Irrigation

OMEGA

Installation and Operation Guide

BERMAD

TABLE OF CONTENTS

1. SAFETY

This chapter reviews the Omega safety concerns and includes:

- Safety Conventions
- Safety Instructions
- FCC Notice
- Declaration of Conformity
- Omega Controller Nameplate

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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.

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.

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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.

> ⚠️ **WARNING:** Contact with electrical connections can cause electric shock if the power supply is turned on.

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 offline mode operation.
- 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.

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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.
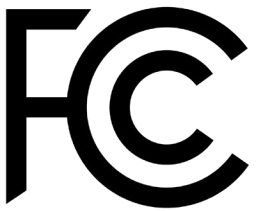
Declaration of Conformity

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:

Model type
(Omega S, Omega RS, Omega L)

Manufacture date

Serial number

QR code (contains serial number, link to BERMAD cloud, and encrypted controller activation code)

Activation code

Power source data

Model: Omega RS   July - 20
S/N: OMXXXXXXXXXXXXXX
Activation Code: XXXX

4 x C Size Alkaline Batteries
9-24VDC/1A External Power Source
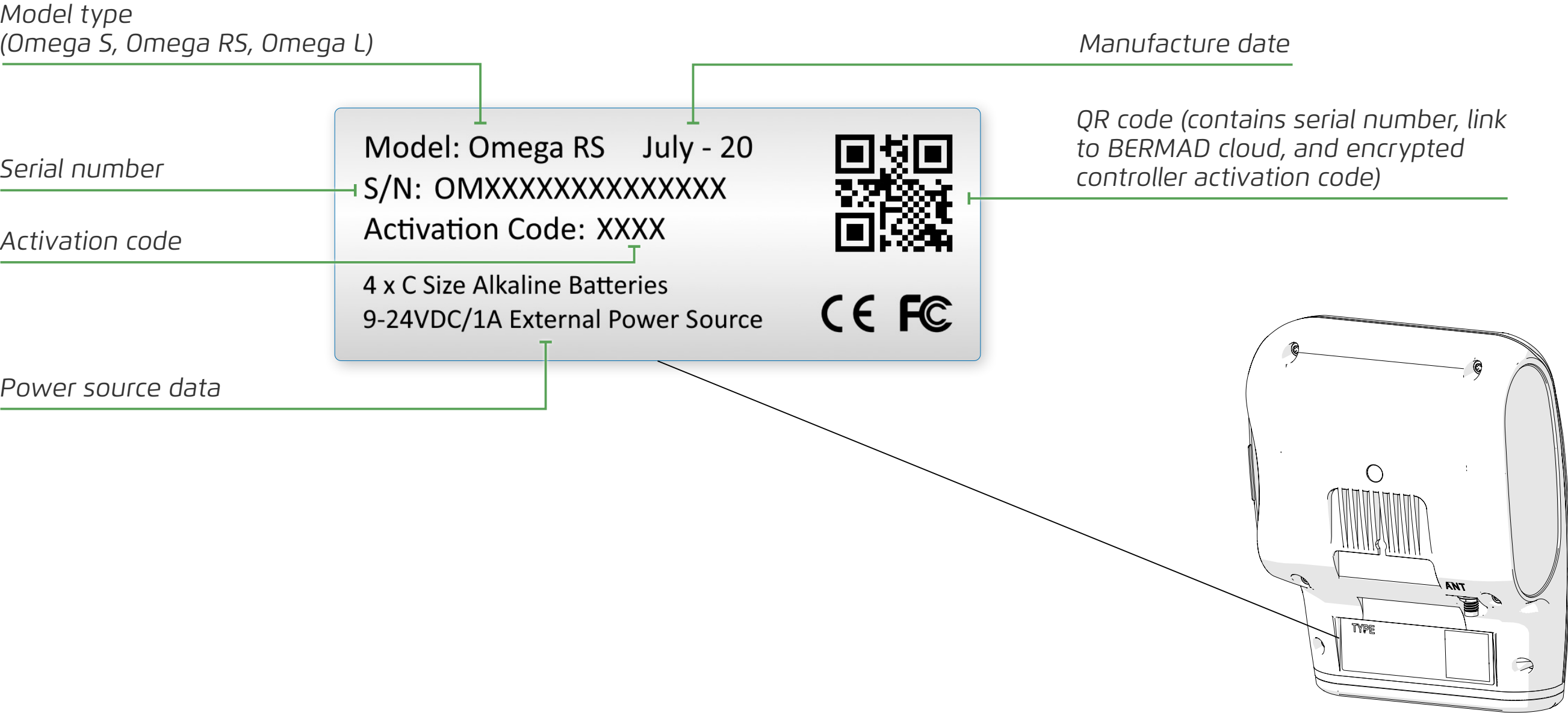
2. INTRODUCTION

This chapter reviews the Omega controller and includes:

- Overview
- Typical Connection Layout
- Omega Controller
- Cloud Management System
- Fertigation Overview

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

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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

- Volumetric and time-based irrigation.
- High/low flow monitoring (when used with a water meter).
- Leak detection.
- Four different models: 4-13 outputs, 4/8 digital inputs and 2 analog inputs.
- Comprehensive log registry allows for long periods of offline operation.
- Realtime operation powered by an external power source.
- Energy save mode operation (designed for conserving energy) powered by internal batteries.
- 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.
- Technician mode debugging via BLE.

