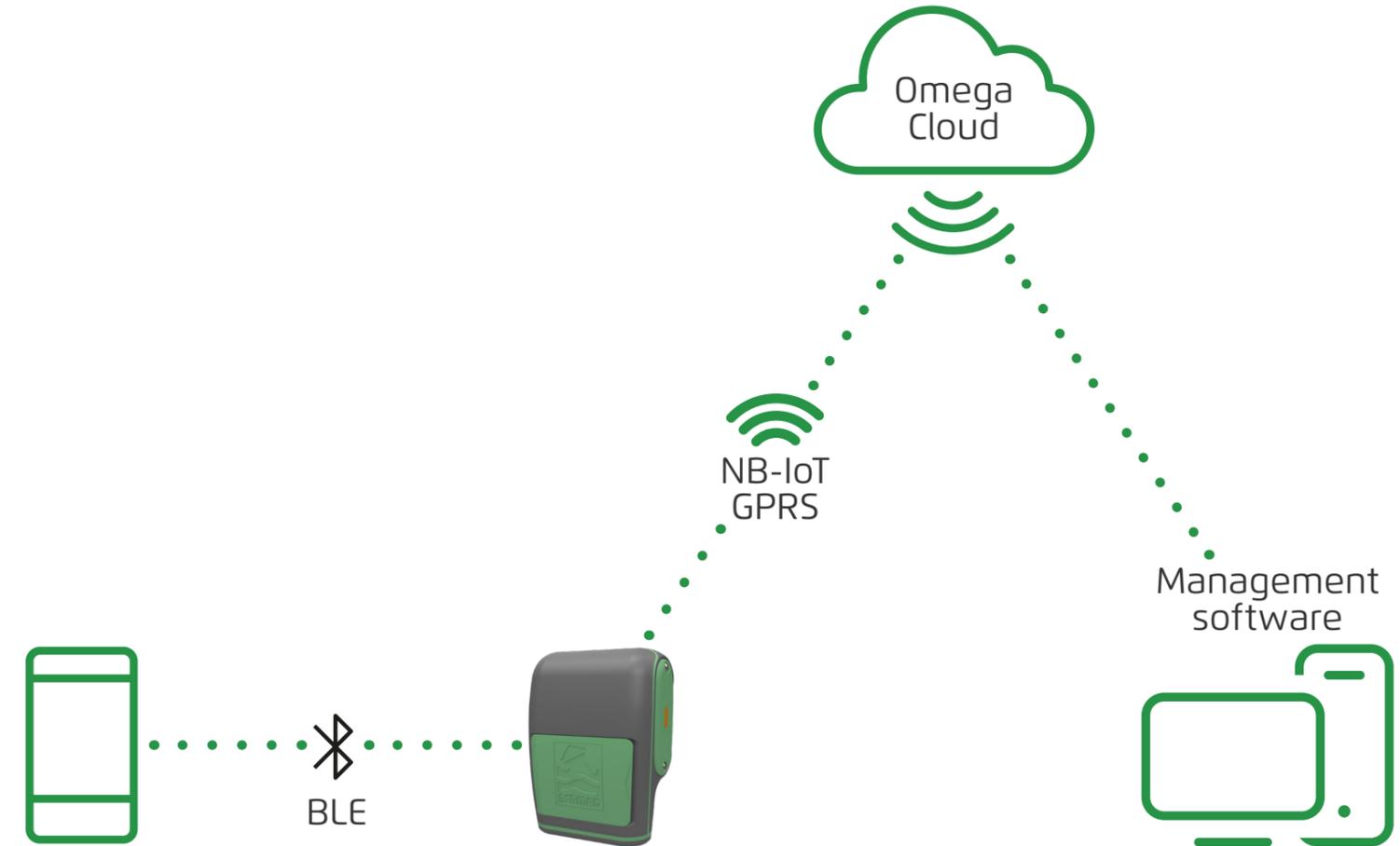
² Not standard

Cloud Management System

BERMAD Cloud provides a centralized web-based user interface for the Omega controller, allowing for anywhere-anytime management and real-time visual monitoring of the irrigation system using a PC, tablet, or smartphone.

BERMAD Cloud offers the following benefits:

- Password protected login.
- Dynamic dashboard.
- Irrigation management and monitoring tools.
- Alert controls.
- Log information and report generation.



3. INSTALLATION

This chapter reviews Omega installation and includes:

- [Mounting Omega](#)
- [Powering Omega](#)
- [Connecting Peripherals](#)
- [Communicating with Omega](#)

Mounting Omega

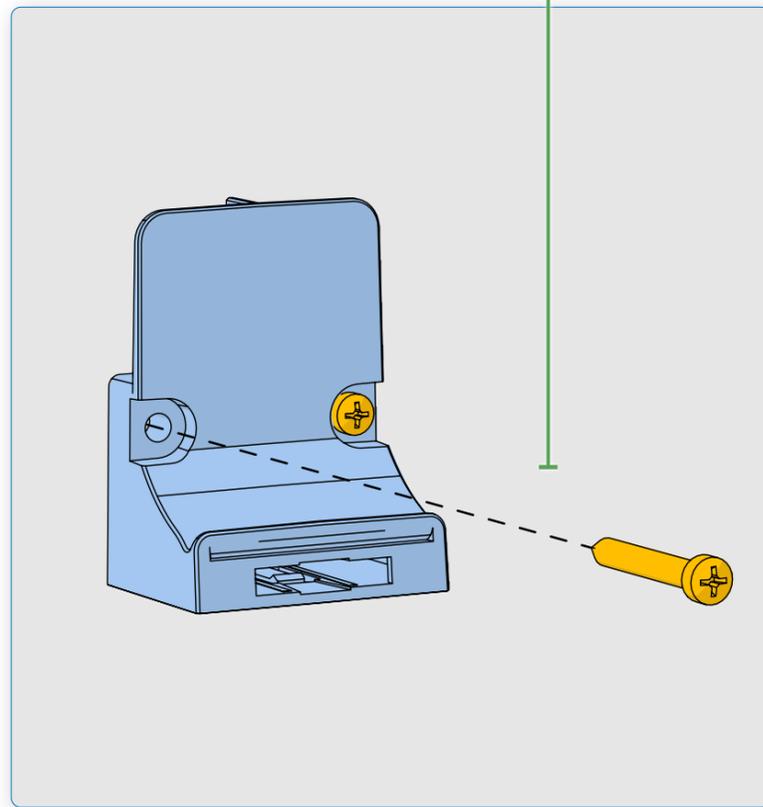
This section reviews mounting the Omega controller and includes:

- [Wall Mounting](#)
- [Valve Mounting](#)
- [Pole Mounting](#)

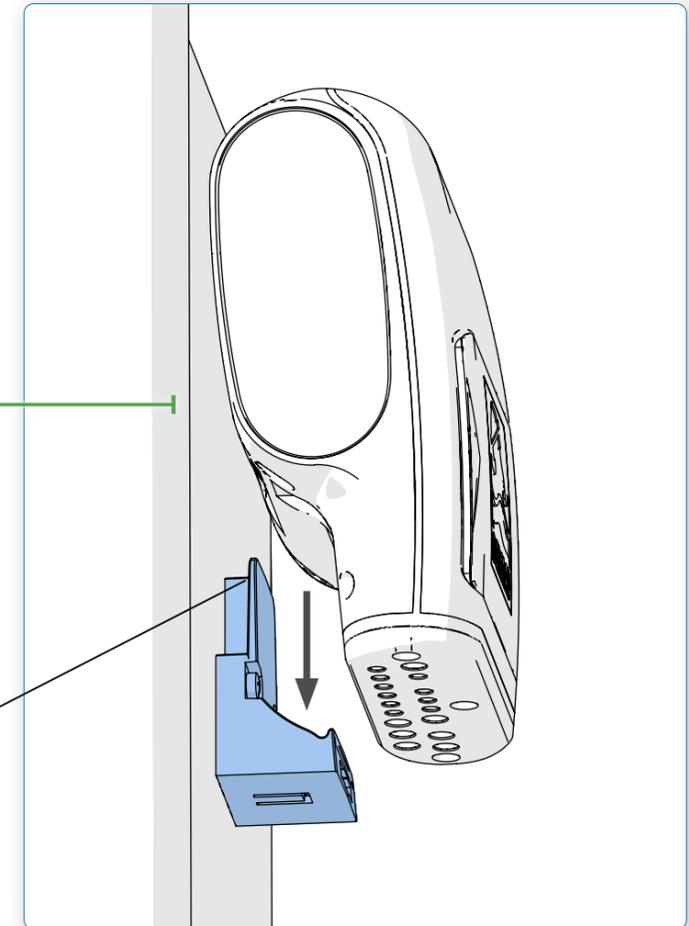
Wall Mounting

Perform the following steps to mount the Omega controller to a wall:

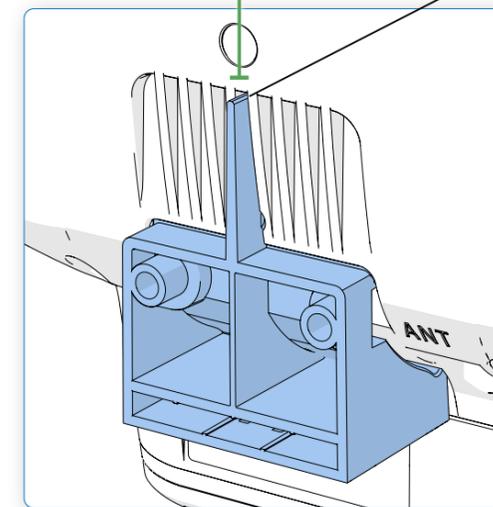
1. Attach the mounting bracket to the wall using two screws



2. Position the Omega controller onto the bracket



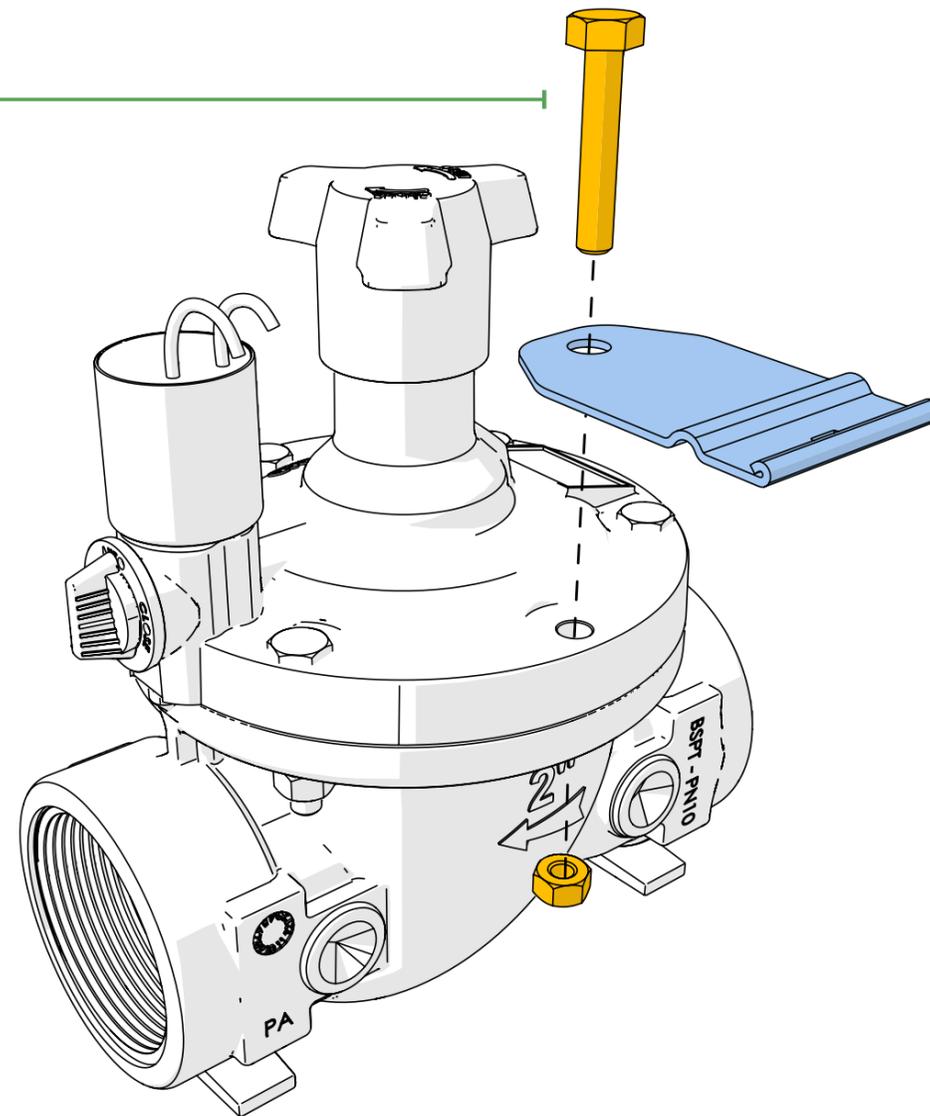
3. Verify the bracket is fully inserted into the controller slot



Valve Mounting

Perform the following steps to mount the Omega controller to a valve:

1. Remove the bolt and nut from the valve



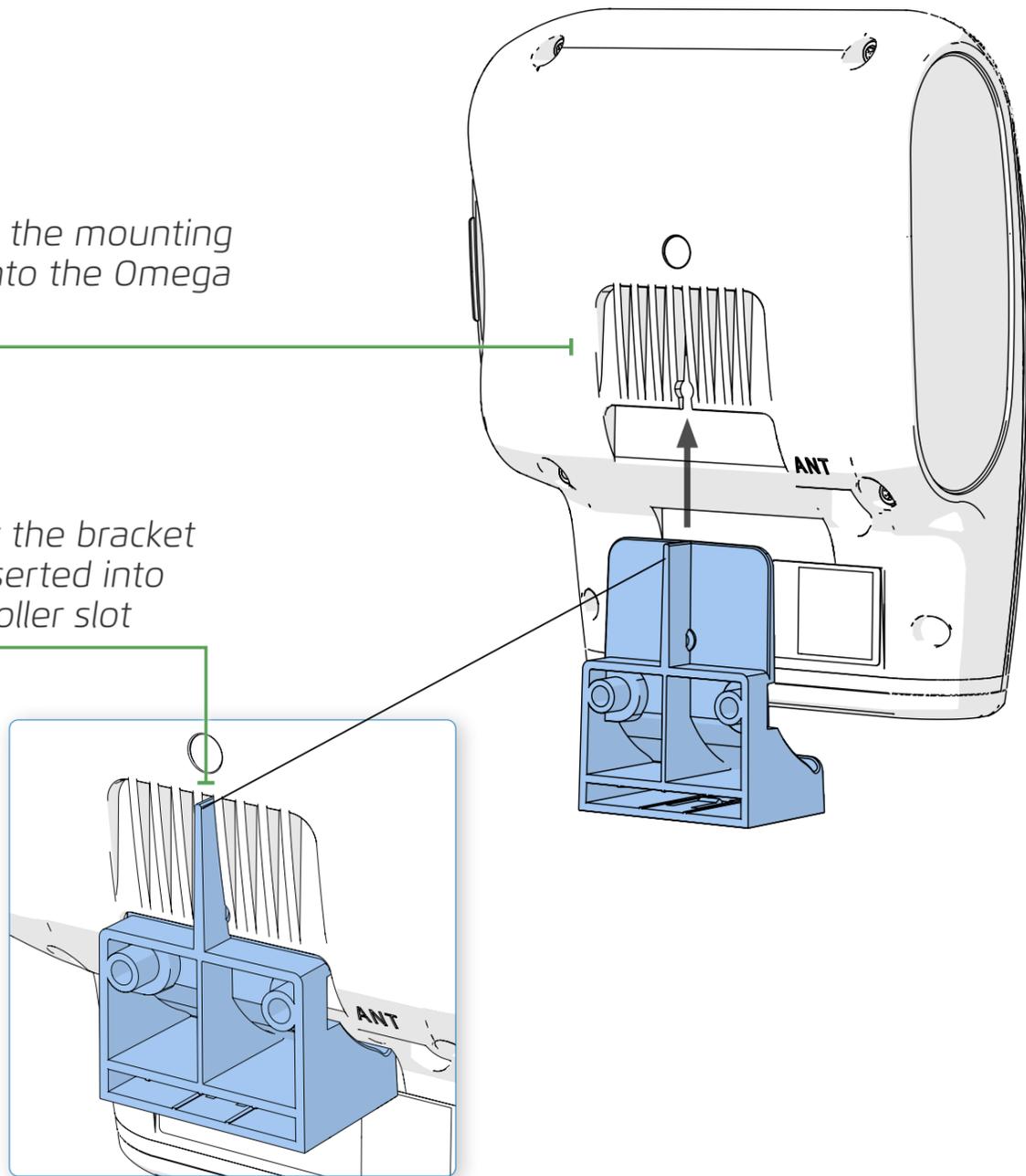
2. Attach the bracket adapter plate to the valve using the bolt and nut which were removed