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
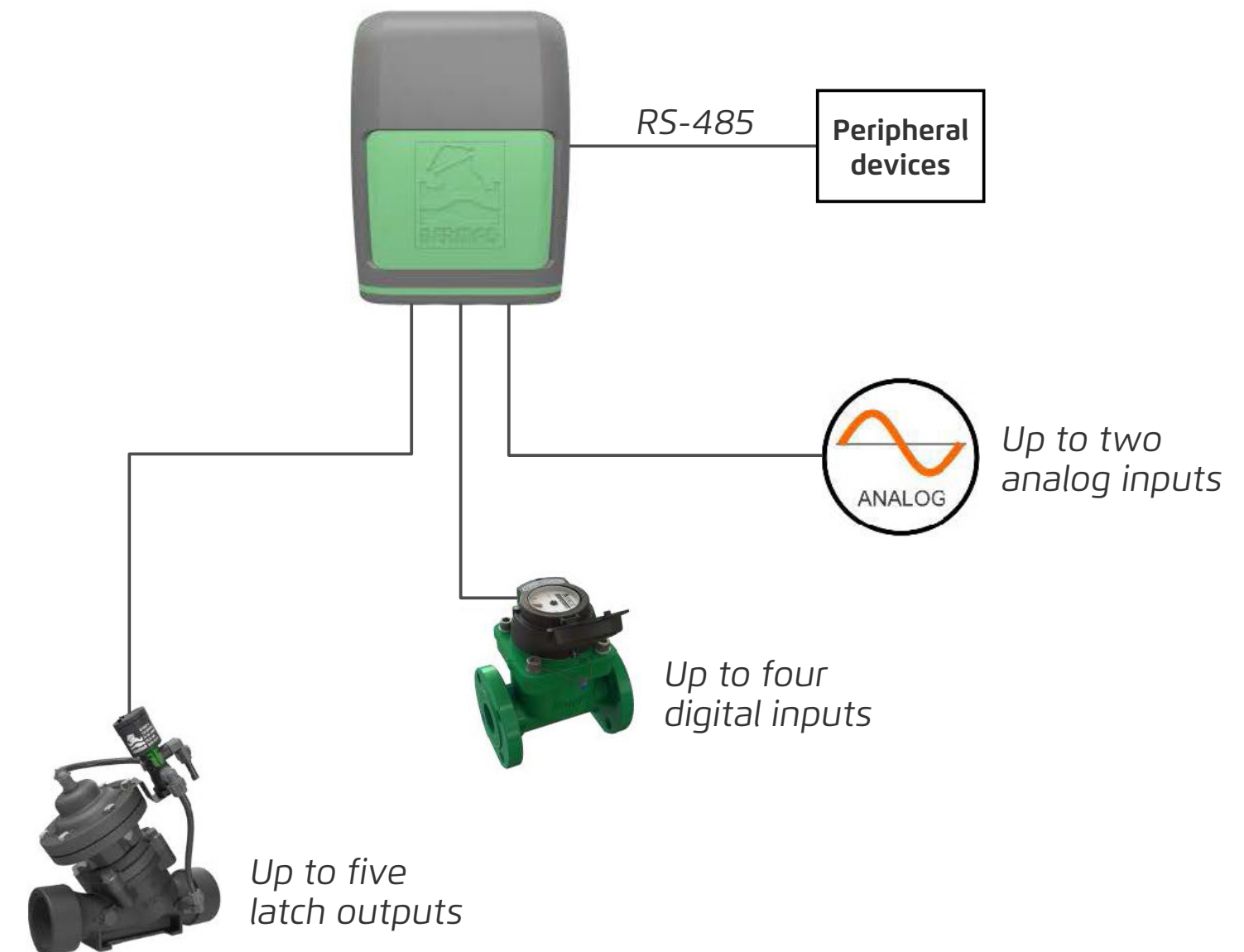 - Dry contact and open collector digital sensors

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

- Analog input connection terminals:
  - Analog sensors

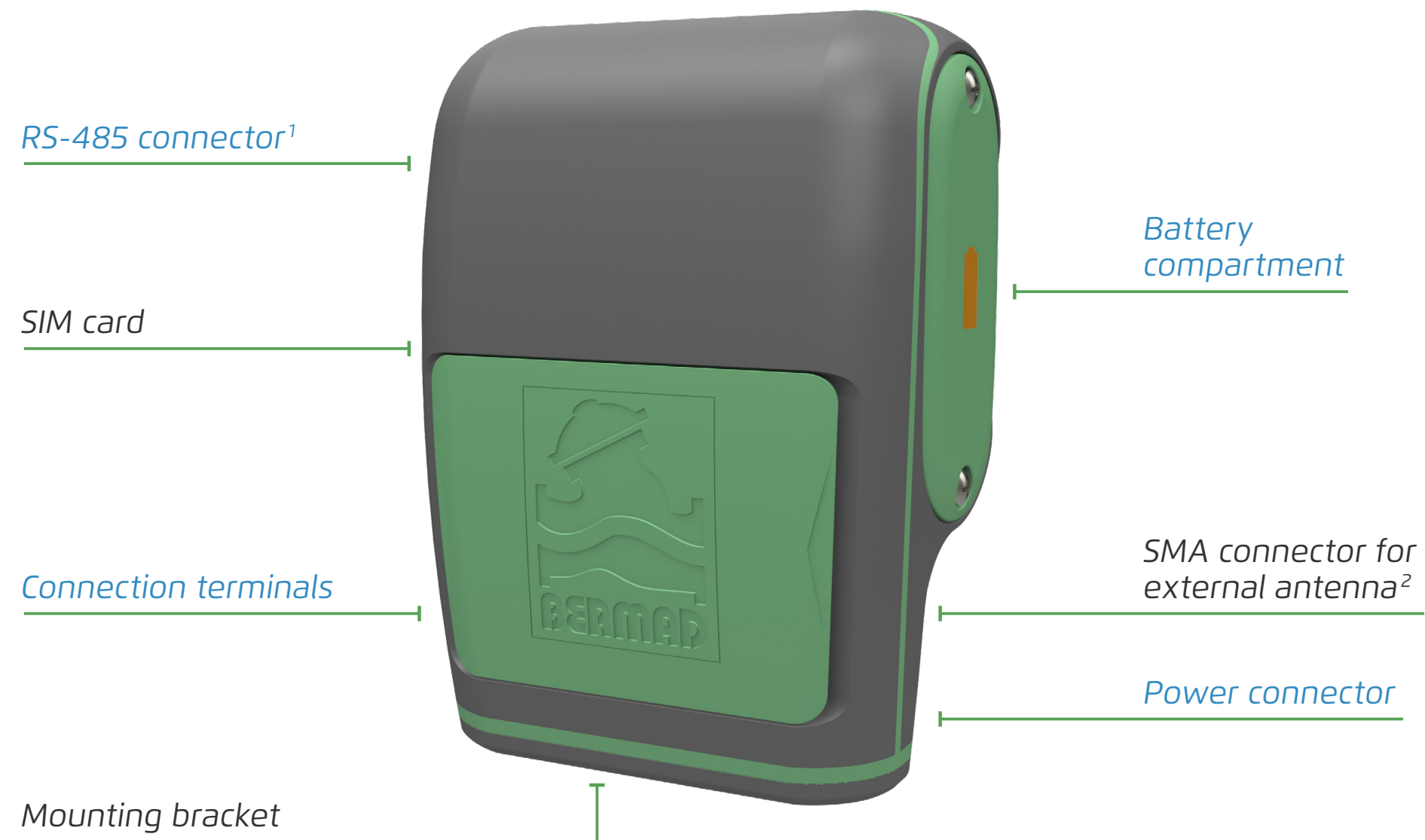> **NOTE:** Omega Modbus protocols are written specifically for RS-485 communication with peripheral device solutions offered by BERMAD.

RS-485 — Peripheral devices

Up to two analog inputs

Up to four digital inputs

Up to five latch outputs

Omega Controller

The Omega controller includes the following:

RS-485 connector[1]

Battery compartment

SIM card

Connection terminals

SMA connector for external antenna[2]

Power connector

Mounting bracket

[1] Available in Omega RS 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

Secure Internet

NB-IoT
CAT-M
GPRS

Cellular

Smartphone application

Management software
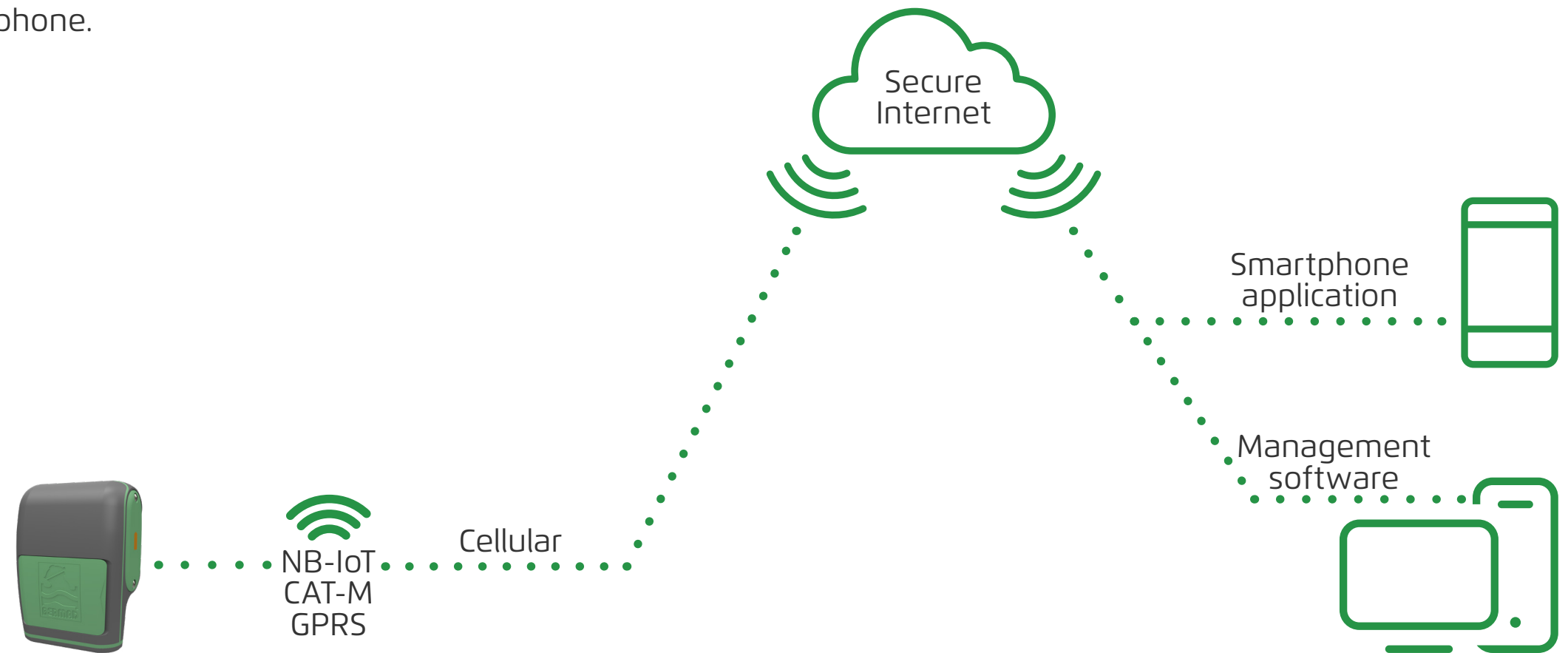
3. INSTALLATION

This chapter reviews Omega installation and includes:

- Mounting Omega
- Powering Omega
- Connecting Peripherals
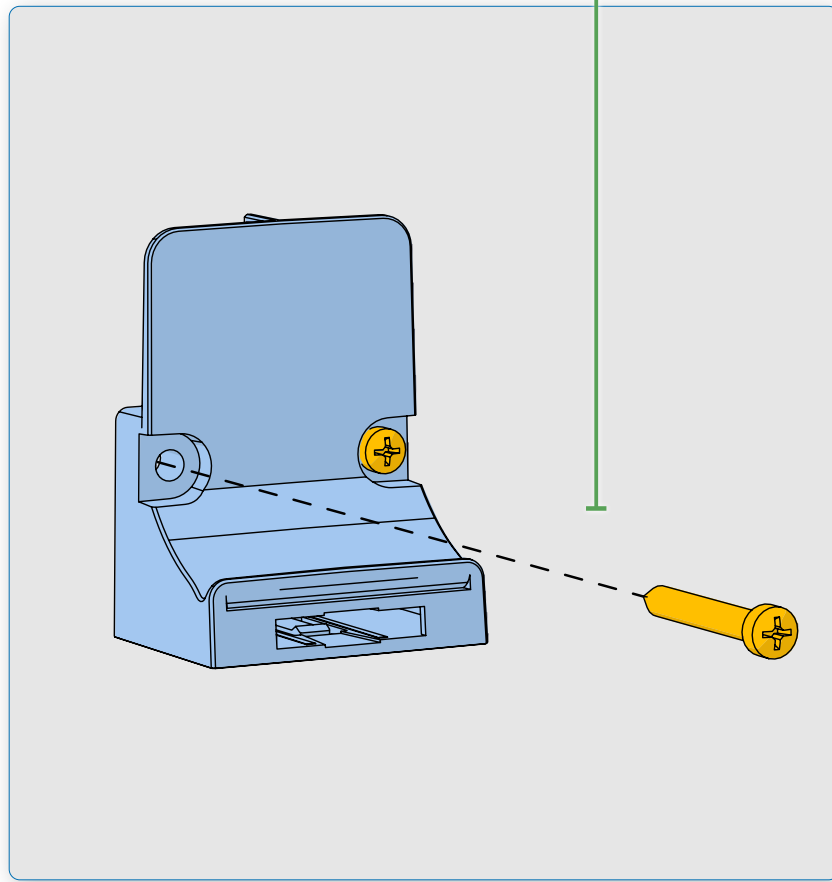- Communicating with Omega
- Omega M and Omega L Controllers

Mounting Omega

This section reviews mounting the Omega controller and includes:
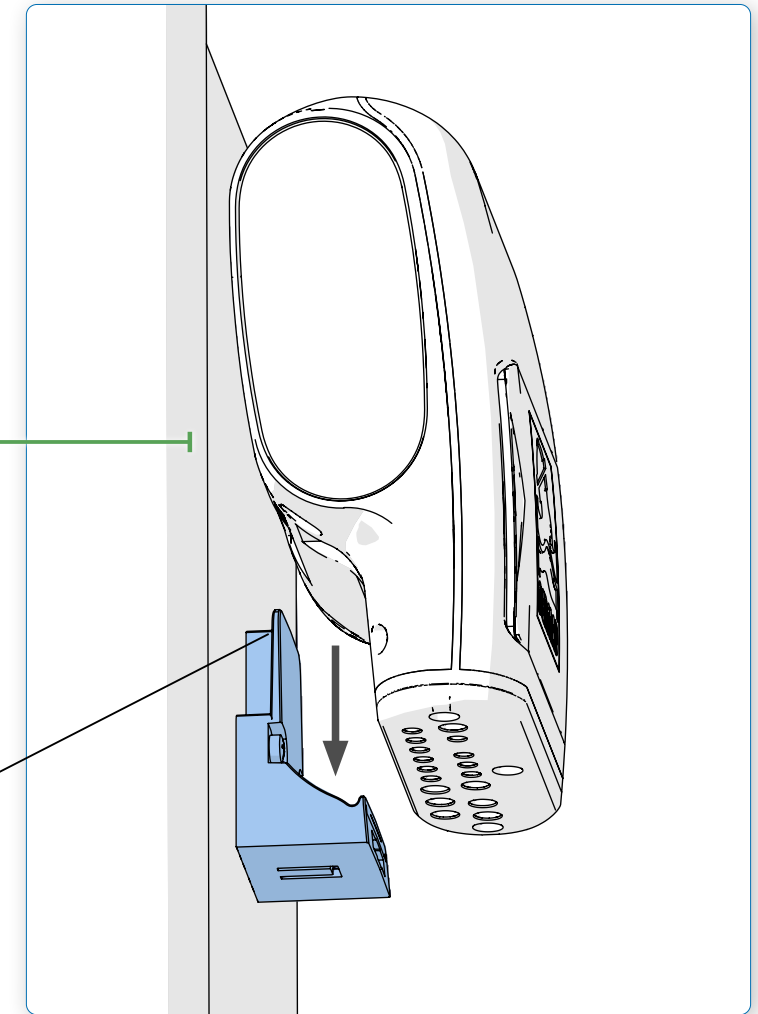
- Wall Mounting

- Valve Mounting

- Pole Mounting

Wall Mounting

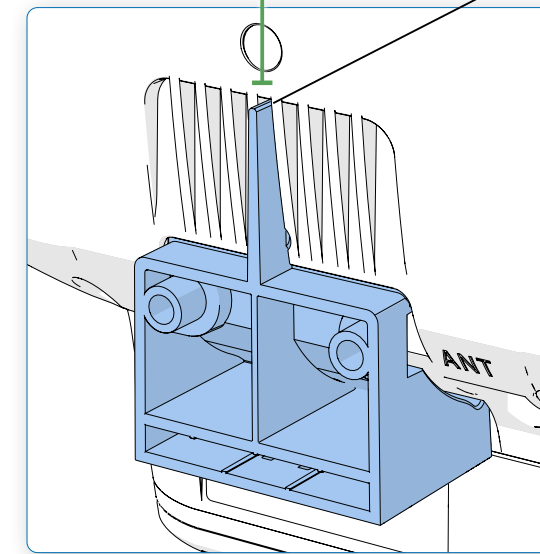Perform the following steps to mount the Omega controller to a wall:

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

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OMEGA

Valve Mounting

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

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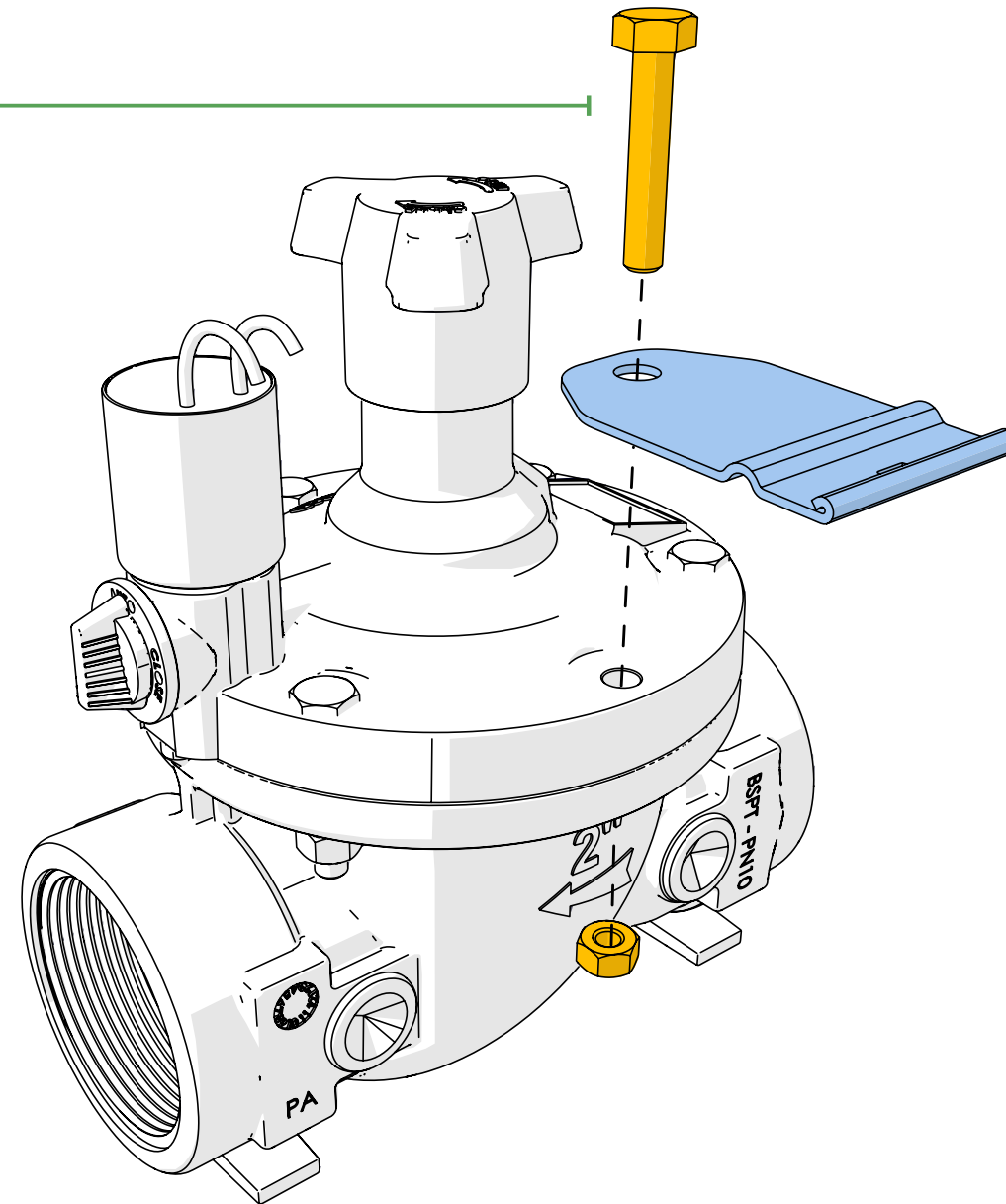
2. Attach the bracket adapter plate to the valve using the bolt and nut which were removed

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.

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5. *Position the mounting bracket onto the bracket adapter plate*

3. *Insert the mounting bracket into the Omega controller*

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

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

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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 1½" (DN40) pole diameters (BERMAD item #3009600001_U-KIT).