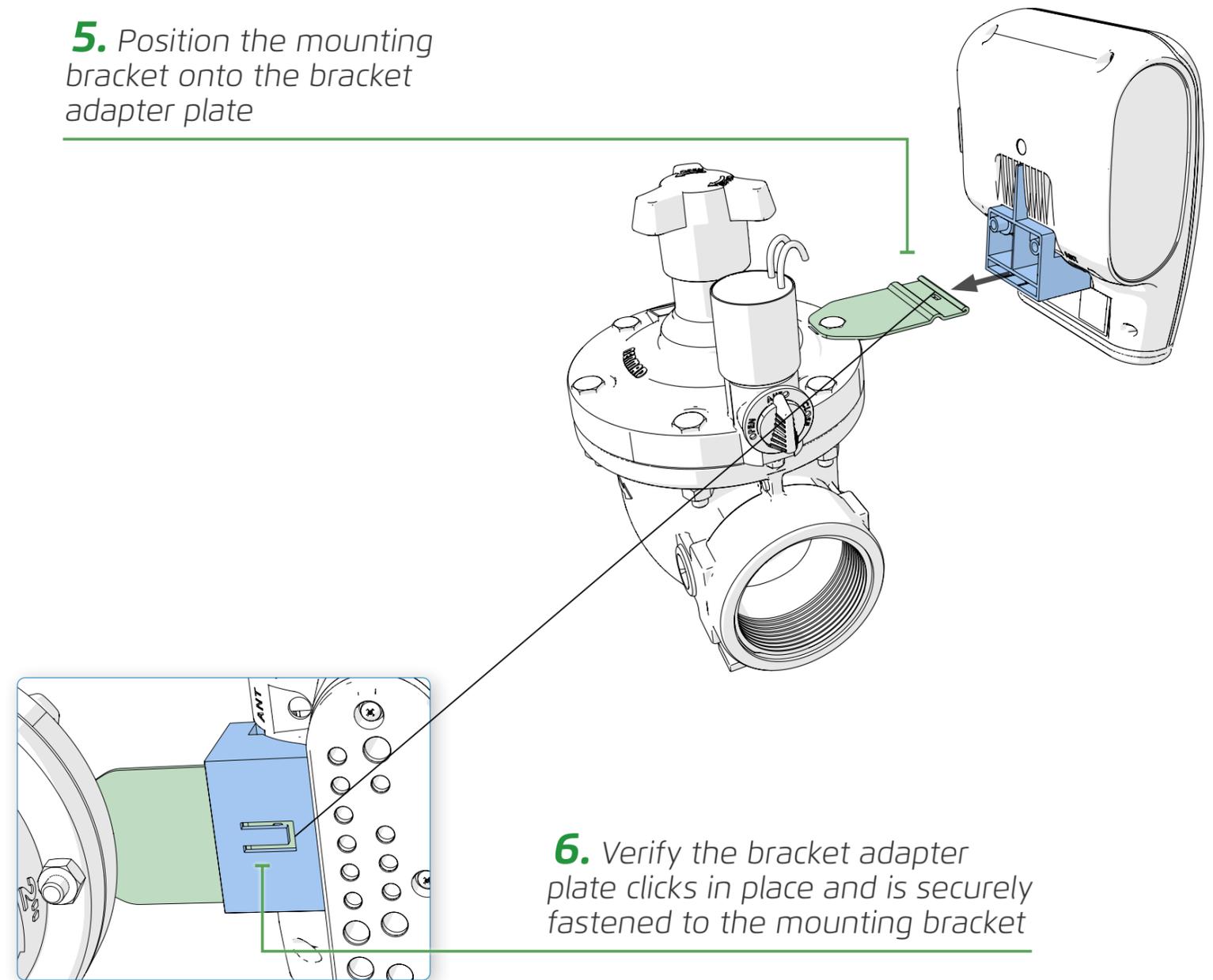
NOTE: The bracket adapter plate provided by BERMAD is designed for horizontal installations, and is suitable for the BERMAD 200 series controllers without further need for adjustments

3. Insert the mounting bracket into the Omega controller

4. Verify the bracket is fully inserted into the controller slot



5. Position the mounting bracket onto the bracket adapter plate

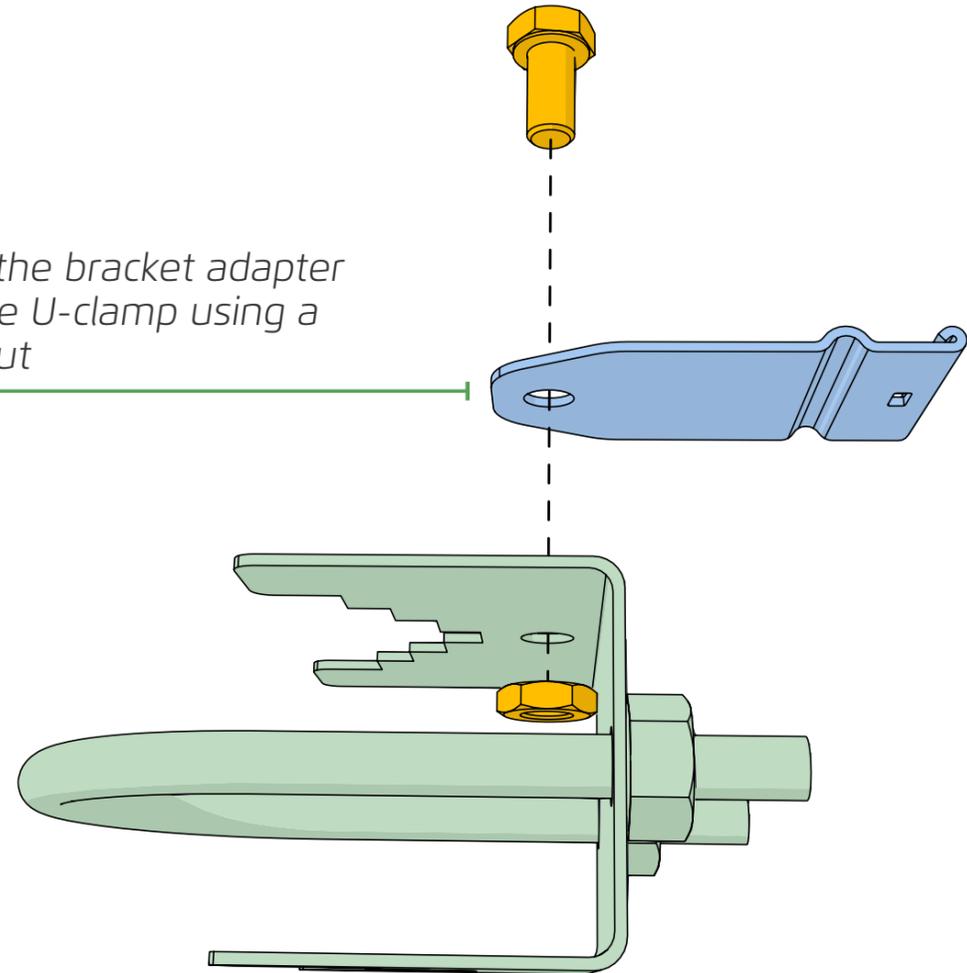


6. Verify the bracket adapter plate clicks in place and is securely fastened to the mounting bracket

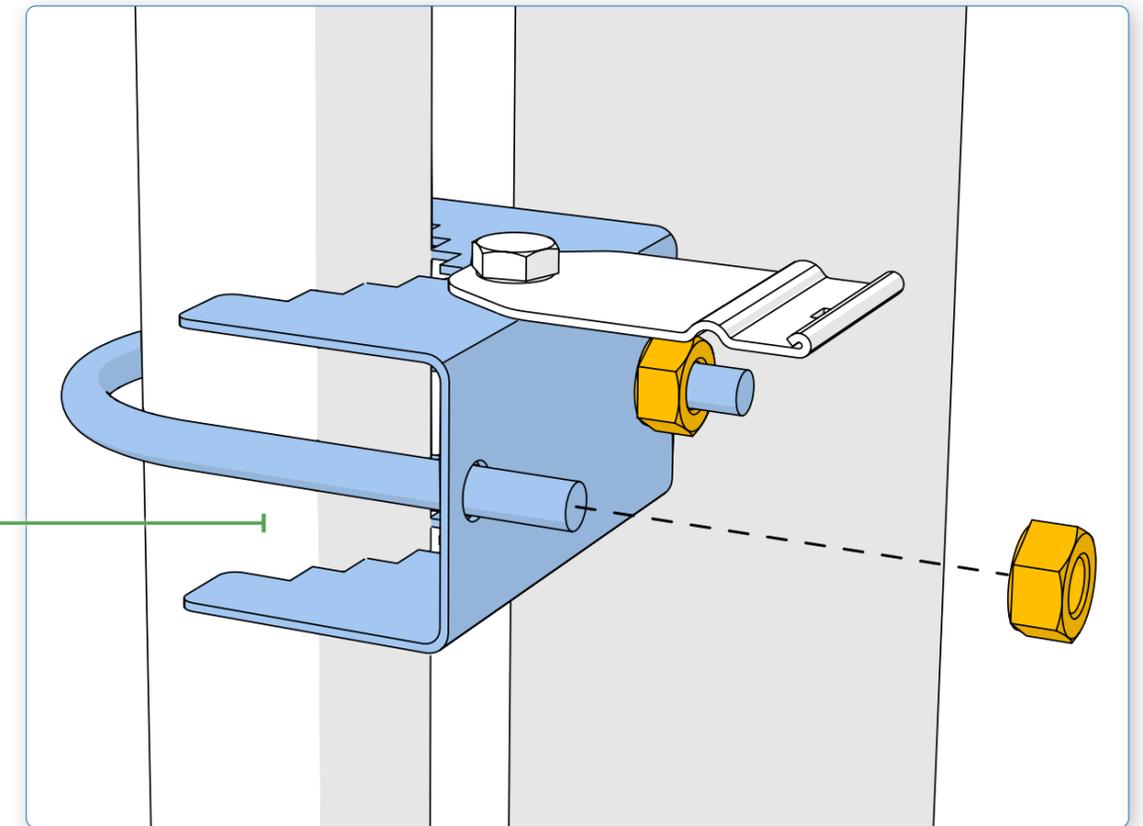
Pole Mounting

Perform the following steps to mount the Omega controller to a pole:

1. Attach the bracket adapter plate to the U-clamp using a bolt and nut



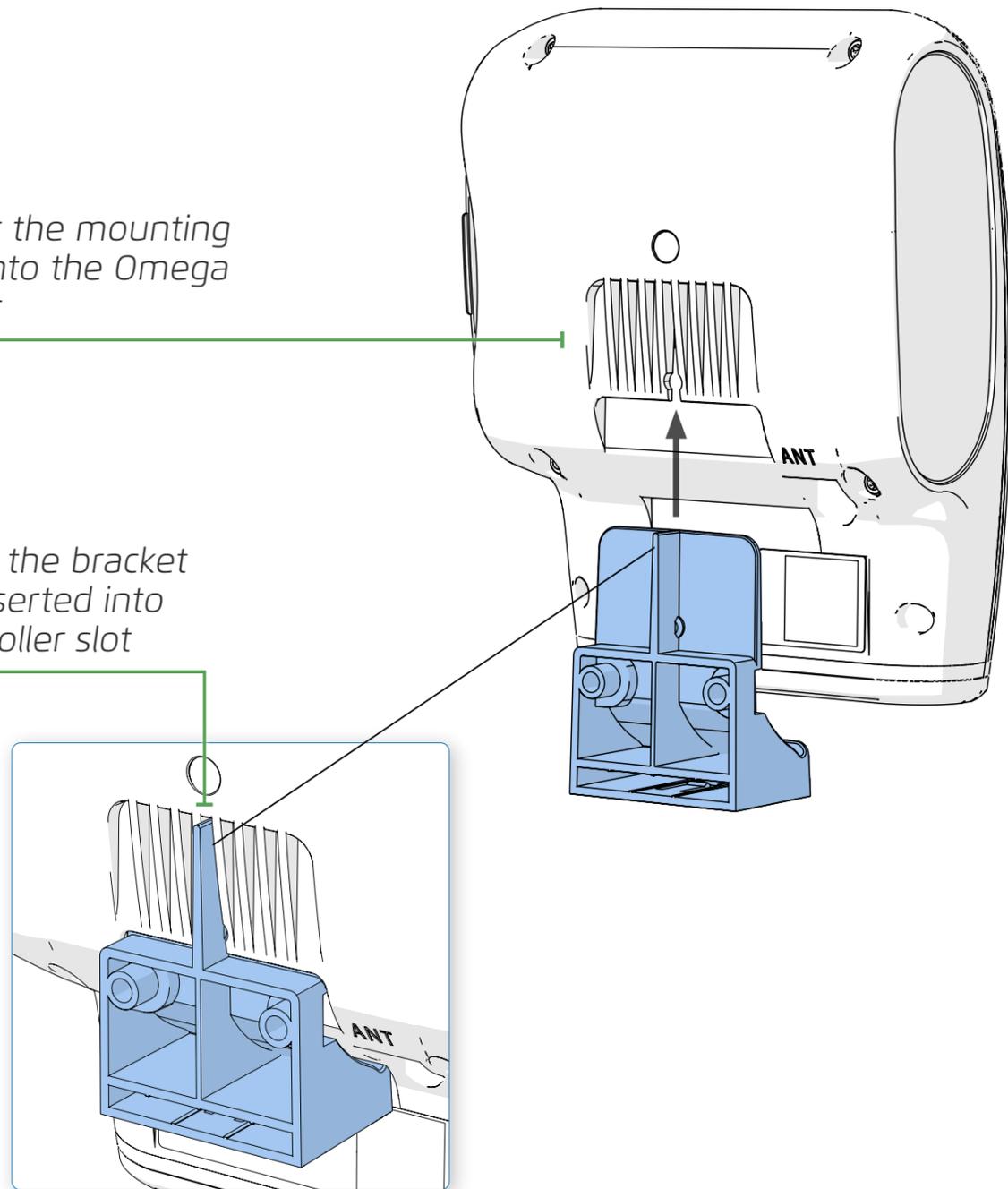
2. Attach the U-clamp to the pole using two nuts



NOTE: The U-clamp is an optional accessory that must be ordered separately. The U-clamp provided by BERMAD fits 1" (DN25) to 2" (DN50) pole diameters.

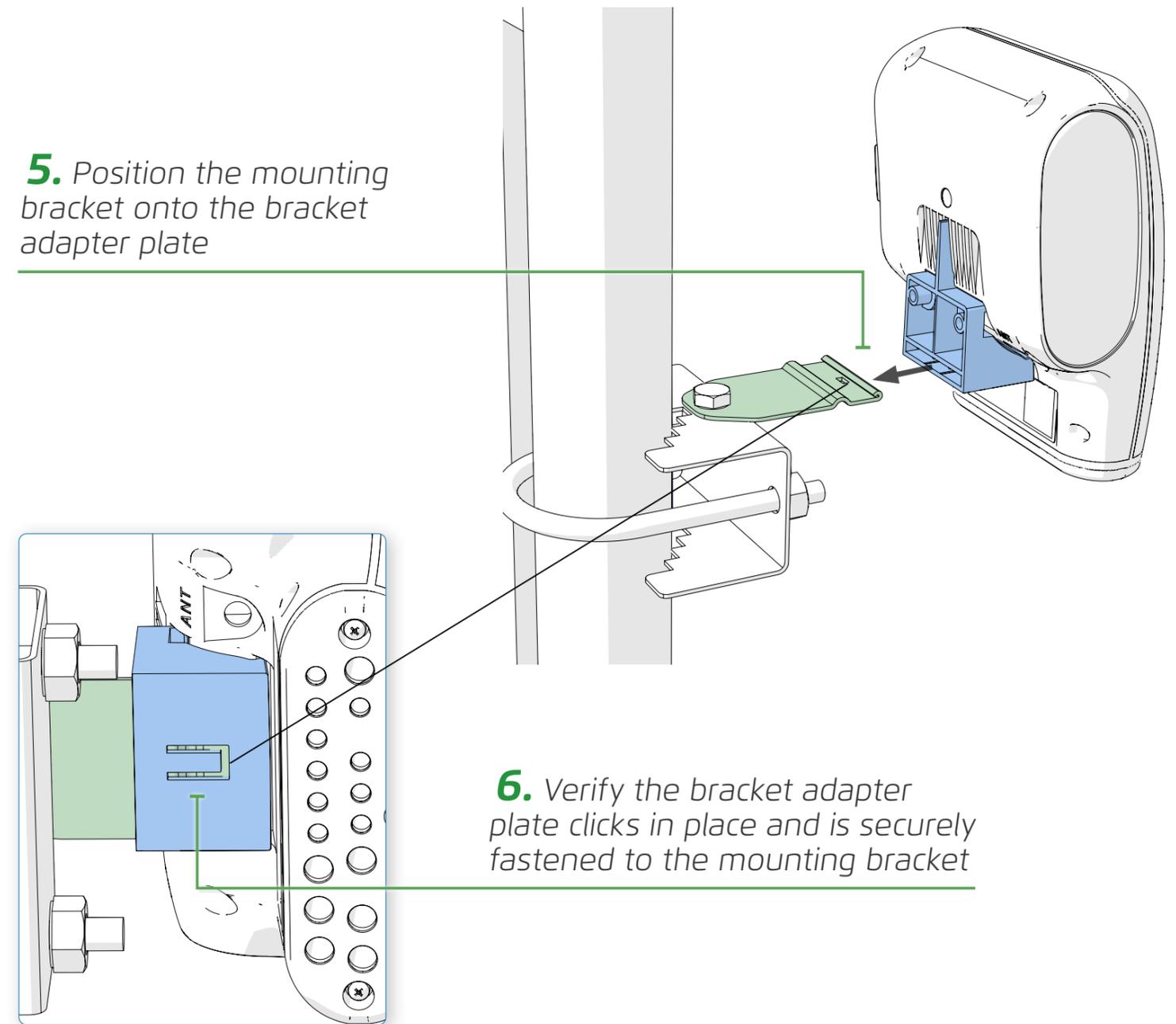
3. Insert the mounting bracket into the Omega controller