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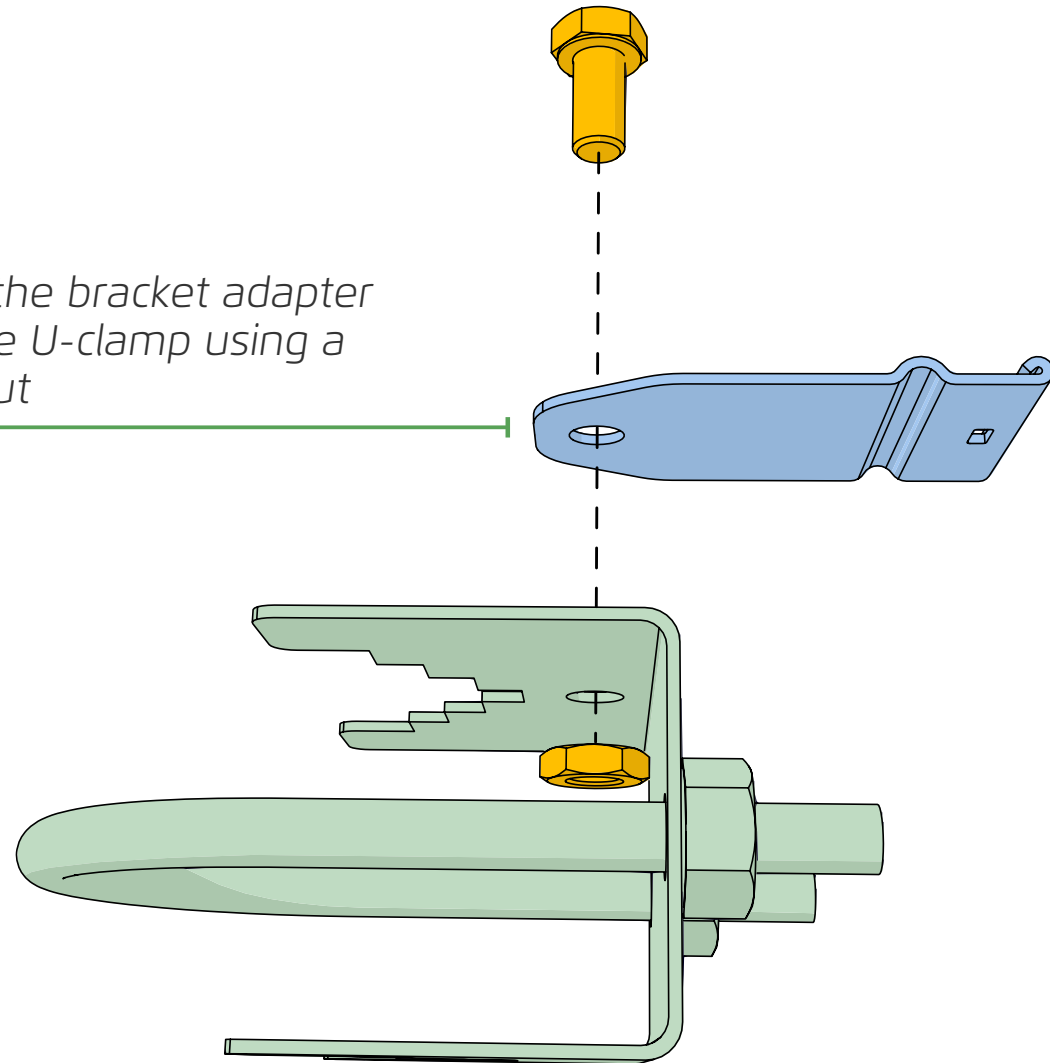
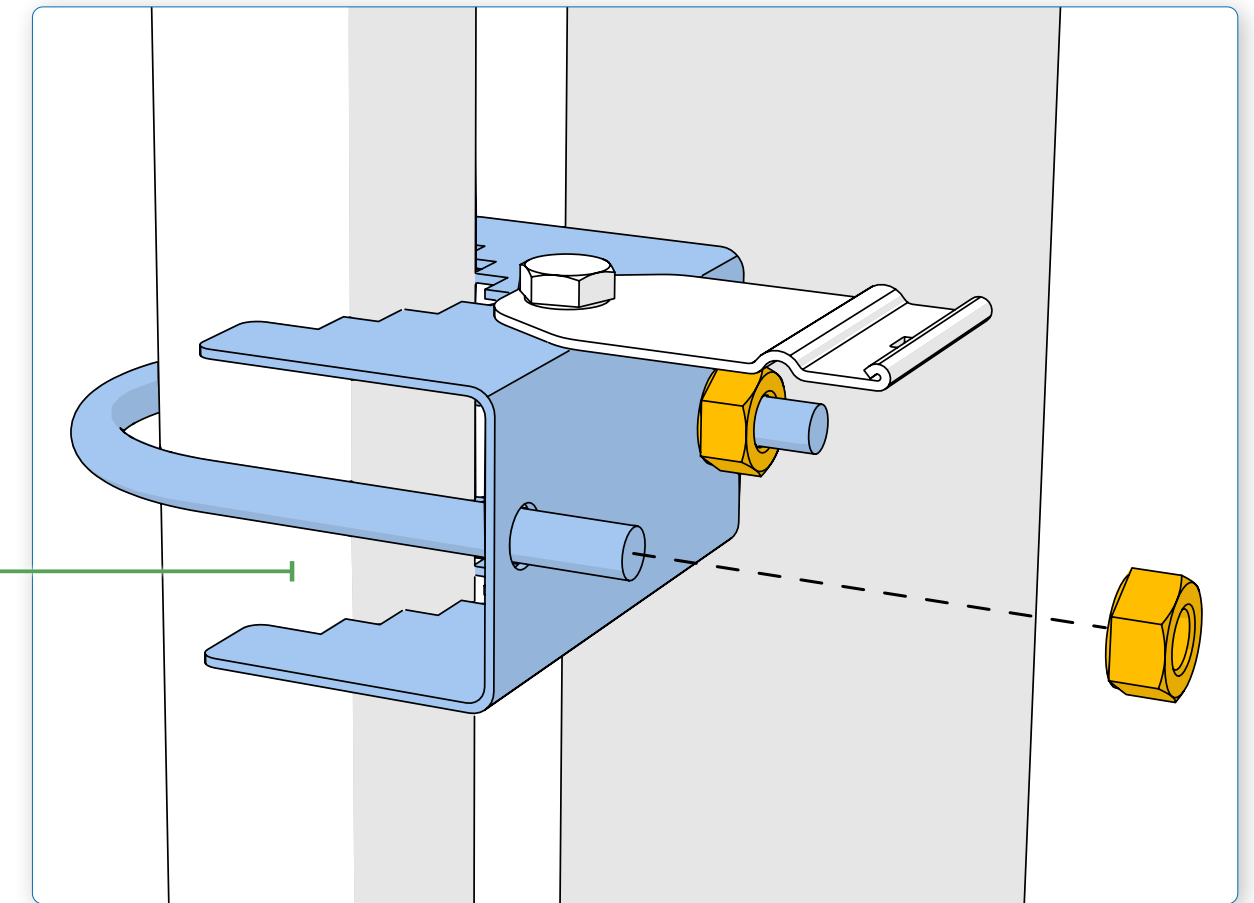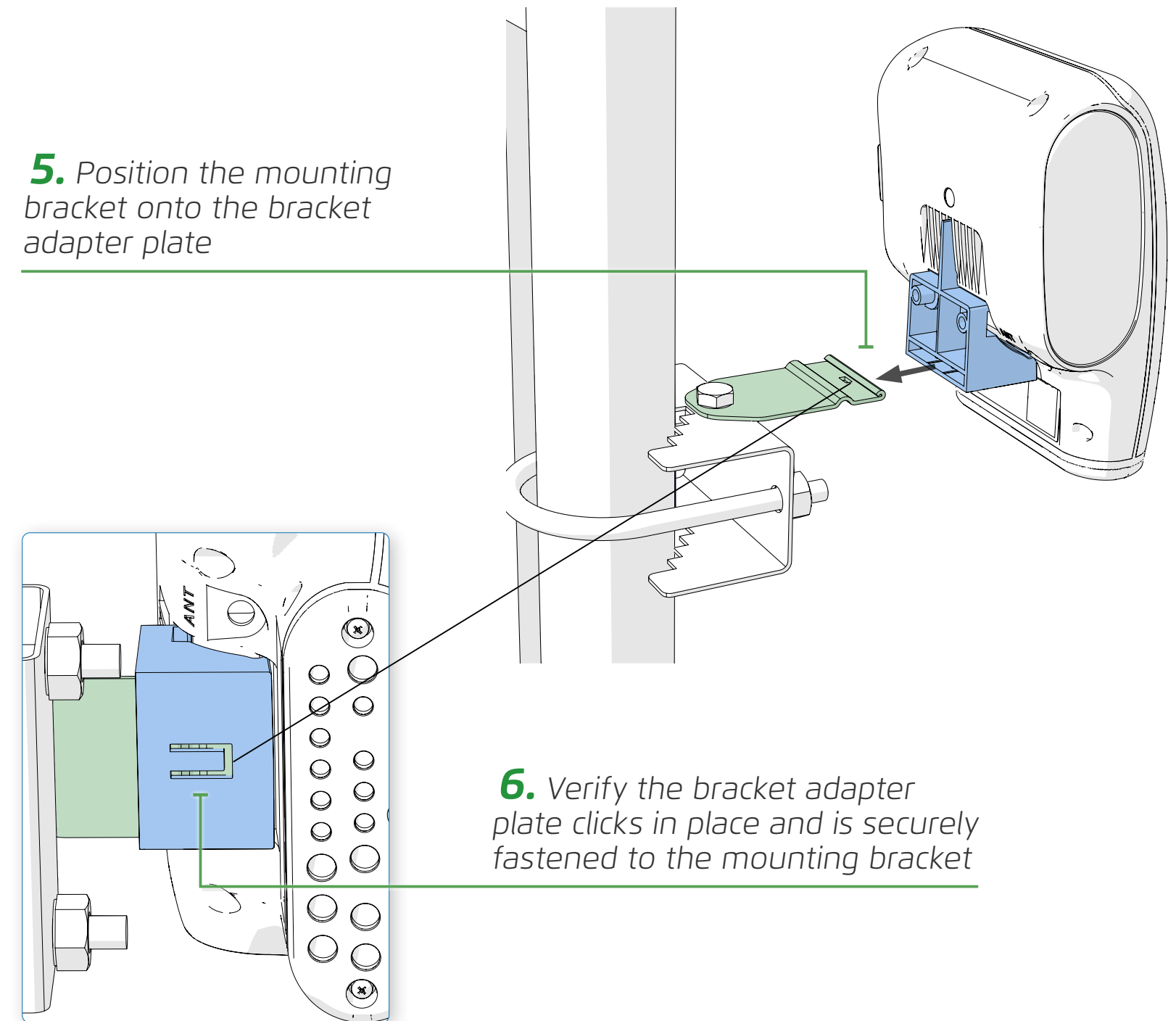**6.** *Verify the bracket adapter plate clicks in place and is securely fastened to the mounting bracket*