4. Verify the bracket is fully inserted into the controller slot



5. Position the mounting bracket onto the bracket adapter plate

6. Verify the bracket adapter plate clicks in place and is securely fastened to the mounting bracket



Powering Omega

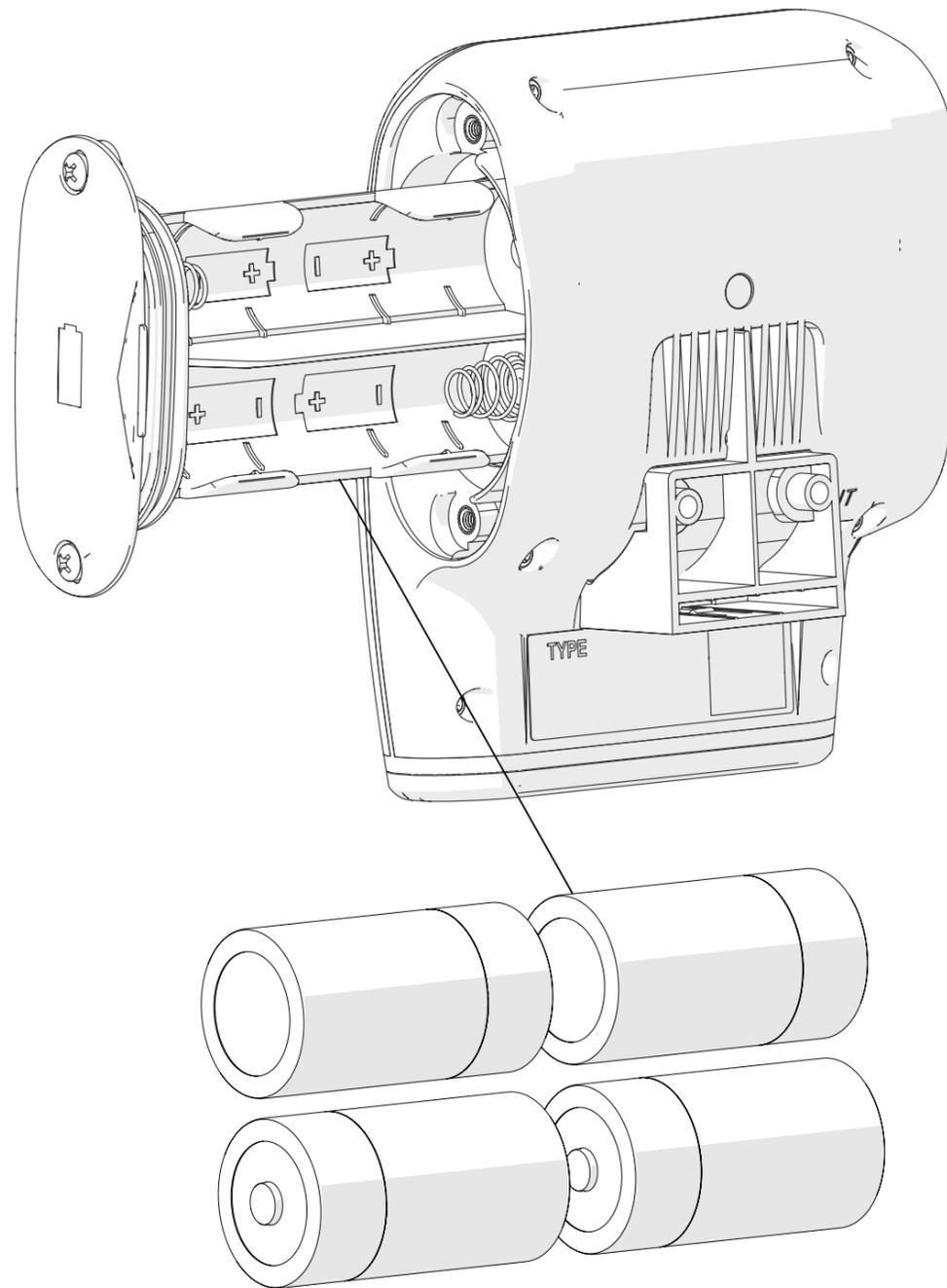
This section reviews powering the Omega controller and includes:

- [Battery Power Supply](#)
- [External Power Source](#)

Battery Power Supply

The Omega controller is powered by four LR-14 (C-size) alkaline batteries (see attached battery datasheet).

Insert four batteries according to the orientation shown in the battery compartment



Tip: For best performance in outdoor installation, use batteries with an operating temperature range of -18° to 55° C or greater.



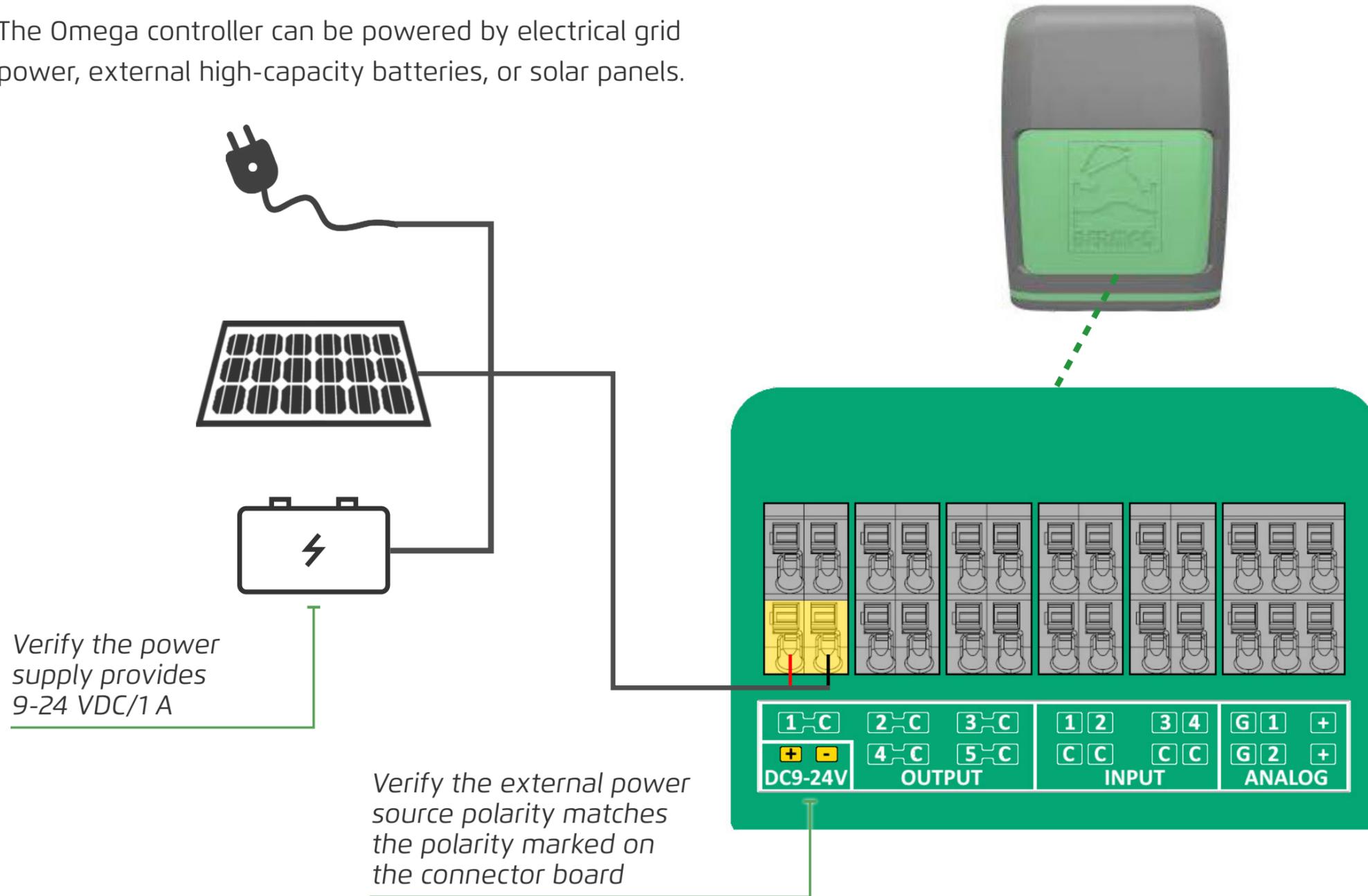
NOTE: In offline mode, the controller can run on battery power for up to five years.



CAUTION: Running the Omega controller on battery power in online mode shortens battery life significantly.

External Power Source

The Omega controller can be powered by electrical grid power, external high-capacity batteries, or solar panels.



NOTE: An external power supply is necessary if operating the Omega controller in online mode for an extended amount of time.

CAUTION:

- Connect the power cable to the Omega power connectors before turning on the power source.
- The Omega controller must first be unplugged from the external power source before disconnecting the power supply cables from the power connectors.

Connecting Peripherals

This section reviews connecting Omega with peripheral devices and includes:

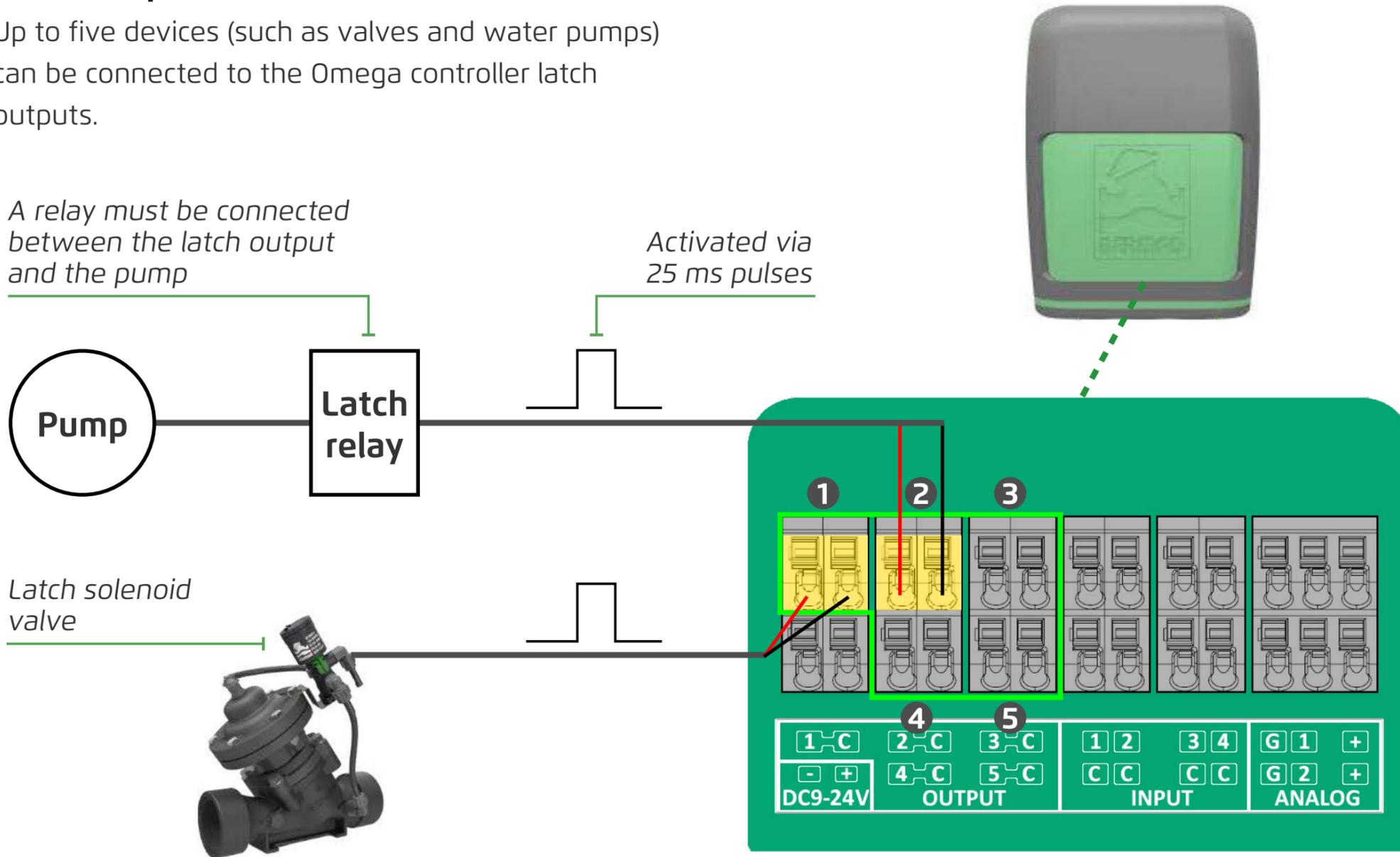
- [Latch Output Connections](#)
- [Digital Input Connections](#)
- [Analog Input Connections](#)

Latch Output Connections

Up to five devices (such as valves and water pumps) can be connected to the Omega controller latch outputs.

A relay must be connected between the latch output and the pump

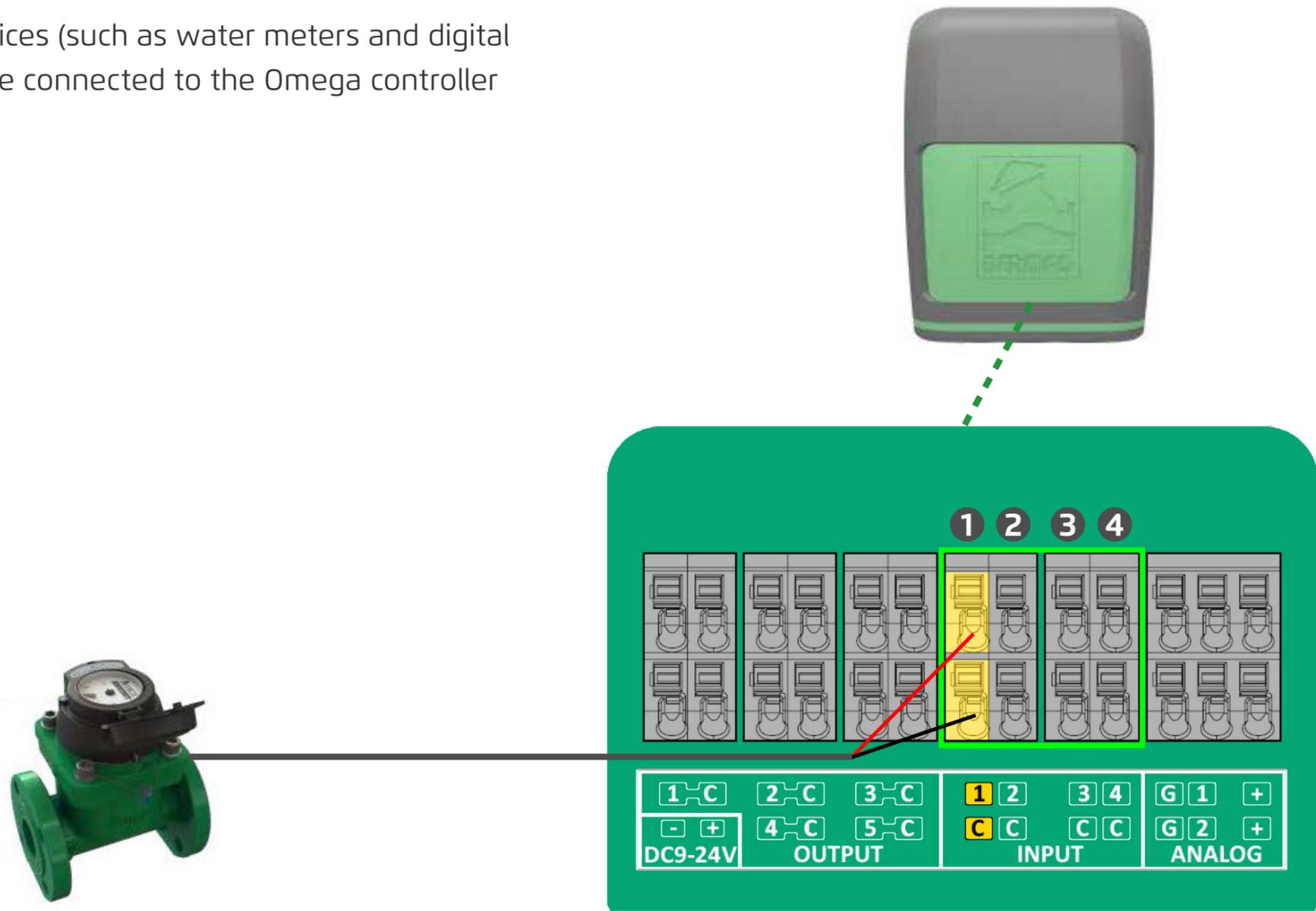
Activated via 25 ms pulses



NOTE: The Omega RS model features up to four latch outputs and one RS-485 MODBUS.

Digital Input Connections

Up to four devices (such as water meters and digital sensors) can be connected to the Omega controller digital inputs.



NOTE: Digital inputs can be connected to devices with one of the following outputs:

- Dry contact
- Open collector

CAUTION: Ensure the open collector connects according to the input polarity marked on the connector board.