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
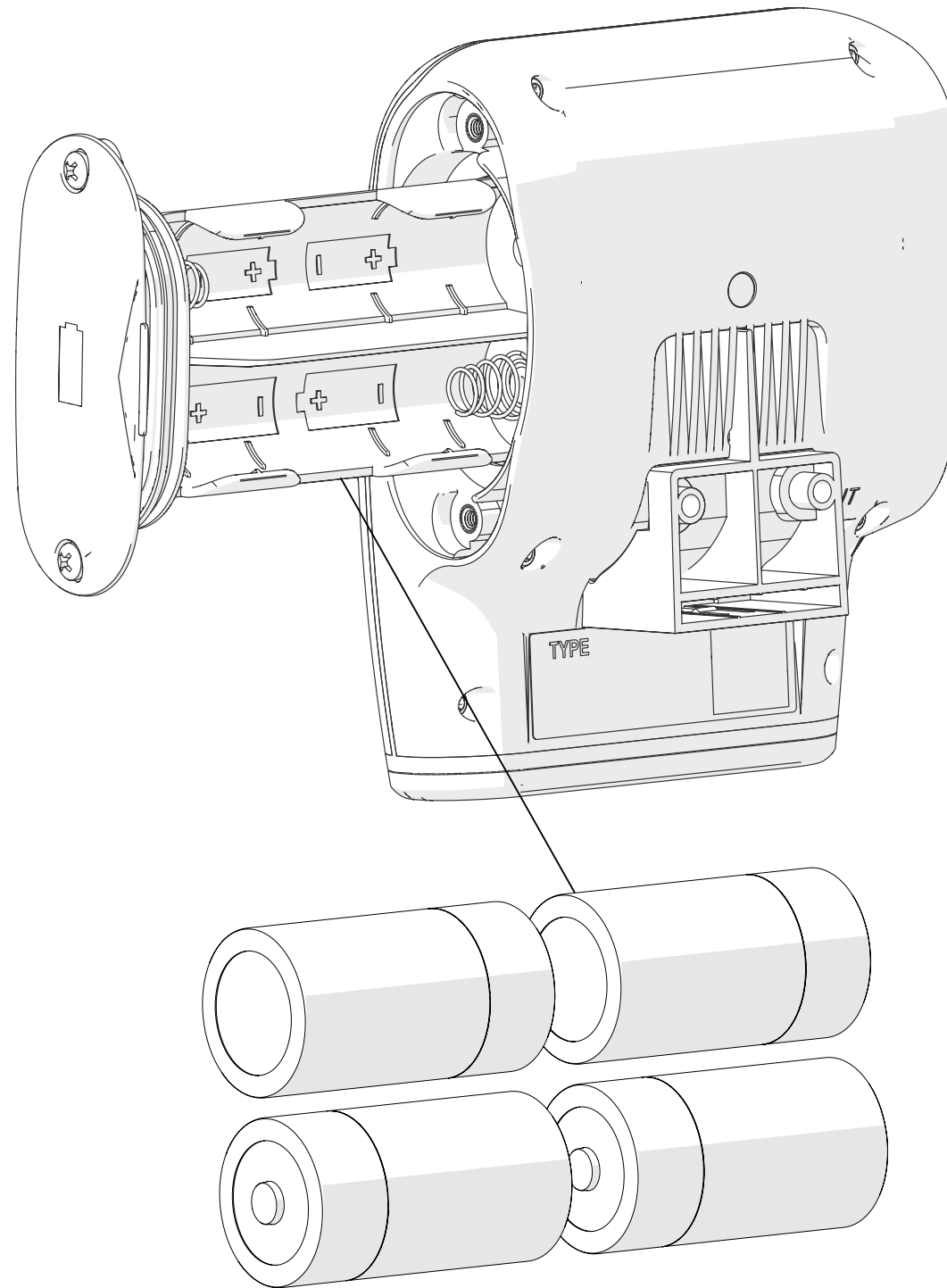
Tips:
- For best performance in outdoor installation, use batteries with an operating temperature range of -18° to 55° C or greater.
- Check batteries periodically, and replace them before irrigation season starts