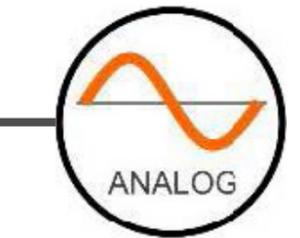
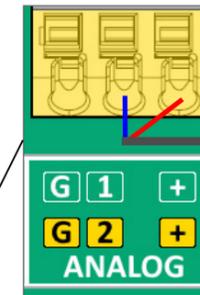
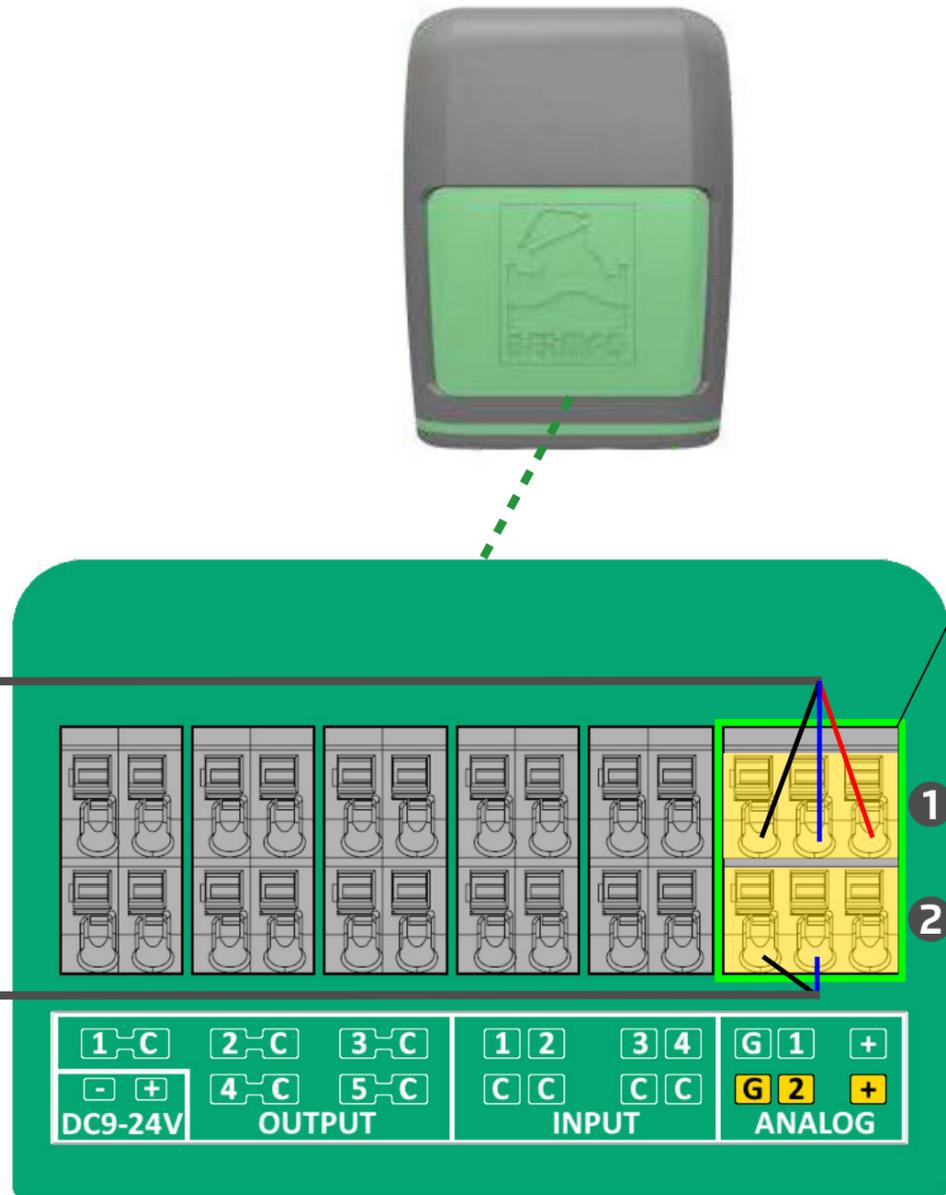
Analog Input Connections

Up to two devices (such as the following types of analog sensors) can be connected to the Omega controller analog inputs.

Three-wire passive analog sensor (powered by the Omega controller)



Two-wire active analog sensor (connected to an external power source)



Two-wire passive analog sensor

NOTE: The controller supports both analog voltage (0-10 V) and analog current (4-20 mA) sensors.

CAUTION: Ensure setting the correct analog protocol before connecting the sensor.

Communicating with Omega

This section reviews the options to communicate with the Omega controller and includes:

- [Communication via RS-485 Cable](#)
- [Communicating via BLE](#)
- [Communicating via BERMAD Cloud](#)

Communication via RS-485 Cable

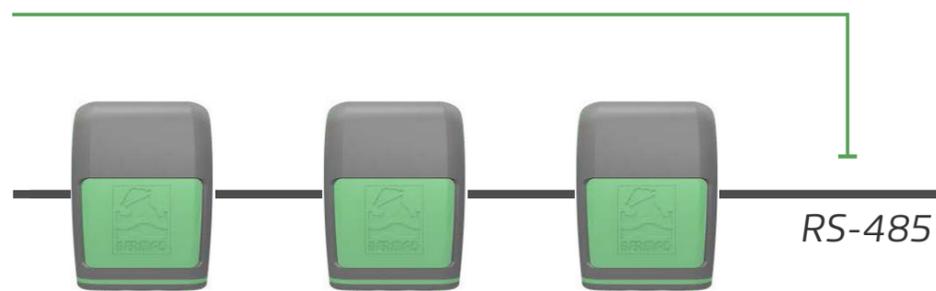
Additional inputs and outputs can be connected either wired or wirelessly to the Omega controller.

RS models only

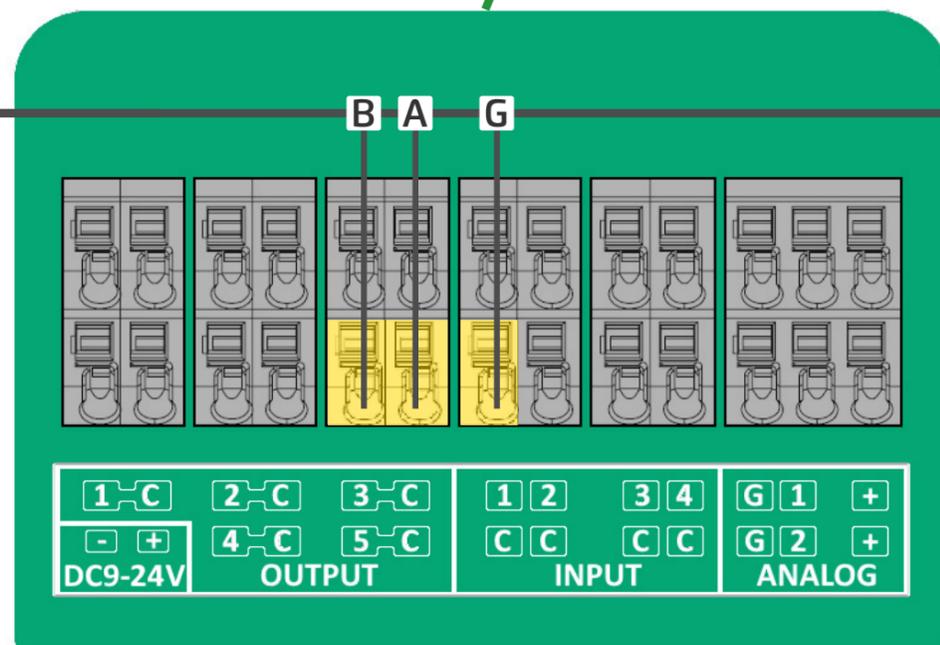


NOTE: RF signal extends up to 500 meters and uses open frequencies which do not require a license

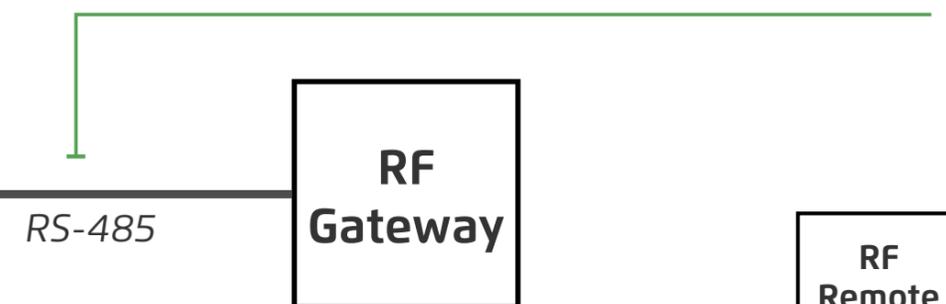
Up to ten extension controllers can be connected in parallel via an RS-485 communication cable



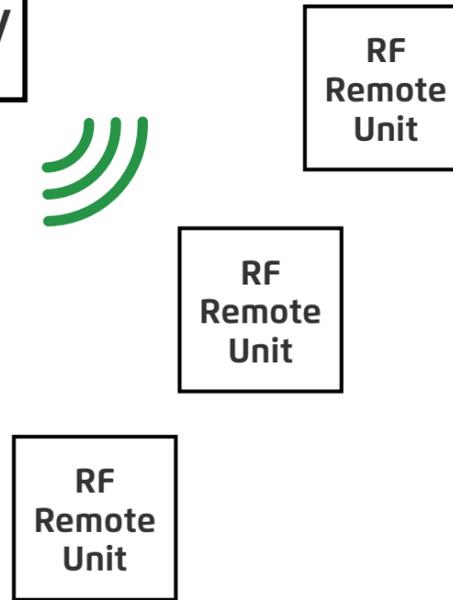
Each extension controller can connect to four latch outputs, four digital inputs, and two analog inputs



The RF gateway is connected to the main controller via an RS-485 communication cable



Up to forty RF remote units, each with a single latch output, can connect wirelessly to the gateway



Communicating via BLE

TBD

Communicating via BERMAD Cloud

Upon power up, the Omega controller initiates communication with BERMAD Cloud through a local cellular network. To configure the controller, see [Configuring Controllers](#).

An internal global SIM card enables cellular network communication



4. CONFIGURING CONTROLLERS

This chapter reviews configuring Omega controller using BERMAD Cloud and includes:

- [Registering](#)
- [Logging In](#)
- [Project Dashboard Overview](#)
- [Managing Projects and Controllers](#)
- [Basic Device Settings](#)
- [Managing Programs](#)



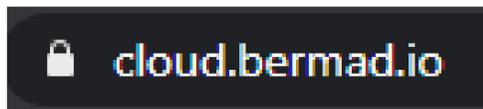
NOTE: When adding controllers to BERMAD Cloud, it is recommended to perform the following sequence of steps:

1. Register and login to BERMAD Cloud (see [Registering](#) and [Logging In](#))
2. Create a new project, or select a pre-existing project (see [Creating a Project](#))
3. Add the Omega controller to the selected project (see [Adding Controllers](#))
4. Power up the Omega controller and wait for it to connect to BERMAD Cloud (see [Powering Omega](#))

Registering

Perform the following steps to register as a new user:

1. Type **cloud.bermad.io** in the Internet browser address bar. The BERMAD Cloud login window is displayed



BERMAD Cloud

E-mail

Password
 [show password](#)

[Login](#)

or register here

2. Click **register here**. The registration window opens

3. Type first and last name and e-mail address

First Name

Last Name

E-mail

4. Type a password, then type it again to confirm

Password

Confirm Password

5. Select the relevant options

TIME ZONE
 Asia/Jerusalem ▼

First day
 Sunday ▼

language
 English ▼

systemUnit
 Metric ▼

Volume Units
 Cubic Meters (m³) ▼

Flow Units
 Cubic Meter Per Hour (m³/h) ▼

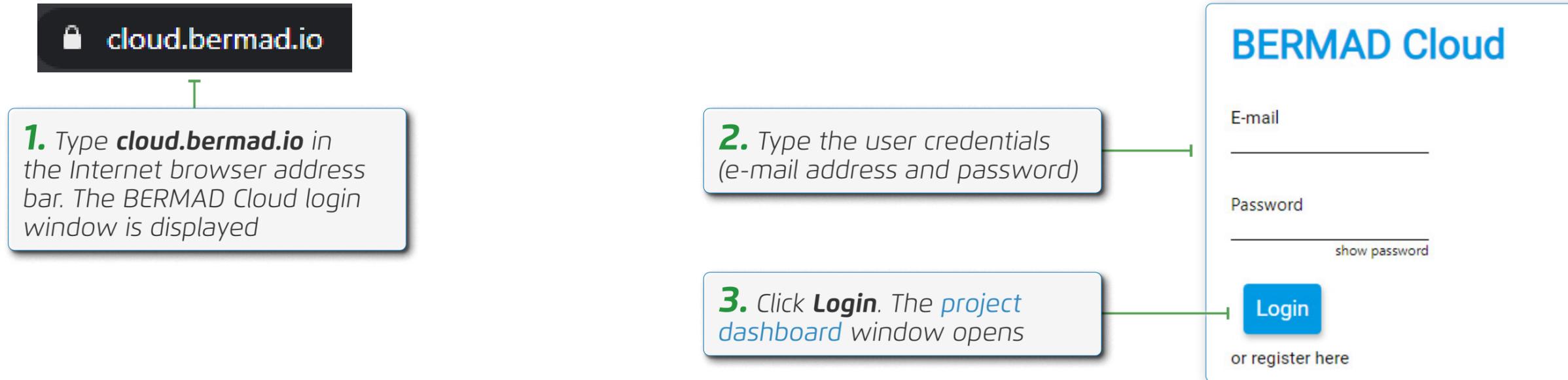
By clicking Sign Up, you agree to our [Terms](#) and Cookies Policy

6. Click **Sign Up**

[Sign Up](#)

Logging In

Perform the following steps to log in to BERMAD Cloud:



NOTE: A user must first register before being able to log in (see Registering)

Project Dashboard Overview

The project dashboard opens, displaying the following:

NOTE: To create a project, see [Creating a Project](#). To add controllers, see [Adding Controllers](#)

The screenshot shows the Project Dashboard for a project named 'Santa Cruz'. The interface includes a top navigation bar with the user's name 'Tim Niceman' and a notification bell. A left sidebar contains navigation options: DASHBOARD, ALERTS, LOGS, SETTINGS, and USERS. The main area features a live map on the left showing controller locations (Unit 51, Unit 43) and a central 'CONTROLLERS DISPLAY' grid. The grid shows details for six units: Unit 51, Unit 57, Unit 59, Unit 43, UNIT 50, and Unit 54. Each unit card displays 'Next Irrigation' and 'Last Irrigation' times, and 'Last Connection' status. On the right, a 'Statistics Pane' shows a donut chart for 'Connected Units' at 88% (7/8 units connected in the last 24 hours). At the bottom right, there is a 'Cloud Assistant' chat icon.

Project management – enables selecting and managing the projects

Main Toolbar (Projects) – displays the main navigation options for the project

Live map – displays the project controllers on a live map

Controllers Display – displays the selected project's controllers

User info – displays and enables managing user information

Statistics Pane – displays statistical information about the selected project's controllers

Cloud Assistant – digital assistant that guides a user through the setup and configuration processes

Managing Projects and Controllers

This section reviews managing projects and includes:

- [Creating a Project](#)
- [Editing a Project](#)
- [Adding Controllers](#)
- [Selecting a Controller](#)
- [Controller Dashboard Overview](#)
- [Adding a Device](#)

Creating a Project

Perform the following steps to create a project:

1. Click the **Settings** icon

2. Click the **+** icon to add a new project

3. Type the project name and description

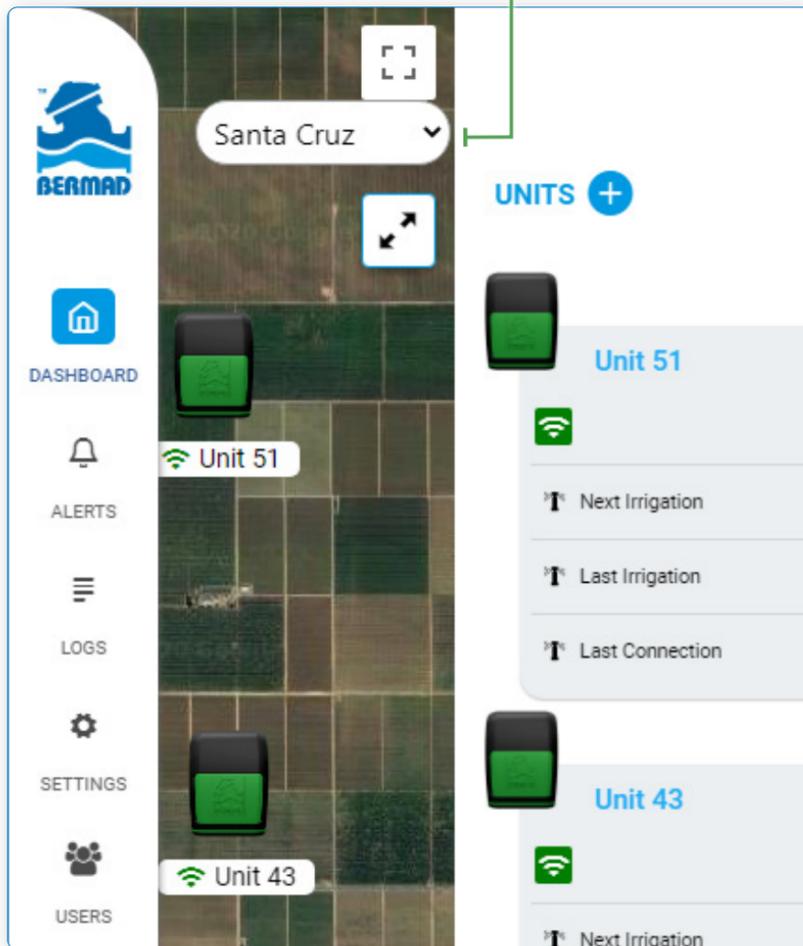
4. Click **Save**. The new project is added to the list of projects

5. Click the dropdown menu to select and display a project

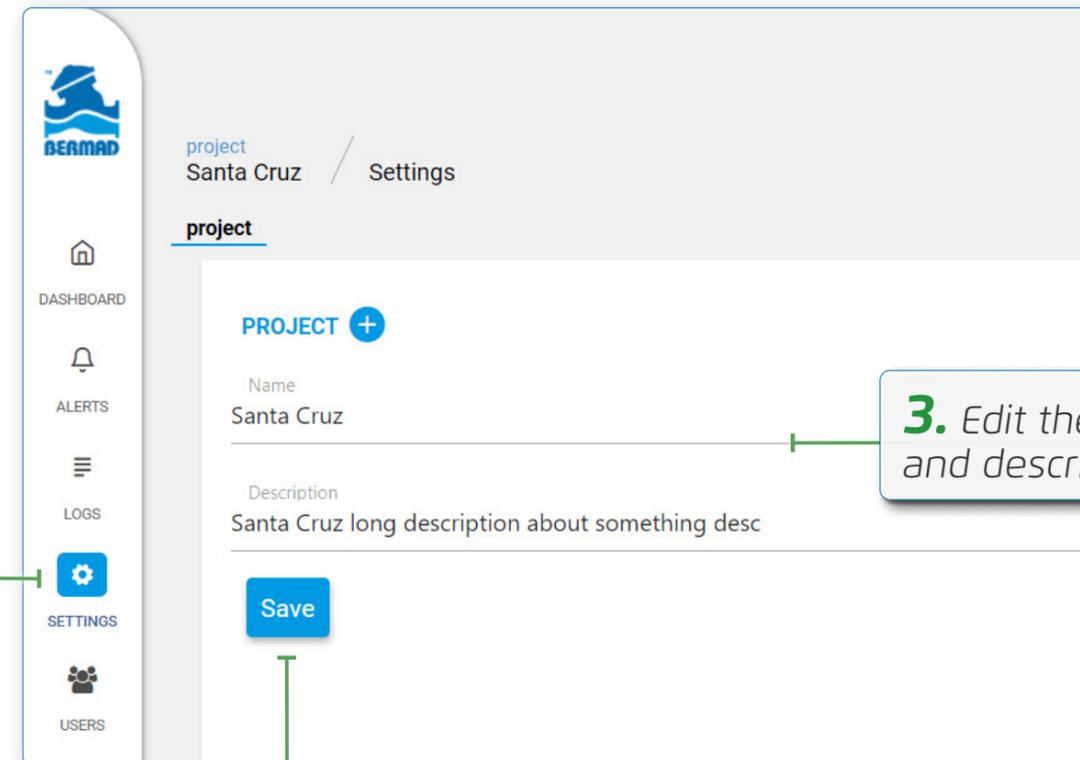
Editing a Project

Perform the following steps to edit an existing project's name and description:

1. Click the dropdown menu and select the project to be edited



2. Click the **Settings** icon



3. Edit the project's name and description

4. Click **Save**

Adding Controllers

Perform the following steps to add a new controller to the selected project:

1. Verify the relevant project is selected

2. Verify that **Dashboard** is selected

7. At the end of the new controller definition process the new controller is added to the display

3. Click the **+** icon to add a new controller

4. The Cloud Assistant opens. Click **Add New Controller**

5. The Cloud Assistant displays questions which guide the user through the new controller definition process

6. Type answers to the questions

The screenshot displays the Omega irrigation control interface. On the left, a sidebar contains navigation options: 'Dashboard' (selected), 'LOGS', 'SETTINGS', and 'USERS'. The main area shows a grid of irrigation units, each with a status indicator (green for online, grey for offline) and details for 'next irrigation', 'last irrigation', and 'last connection'. A 'Cloud Assistant' chat window is open on the right, showing a conversation where the assistant asks for a name for a new unit. The user has typed 'pp2' as the name. The assistant also displays an 'Add New Unit' button. The top of the interface shows the project name 'Santa Cruz' and the user's name 'Tim Niceman'.

Selecting a Controller

Perform the following steps to view information about a specific controller:

1. Verify that **Dashboard** is selected

The screenshot displays the BEAMAD dashboard interface. On the left is a vertical navigation menu with icons for Dashboard (selected), Alerts, Logs, Settings, and Users. The main area is split into two panels. The left panel shows a satellite map of a field with a location dropdown set to 'Santa Cruz' and a marker for 'Unit 51'. The right panel, titled 'UNITS +', lists four irrigation units: Unit 57, Unit 51, Unit 50, and Unit 53. Each unit card shows its status (online/offline), current time, and the next and last irrigation and connection times.

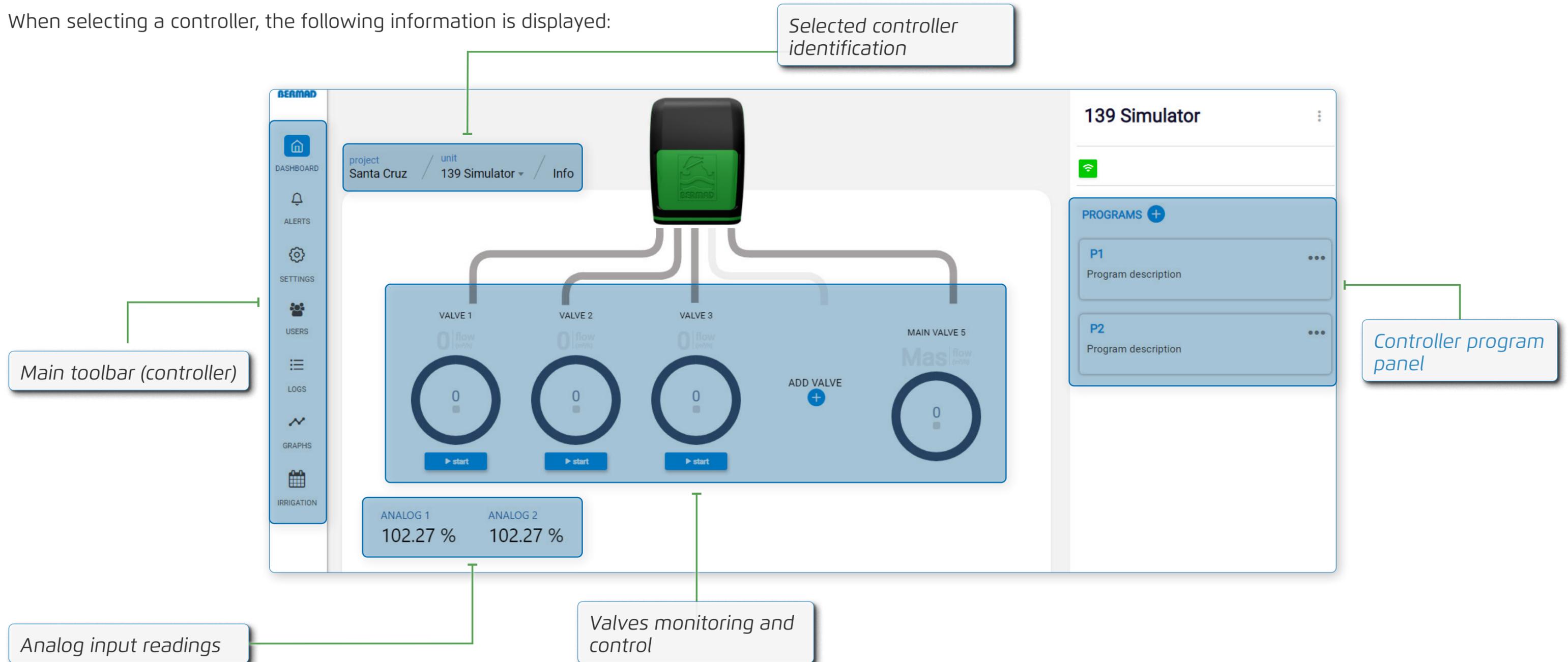
Unit	Status	Now	Next Irrigation	Last Irrigation	Last Connection
Unit 57	Online	11:00	11:00 AM	11:00 - 11:41	Online
Unit 51	Online	11:00	03:20 PM	07:00 - 08:43	Online
Unit 50	Offline	-	Soon	-	Long Time Ago
Unit 53	Online	-	12:00 PM	-	Online

2. Click on the relevant controller from the controller dashboard or from the live map

3. The controller dashboard is displayed (see [Controller Dashboard Overview](#))

Controller Dashboard Overview

When selecting a controller, the following information is displayed:



Adding a Device

Perform the following steps to add a device to the selected controller:

1. Verify that the relevant controller is selected

2. Click the Add Valve icon or open Cloud Assistant

3. The Cloud Assistant displays various device options and guides the user through the new device definition process

4. Click the device to be added

Basic Device Settings

This section reviews basic device settings and includes:

- [Entering Controller Settings](#)
- [General Settings](#)
- [Master Valve Settings](#)
- [Valve Settings](#)
- [Water Meter Settings](#)
- [Analog Input Settings](#)

Entering Controller Settings

Perform the following steps to view and modify controller settings:

The screenshot displays the BEAMAD web interface for configuring a controller. The breadcrumb navigation shows 'Project Santa Cruz / Controller 139 Simulator / Settings'. The left sidebar contains navigation icons for Dashboard, Alerts, Settings, Users, Logs, Graphs, and Irrigation. The main content area is divided into two panels: 'CONTROLLER' and 'GENERAL'.

CONTROLLER Panel:

- General
- Valves (4)
 - MAIN VALVE 5 (MASTER)
 - VALVE 1
 - VALVE 2
 - VALVE 3
- Water meters (4)
- Analog inputs (2)
- Irrigation restriction: dates & hours
- Alerts reaction
- Bluetooth
- Water budget
- Communication

GENERAL Panel:

- Firmware version: 1.1.3.96
- Serial number: OM000000000000139 [Link To Controller](#)
- Project: Santa Cruz
- Status: Active
- Controller name: 139 Simulator
- Controller description: Set Value
- Location: 35.8917 - -119.1976
- Master valve: MAIN VALVE 5
- Allow parallel:
- Timezone: Asia/Jerusalem

Annotations:

- Verify that the relevant controller is selected (see [Selecting a Controller](#))
- Click the **Settings** icon
- Select the desired setting from the menu
- The information associated with the selected setting is displayed and can be modified

General Settings

Perform the following steps to navigate to a controller's general settings:

1. From the controller settings, select **General**

2. The general settings of the controller are displayed

Project Santa Cruz / Controller 139 Simulator / Settings

SEARCH

CONTROLLER

- General
- Valves (4)
 - MAIN VALVE 5 (MASTER)
 - VALVE 1
 - VALVE 2
 - VALVE 3
- Water meters (4)
- Analog inputs (2)
- Irrigation restriction: dates & hours
- Alerts reaction
- Bluetooth
- Water budget
- Communication

GENERAL

- Firmware version: 1.1.3.96
- Serial number: OM00000000000139 [Link To Controller](#)
- Project: Santa Cruz
- Status: Active
- Controller name: 139 Simulator
- Controller description: Set Value
- Location: 35.8917 - -119.1976
- Master valve: MAIN VALVE 5
- Allow parallel:
- Timezone: Asia/Jerusalem

A controller's general settings include:

- **Firmware version** – displays the firmware version currently installed on the controller
- **Serial number** – displays the controller's serial number
 - **Link To Controller button** – links the physical controller (installed in the field) with the virtual controller created in the cloud, which includes copying controller settings if a controller is replaced
- **Project** – the project to which the controller belongs. The drop-down list allows the user to move the controller to another project
- **Status** – enables activating and deactivating the controller
- **Controller name** – enables naming of the controller
- **Controller description** – enables adding text describing the controller
- **Location** – displays the coordinates of the controller's location. Clicking on the line opens a map which enables moving the controller to a new location
- **Master valve** – enables selecting which valve is the [master valve](#)
- **Allow parallel programs** – enables running two or more irrigation programs simultaneously
- **Timezone** – defines the time zone in which the controller is located



NOTE: If permission to access location is denied when clicking on the location line, in the browser's settings allow cloud.bermad.io to access location and then refresh the page

Master Valve Settings

The master valve is the valve which controls water flow to all other valves. Perform the following steps to navigate to the master valve's settings:

1. From the controller settings, select the valve designated as the master valve

2. The master valve's settings are displayed

The screenshot shows the BERMAP web interface. The breadcrumb navigation is Project Santa Cruz / Controller 139 Simulator / Settings. The left sidebar has a 'SETTINGS' icon highlighted. The main content area shows 'CONTROLLER' settings with a list of valves. 'MAIN VALVE 5 (MASTER)' is selected. A callout box points to this valve. Another callout box points to the 'MAIN VALVE 5 : MASTER VALVE SETTINGS' panel, which displays the following settings:

MAIN VALVE 5 : MASTER VALVE SETTINGS	
Valve name	MAIN VALVE 5 ▶
Output number	5 ▼
Status	Active ▼
Valve description	Set Value ▶
Opening order	Parallel ▼
Closing order	Parallel ▼
Opening delay between master & valve	0 sec ▶
Closing delay	0 sec ▶

The master valve's settings include:

- **Valve name** – enables naming of the master valve
- **Output number** – the physical output controller to which the master valve is connected
- **Status** – enables activating and deactivating the master valve
- **Valve description** – enables adding text describing the master valve
- **Opening order** – defines when the master valve opens in relation to the regular valves
- **Closing order** – defines when the master valve closes in relation to the regular valves
- **Opening delay between master & valve** – defines the delay time between opening of the master valve and regular valve. This delay is relevant when either the "master valve before valve" or "valve before master valve" opening order was selected
- **Closing delay** – defines the delay time between closing of the master valve and regular valve. This delay is relevant when either the "master valve before valve" or "valve before master valve" closing order was selected



NOTE: The master valve is selected in [General Settings](#)

Valve Settings

Perform the following steps to navigate to the valve settings:

The screenshot shows the BERMAP web interface. The breadcrumb navigation is Project Santa Cruz / Controller 139 Simulator / Settings. The left sidebar contains navigation options: DASHBOARD, ALERTS, SETTINGS, USERS, LOGS, GRAPHS, and IRRIGATION. The main content area is titled 'CONTROLLER' and lists various settings categories: General, Valves (4), MAIN VALVE 5 (MASTER), VALVE 1, VALVE 2, VALVE 3, Water meters (4), Analog inputs (2), Irrigation restriction: dates & hours, Alerts reaction, Bluetooth, Water budget, and Communication. A search bar is located at the top right. Two callout boxes provide instructions: '1. From the controller settings, select the relevant valve' points to 'VALVE 1' in the list, and '2. The valve's settings are displayed' points to the 'VALVE 1' settings panel on the right. The 'VALVE 1' settings panel includes fields for Valve name (VALVE 1), Output number (1), Status (Active), Valve description (Set Value), Nominal flow (50 m³/h), Water budget (0 m³), Water meter (WM1), Line filling time (1 Minutes), Low flow (Alert only 10%), and High flow (Alert only 10%). A 'Close program' button is at the bottom right of the panel.

Valve settings include:

- **Valve name** – enables naming of the valve
- **Output number** – the physical output controller to which the valve is connected
- **Status** – enables activating and deactivating the valve
- **Valve description** – enables adding text describing the valve
- **Nominal flow** – typical water flow rate passing through the valve
- **Water budget** – maximum volume of water allowed to pass through the valve
- **Water meter** – enables linking a water meter to the valve
- **Line filling time** – amount of time before water fills the pipe and achieves a steady flow
- **Low flow** – Low water flow threshold, below which a low flow alert is triggered. The threshold is defined as the decrease in percentage of flow in reference to the nominal flow
- **High flow** – High water flow level, above which a high flow alert is triggered. The threshold is defined as the increase in percentage of flow in reference to the nominal flow
- **Reaction to meter pulse fault** – defines the action taken when there is no response from the water meter while the valve is open
- **Flow alert delay** – the amount of time a high or low flow trigger is on before an alarm is created
- **Delete button** – enables deleting the valve

Water Meter Settings

Perform the following steps to navigate to the water meter settings:

1. From the controller settings, select the relevant water meter

2. The water meter's settings are displayed

The screenshot shows the BEAMAD web interface. The breadcrumb navigation is: project Gadash Digital / unit Unit 43 / Settings. The left sidebar contains navigation icons for DASHBOARD, ALERTS, SETTINGS, USERS, LOGS, GRAPHS, and IRRIGATION. The main content area shows the 'UNIT' settings for 'Unit 43', with a list of categories: general, valves (5), water meters (4), analog inputs (2), date and time restrictions, alerts reaction, and ble. The 'water meters (4)' category is expanded, showing a list of water meters: WM1, WM2, WM3, and WM4. The 'WM1' water meter is selected, and its settings are displayed in a modal window. The settings for WM1 are:

WATER METERS	
WM1	
water meter name	WM1 ▶
water meter description	The first WM ▶
pulse size	100 L ▶
water meter reaction	stop only valve ▼
input number	1 ▼
pulse length	200 mSec ▶
delay of meter pulse alert	60 sec ▶
leak reaction	5 pulses ▶
Delete	

Water meter settings include:

- **Water meter name** – enables naming of the water meter
- **Water meter description** – enables adding text describing the water meter
- **Meter pulse size** – defines the volume of water which has to flow through the water meter to transmit a pulse
- **Water meter reaction** – action performed when there is no flow reading while the valve is open
- **Input number** – the physical input controller to which the water meter is connected
- **Delay of meter pulse alert** – amount of time before a pulse is transmitted when there is no water flow through the meter
- **Leak alert reaction** – defines the action taken when...
- **Delete button** – enables deleting the water meter

Analog Input Settings

Perform the following steps to navigate to the analog input settings:

The screenshot shows the BERMAP web interface for a controller. The breadcrumb navigation is: project Gadash Digital / unit Unit 43 / Settings. The left sidebar has a 'SETTINGS' menu with 'analog inputs (2)' selected. The main content area shows the 'UNIT' settings for 'Unit 43', with 'analog inputs (2)' expanded to show 'Level' and 'Potentiometer 2'. The 'ANALOG 1' settings are displayed in a modal window, including fields for Analog name, Analog number, Physical measurement unit, Sensor type (0-10 V and 4-20 mA), Measuring range, Low value threshold, High value threshold, Time delay, Hysteresis, Warmup time, and Analog interval/log interval.

1. From the controller settings, select the relevant analog input

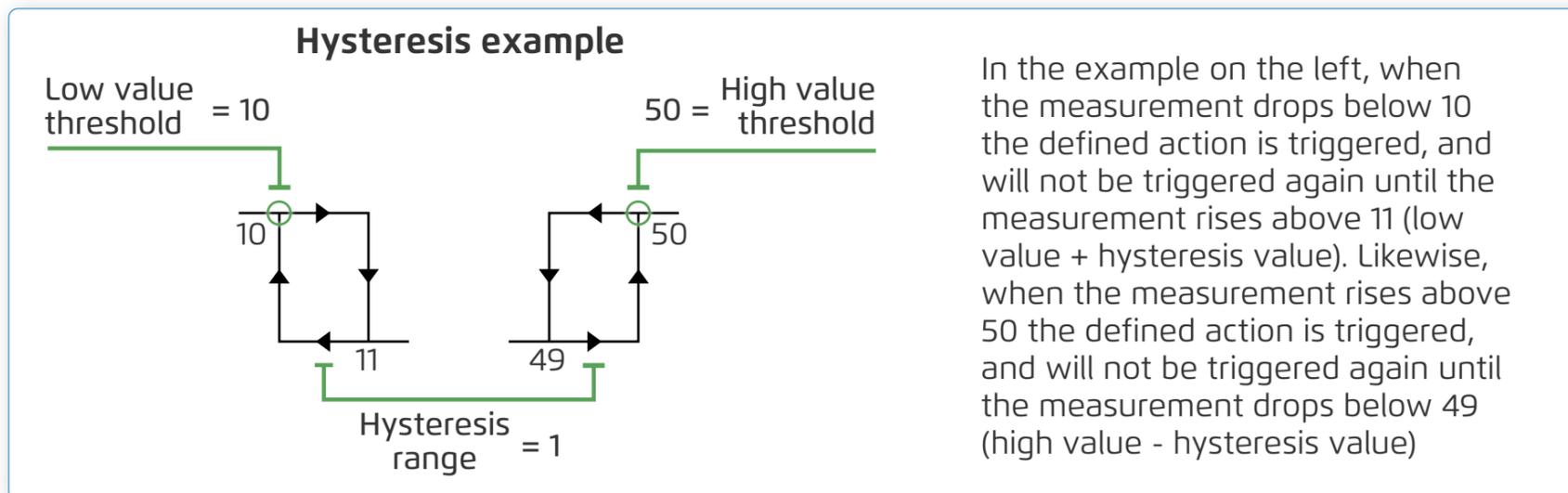
2. The analog input's settings are displayed

Analog input settings include:

- **Analog name** – enables naming of the analog device
- **Analog number** – the physical input controller to which the analog device is connected
- **Physical measurement unit** – the unit of the physical condition being measured (e.g., write "bar" if measuring pressure)
- **Sensor type** – enables setting the controller's input according to the sensor's analog type. Options include **0-10 V** and **4-20 mA**
- **Measuring range** – defines the signal range as the minimum and maximum values of the physical measurement unit defined above
- **Low value threshold** – enables choosing an action to be performed when the measurement drops below a defined value
- **High value threshold** – enables choosing an action to be performed when the measurement exceeds a defined value
- **Time delay** – amount of time (in seconds) between when the low/high value threshold is reached and when the action is performed

Analog input settings (continued):

- **Hysteresis** – defines a range for both the high and low threshold values. When the threshold values are reached, the action is not triggered again until the value falls out of this range
- **Warmup time** – defines the time (in seconds) required to energize the sensor before it can perform the measurement
- **Analog interval** – defines the amount of time between two measurements
- **Log interval** – defines the amount of time between the logging of measurements (see [Logs](#) section)
- **Delete button** – enables deleting the analog input



NOTE: Consult the analog sensor's manufacturer instructions for the specific sensor's warmup time



NOTE: Log interval time must be greater than analog interval time

Managing Programs

This section reviews managing programs and includes:

- [Program Panel Overview](#)
- [Creating a New Program](#)
- [Program Workflow](#)
- [Defining Irrigation Type](#)
- [Defining Cycle Type](#)
- [Defining Measuring Type](#)

Program Panel Overview

A controller's program panel is displayed in the controller dashboard screen and includes the following:

The screenshot displays the BEAMAD controller dashboard for the '139 Simulator' project. The main area shows a central controller unit connected to five valves: VALVE 1, VALVE 2, VALVE 3, MAIN VALVE 5, and an ADD VALVE button. Each valve has a flow meter and a 'start' button. Below the valves are two analog meters (ANALOG 1 and ANALOG 2) showing 102.27%. On the right, a 'PROGRAMS' list shows two programs (P1 and P2) with a 'PROGRAMS +' button and a 'Program menu' icon for each program.

Button to *create a program*

List of defined programs

Program menu

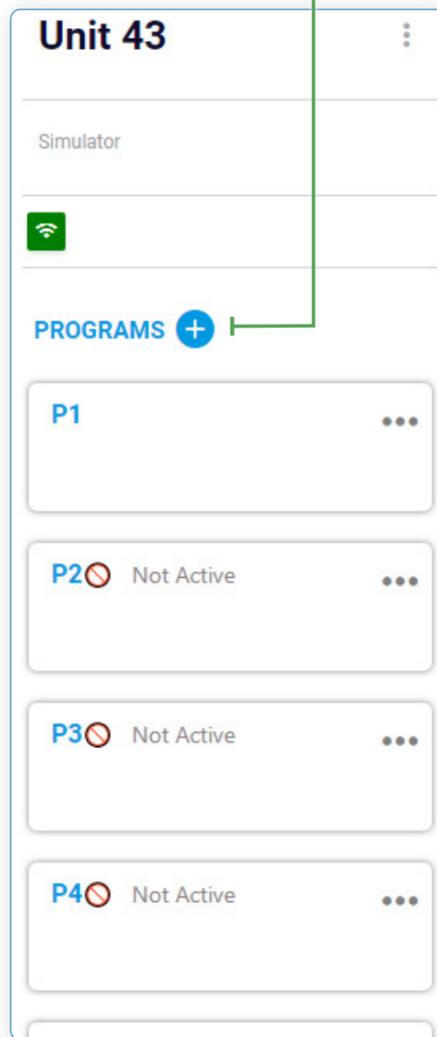
The program menu consists of the following options:

- Start/stop the program (see [Manually Starting a Program](#))
- Edit the program's name and description
- Clone the program
- Delete the program
- Enable/disable the program

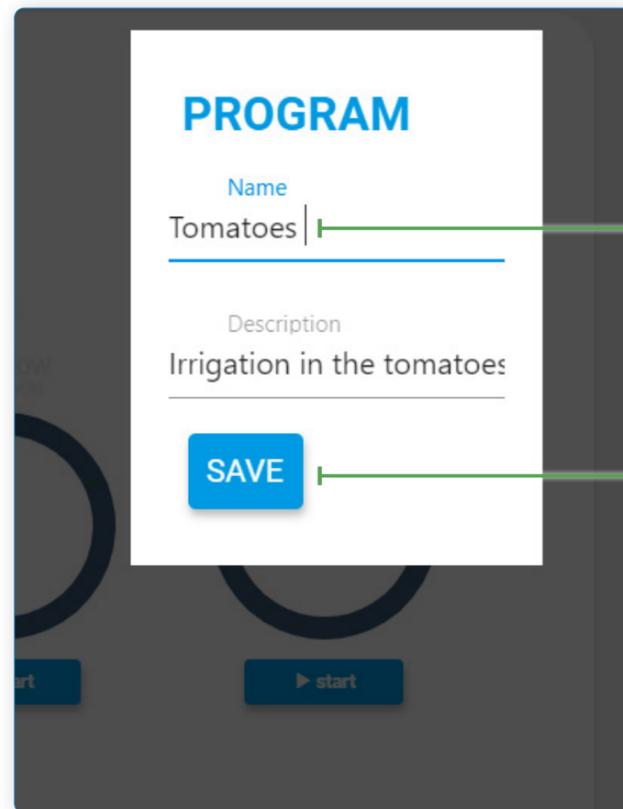
Creating a New Program

Perform the following steps to create a new program:

1. From the program panel, click the + icon



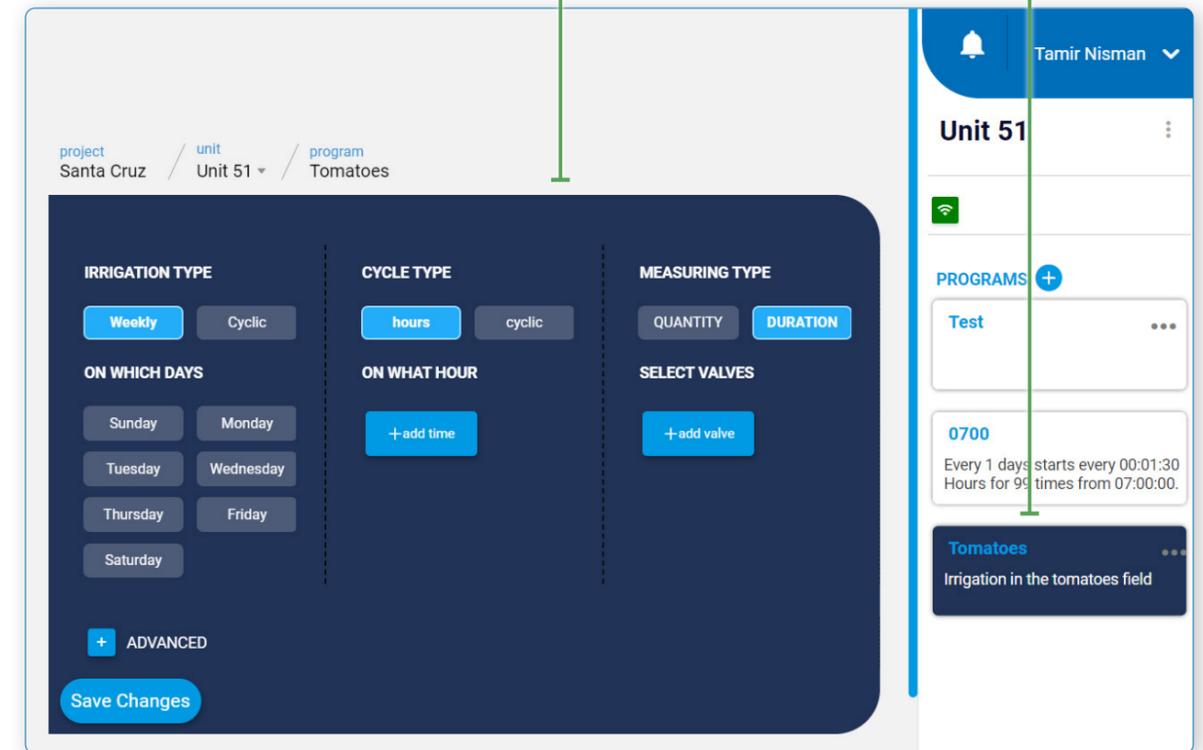
2. The new program dialog box opens



3. Type the program name and description

4. Click Save

5. The new program is added to the program list and the program screen is displayed



Program Workflow

Creating a program consists of the following steps:

2. Defining when irrigation occurs during the predefined irrigation days (see [Defining Cycle Type](#))

1. Defining irrigation days by days of the week or by cycle (see [Defining Irrigation Type](#))

4. (optional) Selecting advanced options to prevent irrigation during specific hours (see [Advanced Irrigation Settings \(Optional\)](#))

5. Saving the program

3. Defining how the amount of water used is measured and controlled (see [Defining Measuring Type](#))

Santa Cruz / Unit 51 / Tomatoes

IRRIGATION TYPE

Weekly Cyclic

ON WHICH DAYS

Sunday Monday

Tuesday Wednesday

Thursday Friday

Saturday

+ ADVANCED

CYCLE TYPE

hours cyclic

ON WHAT HOUR

+add time

MEASURING TYPE

QUANTITY DURATION

SELECT VALVES

+add valve

Save Changes

Defining Irrigation Type

Define which days the irrigation program will run using one of the following two options:

Weekly Irrigation Type

1. Select the **Weekly** option to have the irrigation program run on certain days of the week

IRRIGATION TYPE

Weekly Cyclic

ON WHICH DAYS

Sunday Monday

Tuesday **Wednesday**

Thursday Friday

Saturday

2. Select the days of the week

Cyclic Irrigation Type

1. Select the **Cyclic** option to have the irrigation program run every set number of days

IRRIGATION TYPE

Weekly **Cyclic**

START_DATE

30/01

DAYS_INTERVAL

+ 4 -

2. Select the date on which the irrigation cycle will start

3. Define the number of days between two irrigation days

Defining Cycle Type

Define when irrigation sessions occur during an irrigation day using one of the following two options:

Hours

1. Select the **Hours** option to have irrigation sessions occur at set times of the day

CYCLE TYPE

hours cyclic

ON WHAT HOUR

06:00 ×

09:00 ×

13:00 ×

+ add time

2. Click **add time** to add a new irrigation time

Cyclic

1. Select the **Cyclic** option to have irrigation sessions occur every set number of hours

IRRIGATION START

hours cyclic

SET START TIME

08:00

+ end time

HOURS INTERVAL

00:01

CYCLE PER DAY

24

2. Set the time of the day to start the irrigation program

3. Define the amount of time between two irrigation cycles

Option #1: Define the number of irrigation sessions to be performed during the irrigation program

Option #2: Select **end time** and define the time of day after which no more irrigation sessions occur

- end time

SET_END_TIME

12:00

HOURS INTERVAL

00:01

Defining Measuring Type

Define the method used to control the amount of water used during an irrigation session using one of the following two options:

Quantity Measuring Type

1. Select the **Quantity** option to have a water meter control the volume of water used per irrigation session

The screenshot shows the 'MEASURING TYPE' screen. The 'QUANTITY' button is highlighted in blue, while the 'DURATION' button is grey. Below, under 'SELECT VALVES', there is one entry: 'VI1' with a volume of '5.06 m³'. A '+ add valve' button is at the bottom.

2. Click to add a new valve to the program

3. Select the valve and set the volume of water

The screenshot shows the 'CHANGEAMOUNT' screen. It lists 'VI1' and 'v2' with a 'Stam' label. A large '2.0m³' value is displayed with '+' and '-' buttons. 'Save' and 'Cancel' buttons are at the bottom.

4. Click **Save**

Duration Measuring Type

1. Select the **Duration** option to have a timer control the amount of water used per irrigation session

The screenshot shows the 'MEASURING TYPE' screen. The 'DURATION' button is highlighted in blue, while the 'QUANTITY' button is grey. Below, under 'SELECT VALVES', there are two entries: 'VI1' with a duration of '00:00:10' and 'v2' with a duration of '01:10:00'. A '+ add valve' button is at the bottom.

2. Click to add a new valve to the program

3. Select the valve and set the irrigation duration

The screenshot shows the 'CHANGEAMOUNT' screen. It lists 'VI1' and 'v2' with a 'Stam' label. A large '01:05:00' duration is displayed with up/down arrow buttons. 'Save' and 'Cancel' buttons are at the bottom.

4. Click **Save**



NOTE: The top valve in the list will start irrigating, followed by the other valves in sequence according to their order in the list

Advanced Irrigation Settings (Optional)

Perform the following steps to limit irrigation to a predefined time period during the irrigation day:

The screenshot shows a dark blue interface for configuring irrigation settings. At the top left, there is a blue button with a minus sign and the text "ADVANCED". Below this, the text "ALLOWED HOURS FROM" is followed by a digital time display showing "05:00". To the right of this display is a vertical dashed line and the text "TO". Further right is another digital time display showing "18:00". Below the "18:00" display is a blue rounded rectangle containing the text "Save Changes". Three numbered callout boxes are present: 1. "1. Click **Advanced**" with an arrow pointing to the "ADVANCED" button. 2. "2. Set the beginning time of the permitted irrigation time of the day" with an arrow pointing to the "05:00" display. 3. "3. Set the ending time of the permitted irrigation time of the day" with an arrow pointing to the "18:00" display.

1. Click **Advanced**

2. Set the beginning time of the permitted irrigation time of the day

3. Set the ending time of the permitted irrigation time of the day

— ADVANCED

ALLOWED HOURS FROM

05:00

TO

18:00

Save Changes

Additional Device Settings

This section reviews additional device settings and includes:

- [Date and Time Restrictions](#)
- [Alerts Reaction](#)
- [BLE](#)
- [Communications](#)
- [Water Budget](#)

Date and Time Restrictions

To set irrigation date and time restrictions, perform the following steps:

1. Enter controller settings and select **date and time restrictions**

2. Click to display a calendar and select the irrigation season start and end dates

3. Click to select specific dates on which the controller does not irrigate

4. Click to select the times during which the controller irrigates

5. Click to select the days on which the controller is disabled

project Santa Cruz / unit Unit 53 / Settings

SEARCH

DATE AND TIME RESTRICTIONS

irrigation dates	Set
exception dates	SET ▶
hours	00:00-00:00 ▶
Disable Days	Set Value ▶



NOTE: The controller will not irrigate outside the specified season start and end dates

Alerts Reaction

To define how the controller responds when there's an alert, perform the following steps:

1. Enter controller settings and select **alerts reaction**

2. Select the relevant action for each alert

The screenshot displays the Omega controller settings interface. On the left, a sidebar menu includes 'ALERTS', 'SETTINGS', 'USERS', and 'LOGS'. The 'SETTINGS' menu is expanded, showing options like 'valves (3)', 'water meters (0)', 'analog inputs (0)', 'irrigation restriction: dates & hours', 'alerts reaction', 'Bluetooth', 'master valve settings', and 'water budget'. The 'alerts reaction' option is selected. The main screen is titled 'ALERTS REACTION' and lists several alert types with corresponding action buttons:

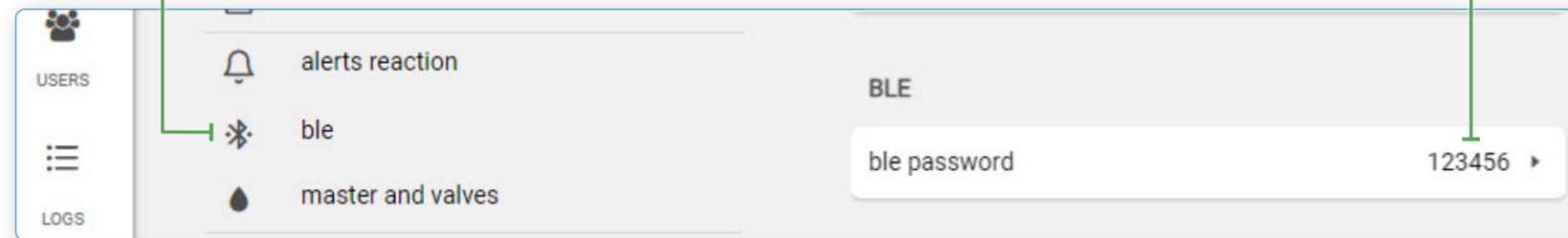
Alert Type	Alert Only	Close All Programs	Stop All Programs for 24 hrs
low battery	alert only	close all programs	stop all programs for 24 hrs
critically low battery voltage	alert only	close all programs	stop all programs for 24 hrs
capacitor discharge failure	alert only	close all programs	stop all programs for 24 hrs
capacitor charge failure	alert only	close all programs	stop all programs for 24 hrs
memory failure	alert only	close all programs	stop all programs for 24 hrs

BLE

To set/update the controller's Bluetooth password, perform the following steps:

1. Enter controller settings and select **BLE**

2. Click to type a new password



Communications

Controllers must be "woken up" when in **low power** mode to enable communication with BERMAD Cloud. To set controller wake up times, perform the following steps:

1. Enter controller settings and select **communications**

The screenshot shows the controller settings interface. On the left, there is a sidebar with 'GRAPHS' and 'IRRIGATION' options. The main content area has a top navigation bar with 'water budget' and 'communications' (selected). Below this, there are three sections: 'parallel time' with a 'Set Value' dropdown, 'WATER_BUDGET' with 'water budget' (0 m³) and 'season' (set) fields, and 'COMMUNICATION' with a 'low power' toggle (turned on) and a 'WAKE_UP_TIMES' field with a 'Set Value' dropdown. A callout box points to the 'WAKE_UP_TIMES' field.

2. Select **low power**

3. Click to add up to 24 wake up times per day



NOTE: Controllers powered solely by their internal batteries should be placed in **low power** mode in order to maximize the lifespan of the battery



NOTE: Limit the number of wake up times per day to further maximize battery lifespan

Water Budget

To set a water budget for a given period, perform the following steps:

1. Enter controller settings and select **water budget**

The screenshot shows the 'water budget' configuration screen. The left sidebar has 'LOGS', 'GRAPHS', and 'IRRIGATION' sections. The main area has 'water budget' and 'communications' options. The 'water budget' option is selected. Below it, the 'WATER_BUDGET' section has 'water budget' (0 m³) and 'season' (set) fields. Callout boxes point to the 'water budget' menu item, the '0 m³' value, and the 'set' button.

2. Click to select the volume of water

3. Click to display a calendar and select the season start and end dates



NOTE: Water volume budget and irrigation season dates present water consumption progress during the entire irrigation period

Managing Users

This section reviews managing users and includes:

- [Inviting a User](#)
- [Changing User Permissions](#)
- [Defining User Alerts](#)
- [Removing a User](#)

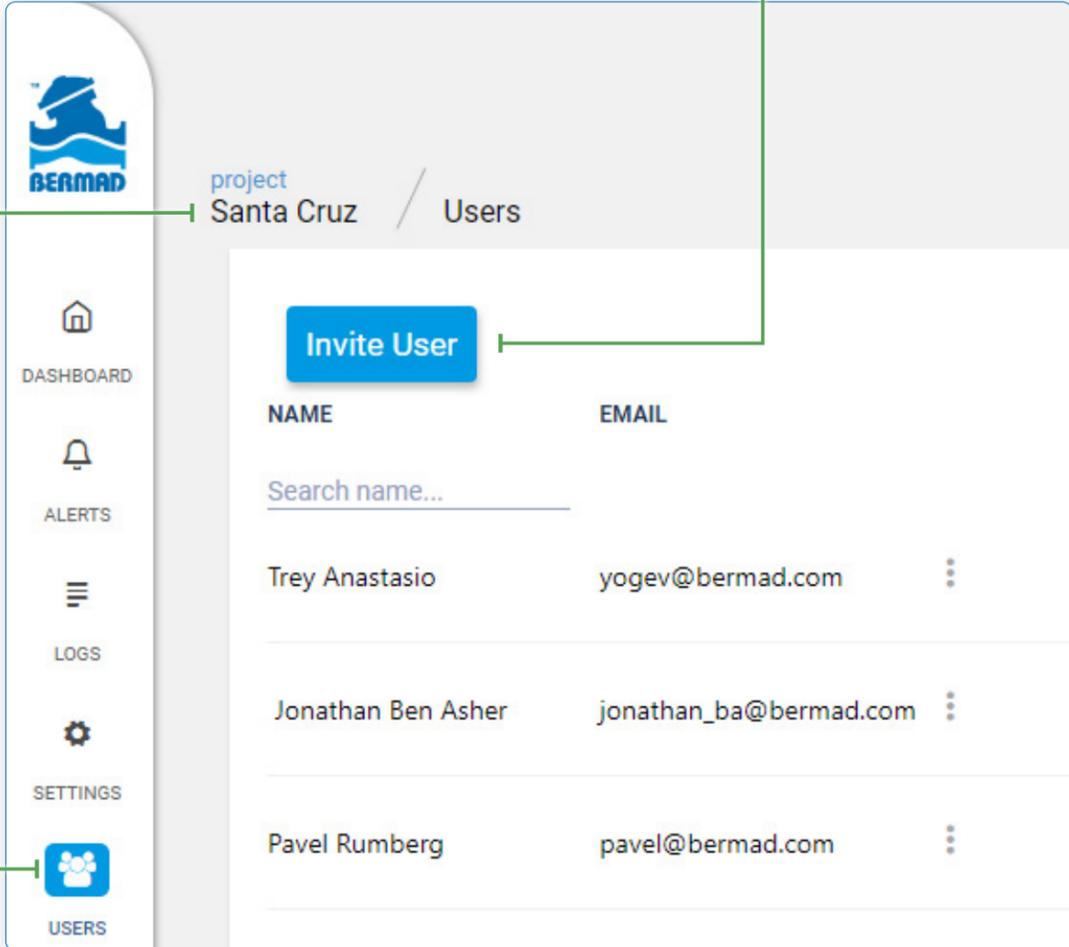
Inviting a User

To invite someone to be part of a project, perform the following steps:

1. Verify that the relevant project is selected

2. Click the **Users** icon

3. Click **Invite User**. A pop-up window opens



NAME	EMAIL
Trey Anastasio	yogev@bermad.com
Jonathan Ben Asher	jonathan_ba@bermad.com
Pavel Rumberg	pavel@bermad.com

4. Type the user's email address and click **Send_Invitation**

E_MAIL

SEND_INVITATION **CANCEL**



NOTE: Only registered users can be invited (see [Registering](#))

Changing User Permissions

To change a user's permissions, perform the following steps:

1. Verify that the relevant project is selected

The screenshot shows the BEAMAD user management interface for 'project Santa Cruz'. The breadcrumb navigation is 'project Santa Cruz / Users'. A sidebar on the left contains navigation icons for DASHBOARD, ALERTS, LOGS, SETTINGS, and USERS. The main content area features an 'Invite User' button and a table of users. The table has columns for 'NAME' and 'EMAIL'. A dropdown menu is open over the first user, 'Trey Anastasio', showing options: 'Change Permissions', 'Alerts', and 'Remove User'. A green arrow points from the 'Change Permissions' option to the next step's callout box.

NAME	EMAIL
Trey Anastasio	yogev@bermad.com
Jonathan Ben Asher	jonathan_...
Pavel Rumberg	pavel@bermad.com

2. Click the **Users** icon

3. Click the three dots and select **Change Permissions**

4. Select the user permissions

The screenshot shows the 'Permissions' configuration page for 'project Santa Cruz'. The breadcrumb navigation is 'project Santa Cruz / Permissions'. The page has a search bar 'Search Permissions...' and a table of permissions. The table has a column for 'All Units' with checkboxes. A green arrow points from the 'Change Permissions' option in the previous screenshot to the 'Permissions' table.

Permissions	All Units
Edit Settings Permission to edit unit settings.	<input checked="" type="checkbox"/>
Create Unit Create and configure new unit.	<input type="checkbox"/>
Delete Unit Delete existing unit.	<input checked="" type="checkbox"/>
Invite User Invite user to project.	<input type="checkbox"/>
Remove User Remove user from project.	<input type="checkbox"/>

Defining User Alerts

To define which alerts a user receives, perform the following steps:

1. Verify that the relevant project is selected

2. Click the **Users** icon

3. Click the three dots and select **Alerts**

The screenshot shows the BEAMAD web interface. The breadcrumb navigation indicates 'project Santa Cruz / Users'. A table lists users with columns for NAME and EMAIL. A dropdown menu is open for the user Pavel Rumberg, showing options: Change, Permissions, Alerts (highlighted), and Remove User. The sidebar contains navigation icons for DASHBOARD, ALERTS, LOGS, and SETTINGS, with the USERS icon highlighted.

NAME	EMAIL
Trey Anastasio	yogev@bermad.com
Jonathan Ben Asher	jonathan_...
Pavel Rumberg	pavel@bermad.com

4. Select the relevant alerts

5. Click **Update**

The screenshot shows the alert configuration panel. A list of alert types is displayed, each with a toggle switch in the 'Status' column. The 'Alerts' option from the previous step is highlighted. An 'Update' button is at the bottom.

Alert Type	Status
general error	On
low battery	On
critical low battery	On
memory card error	Off
no water meter configuration	Off
uncontrolled water	Off
water leak	Off
no water	Off
program did not close	Off
capacitor error	Off
unit did not connect	Off

Removing a User

To remove a user, perform the following steps

1. Verify that the relevant project is selected

2. Click the **Users** icon

3. Click the three dots and select **Remove User**

4. Click **Yes**

Are you sure you want to remove this user from project?

Yes Cancel

NAME	EMAIL
Trey Anastasio	yogev@bermad.com
Jonathan Ben Asher	jonathan_
Pavel Rumberg	pavel@bermad.com

5. MONITORING CONTROLLERS

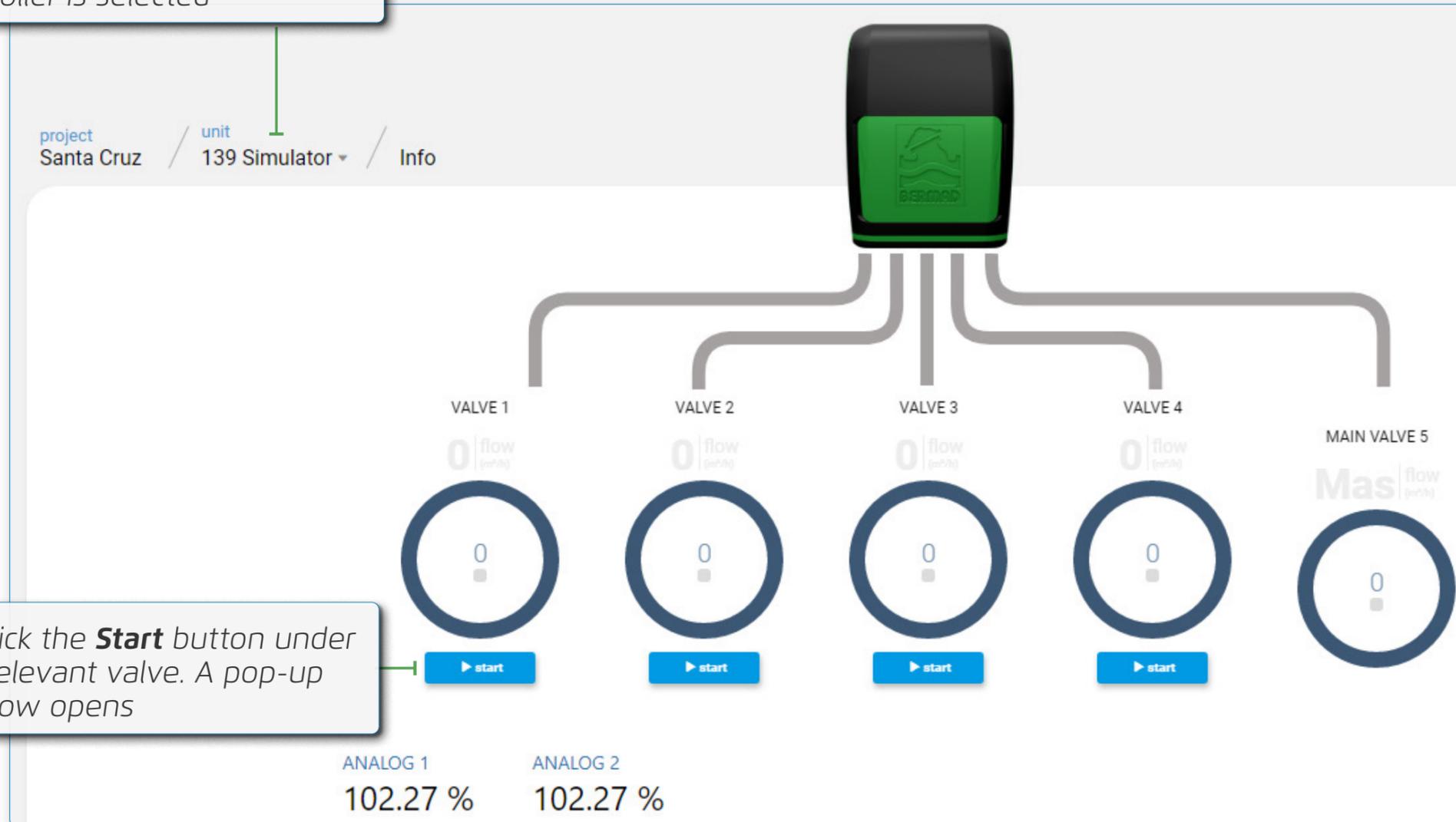
This chapter reviews monitoring operation of the controllers using BERMAD Cloud and includes:

- [Manually Operating Valves](#)
- [Manually Starting a Program](#)
- [Alerts](#)
- [Logs](#)
- [Graphs](#)
- [Irrigation Calendar](#)

Manually Operating Valves

To manually open and close valves, perform the following steps:

1. Verify that the relevant controller is selected



2. Click the **Start** button under the relevant valve. A pop-up window opens

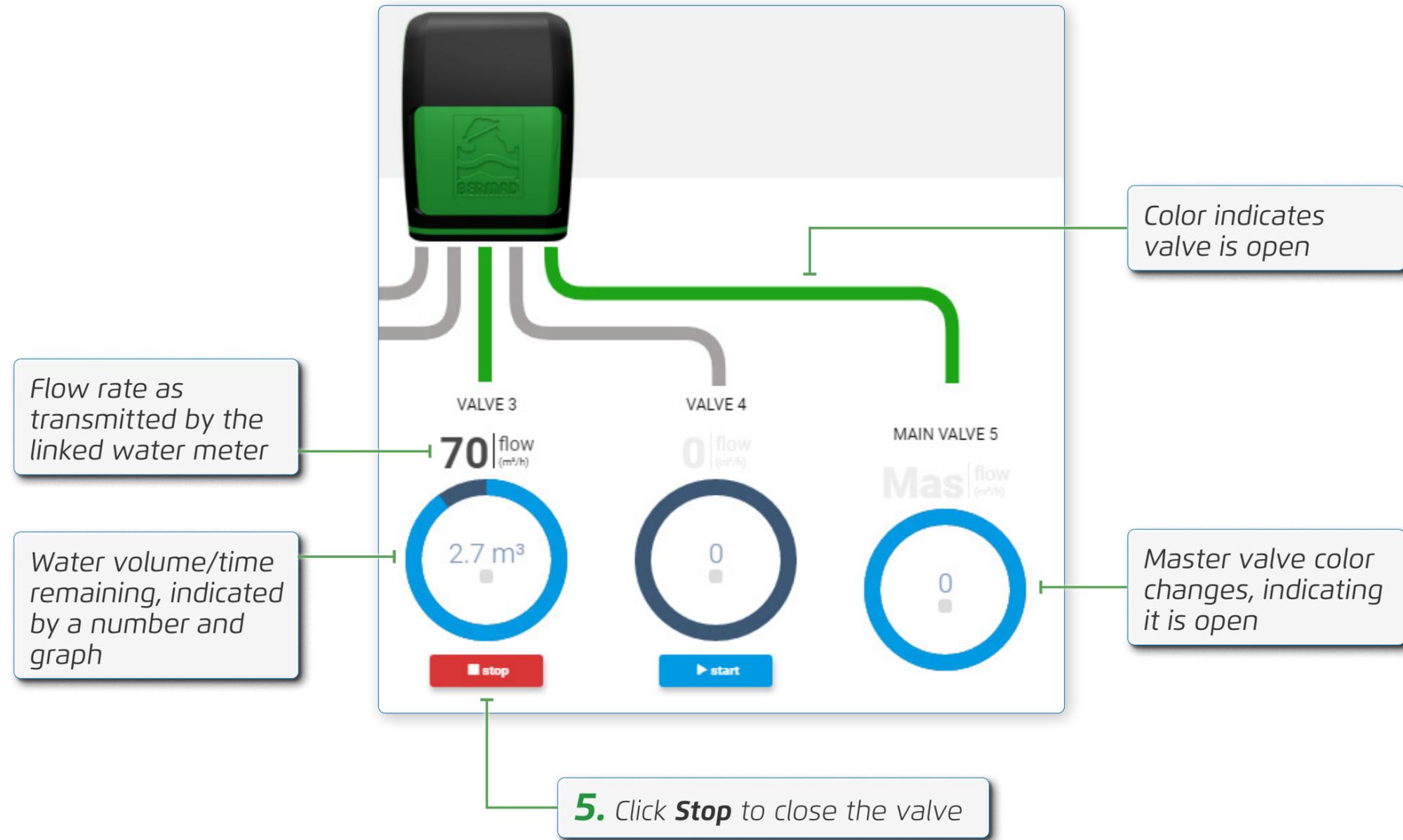
3. Enter the amount of water to be used for irrigation and the corresponding measurement unit

The 'OPEN VALVE' pop-up window is shown. It has an 'Amount' field containing the number '3'. To the right is a 'Type' dropdown menu with 'Cubic Meter (m³)' selected. Below the dropdown, there are two other options: 'Seconds' and 'Cubic Meter (m³)'. At the bottom of the window is a blue 'OPEN VALVE' button.

4. Click **Open Valve**

5. The valve remains open until the amount of water entered is used up

The following information is displayed:



Manually Starting a Program

To manually start a program, perform the following steps:

The screenshot displays the '139 Simulator' interface. At the top left, it shows 'project Santa Cruz' and 'unit 139 Simulator'. The main area features a central valve control panel with five valves: VALVE 1, VALVE 2, VALVE 3, VALVE 4, and MAIN VALVE 5. Each valve has a circular gauge showing '0 flow (m³/h)' and a blue 'start' button. A green notification message 'Action sent successfully' is displayed at the bottom center. On the right side, a sidebar titled '139 Simulator' shows a 'PROGRAMS +' button and a list of programs. Program 'P1' is selected, and a context menu is open, showing options: 'StartProgram', 'Edit', 'Clone Program', 'Delete Program', and 'DISABLED'. Three numbered callouts provide instructions: 1. Open the program menu (pointing to the three-dot menu icon for P1), 2. Click **Start Program** (pointing to the 'StartProgram' option in the menu), and 3. Message is displayed indicating program started (pointing to the 'Action sent successfully' notification).

1. Open the program menu
2. Click **Start Program**
3. Message is displayed indicating program started

Alerts

To view alerts, perform the following steps:

1. Verify that the relevant project is selected

2. Click the **Alerts** icon

3. Click **Filter** to enable filtering the alerts by date and by unit

The screenshot shows the BERMAP System Log interface for project Santa Cruz. The sidebar on the left contains navigation icons for Dashboard, Alerts, Logs, Settings, and Users. The main content area displays a table of alerts with columns for Date, Unit, Event, and Data. A 'Filter' button is located in the top right corner of the table area.

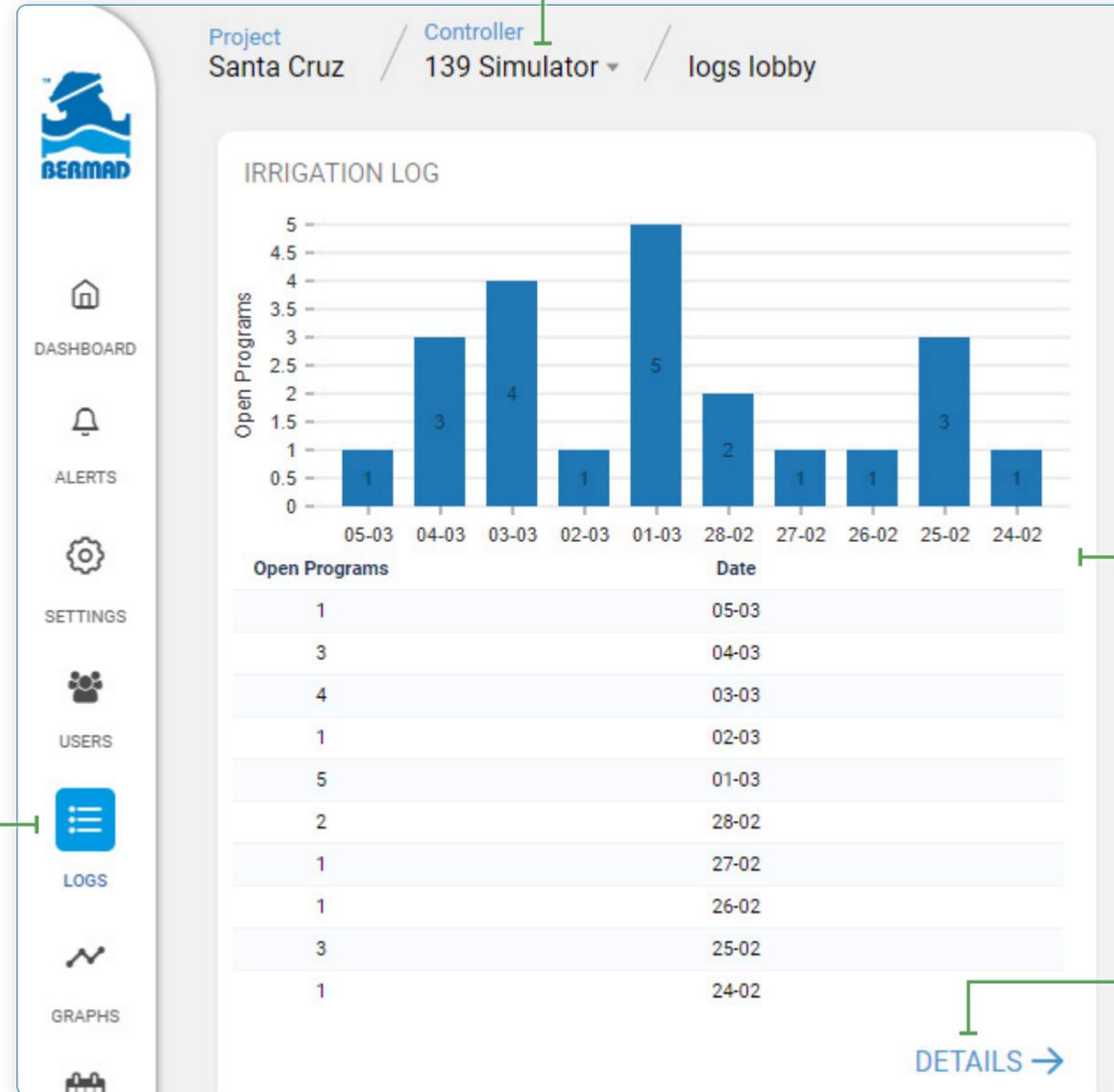
Date	Unit	Event	Data
07/02/2021 19:41	Unit 57	Program Dequeued	
07/02/2021 19:41	Unit 54	Program Enqueue	
07/02/2021 19:39	Unit 54	Program Dequeued	
07/02/2021 19:39	Unit 57	Program Enqueue	
07/02/2021 19:38	Unit 57	Program Dequeued	

Logs

To view a log of irrigation sessions, perform the following steps:

1. Verify that the relevant controller is selected

2. Click the **Logs** icon



The graph and table display how many irrigation sessions occurred on each day, based on the irrigation cycle defined (see [Defining Cycle Type](#))

3. Click **Details** to open a new window with a detailed record of daily irrigation sessions (see [Irrigation Log Daily Details](#))

Irrigation Log Daily Details

The irrigation log's daily details page displays the following information:

The screenshot shows the 'Irrigation Log Daily Details' interface for the date 15/02/2021. The interface includes a date selector, a vertical timeline of irrigation sessions, a list of dates on the right, and a toggle for 'only with errors'. Callouts provide the following information:

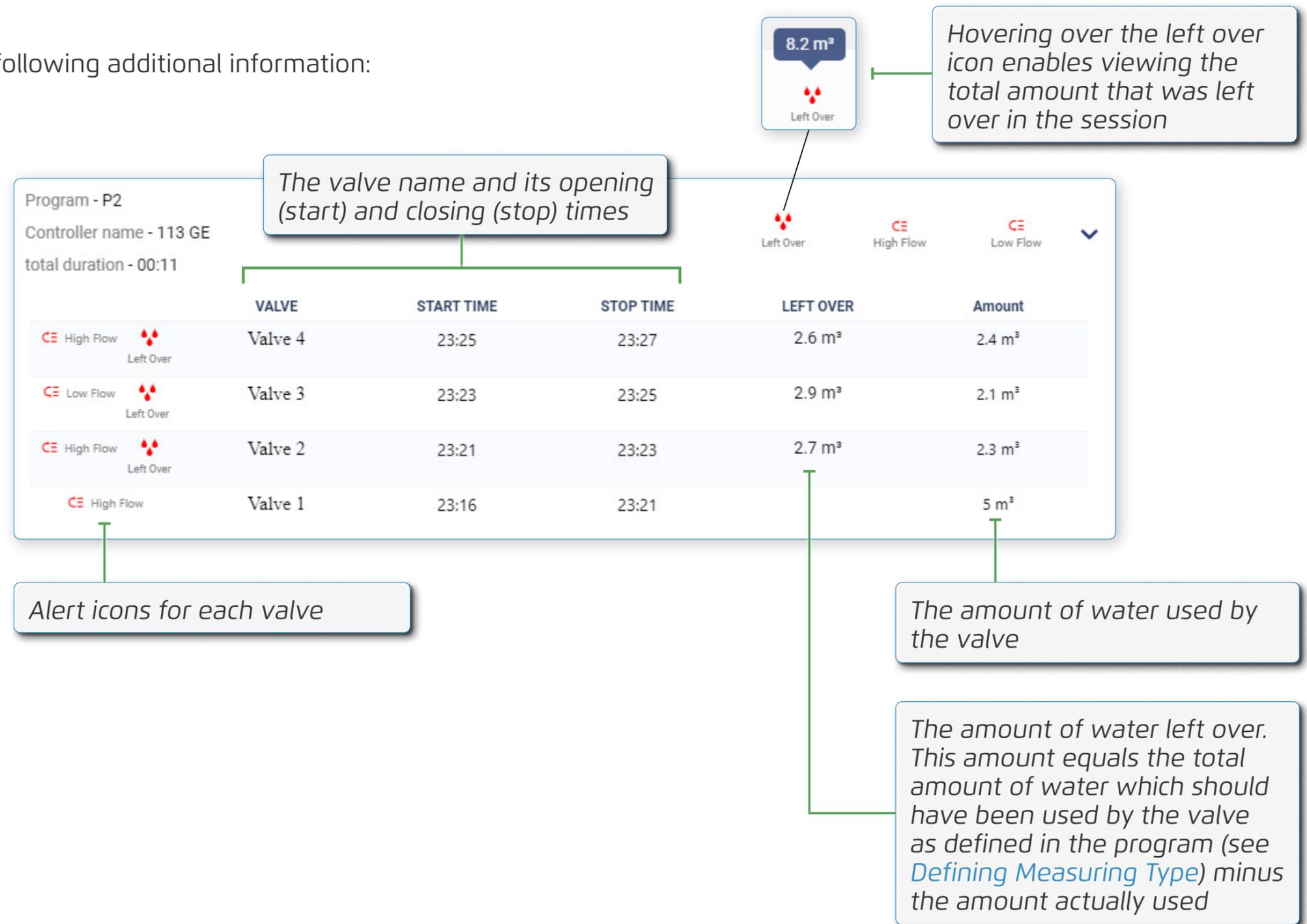
- The selected date:** 15/02/2021
- All times irrigation sessions occurred during the day. A red dot indicates there was an alert during the session:** Sessions are listed at 23:16, 17:23, 17:18, 17:17, and 17:15.
- The program which initiated the irrigation session, the controller name, and the total duration of the session:** Example: Program - P2, Controller name - 113 GE, total duration - 00:11.
- Irrigation session alerts:** Alerts shown include Left Over and High Flow.
- Clicking on ^ displays details about the irrigation session (see Irrigation Session Details):** An upward arrow icon is used to expand session details.
- Option to show only the irrigation sessions with errors:** A toggle switch labeled 'only with errors' is located at the top right.
- List of dates from which to select. The number in parentheses indicates the number of irrigation sessions during that day:** A vertical list on the right shows dates from 03-03 (104) down to 14-02 (88), with 15-02 (67) selected.

Irrigation Session Details

The expanded irrigation session details panel includes the following additional information:

Alerts include:

-  **High flow** – valve flow went higher than the maximum flow value defined in [Valve Settings](#)
-  **Low flow** – valve flow went lower than the minimum flow value defined in [Valve Settings](#)
-  **Left over (volume)** – the valve closed earlier than expected, leading to an amount of water left over from the total volume defined in the program
-  **Left over (time)** – the valve closed earlier than expected, leading to an amount of time left over from the total time defined in the program
-  **Manual** – the valve was opened manually
-  **No pulse** – there was no response from the water meter while the valve was open



The screenshot shows the irrigation session details for Program - P2, Controller name - 113 GE, with a total duration of 00:11. The panel displays a table of valve operations with columns for VALVE, START TIME, STOP TIME, LEFT OVER, and Amount. Callouts provide additional information:

- The valve name and its opening (start) and closing (stop) times**: Points to the VALVE, START TIME, and STOP TIME columns.
- Alert icons for each valve**: Points to the alert icons (High Flow, Low Flow, Left Over) in the first column.
- The amount of water used by the valve**: Points to the Amount column.
- The amount of water left over. This amount equals the total amount of water which should have been used by the valve as defined in the program (see [Defining Measuring Type](#)) minus the amount actually used**: Points to the LEFT OVER column.
- Hovering over the left over icon enables viewing the total amount that was left over in the session**: Points to the 8.2 m³ tooltip shown when hovering over the Left Over icon.

Alert	VALVE	START TIME	STOP TIME	LEFT OVER	Amount
High Flow Left Over	Valve 4	23:25	23:27	2.6 m ³	2.4 m ³
Low Flow Left Over	Valve 3	23:23	23:25	2.9 m ³	2.1 m ³
High Flow Left Over	Valve 2	23:21	23:23	2.7 m ³	2.3 m ³
High Flow	Valve 1	23:16	23:21		5 m ³

Graphs

TBD

Irrigation Calendar

TBD

6. SPECIFICATIONS

Power source

- Battery: four LR14 (C-size) alkaline batteries (up to 5 years operation in offline mode)
- External: 9-24 VDC power input (online mode operation - solar panel, grid power, etc.)

Data logging – more than 150,000 records

Firmware upgrades – periodic "firmware over the air" (FOTA) upgrades

Environment – IP65 rated with UV protection

Standards compliance – FCC and CE

Operating temperature – -35°C to 75°C

Connectors – push type without need for special tools

Packaging



No. of units: 1

Length (cm): 21

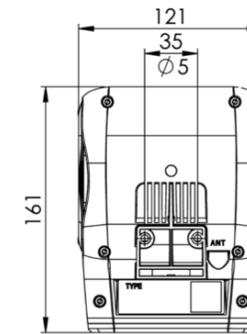
Width (cm): 25

Height (cm): 8

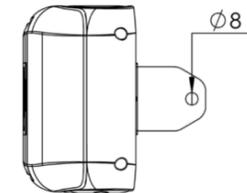
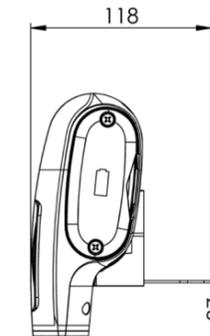
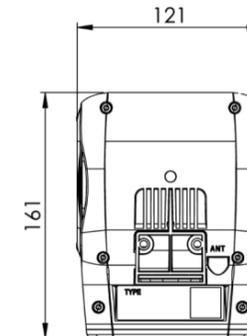
Gross weight (kg): 1.325

Dimensions

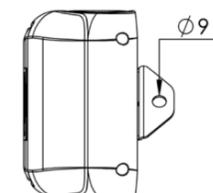
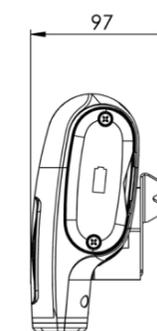
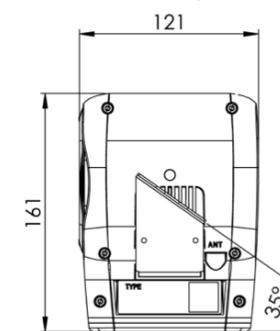
Wall mounted



With globe valve adaptor



With oblique valve adaptor*



7. WARRANTY

TBD

8. COPYRIGHTS AND DISCLAIMERS

TBD

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