NOTE: Internal batteries are intended for offline mode operation (see Communication – Energy Save Mode), which is designed to save energy. Battery lifespan will vary based on settings and working conditions.

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

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External Power Source

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

Verify the power supply provides 9-16 VDC/1 A

Verify the external power source polarity matches the polarity marked on the connector board

1┤C   2┤C   3┤C   1 2   3 4   G 1   +
+ -   4┤C   5┤C   C C   C C   G 2   +
DC9-16V   OUTPUT   INPUT   ANALOG
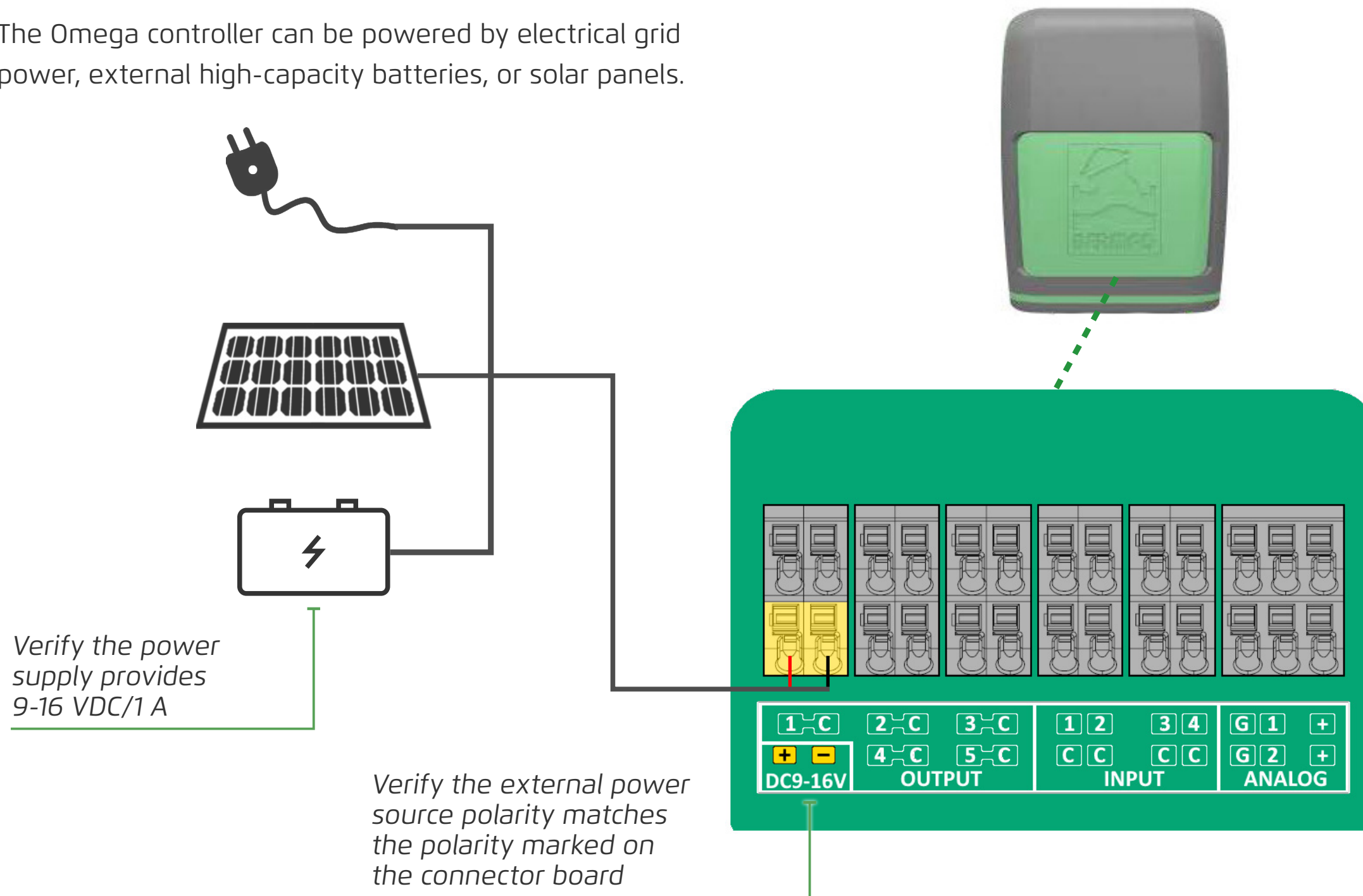
NOTE: An external power supply is necessary if operating the Omega controller in online mode for an extended amount of time.

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 100 ms pulses

Pump

Latch relay

Latch solenoid valve

1   **2**   **3**

4   **5**

1─C	2─C	3─C	1 2	3 4	G 1	+
+ ─	4─C	5─C	C C	C C	G 2	+
DC9-16V	OUTPUT		INPUT		ANALOG	
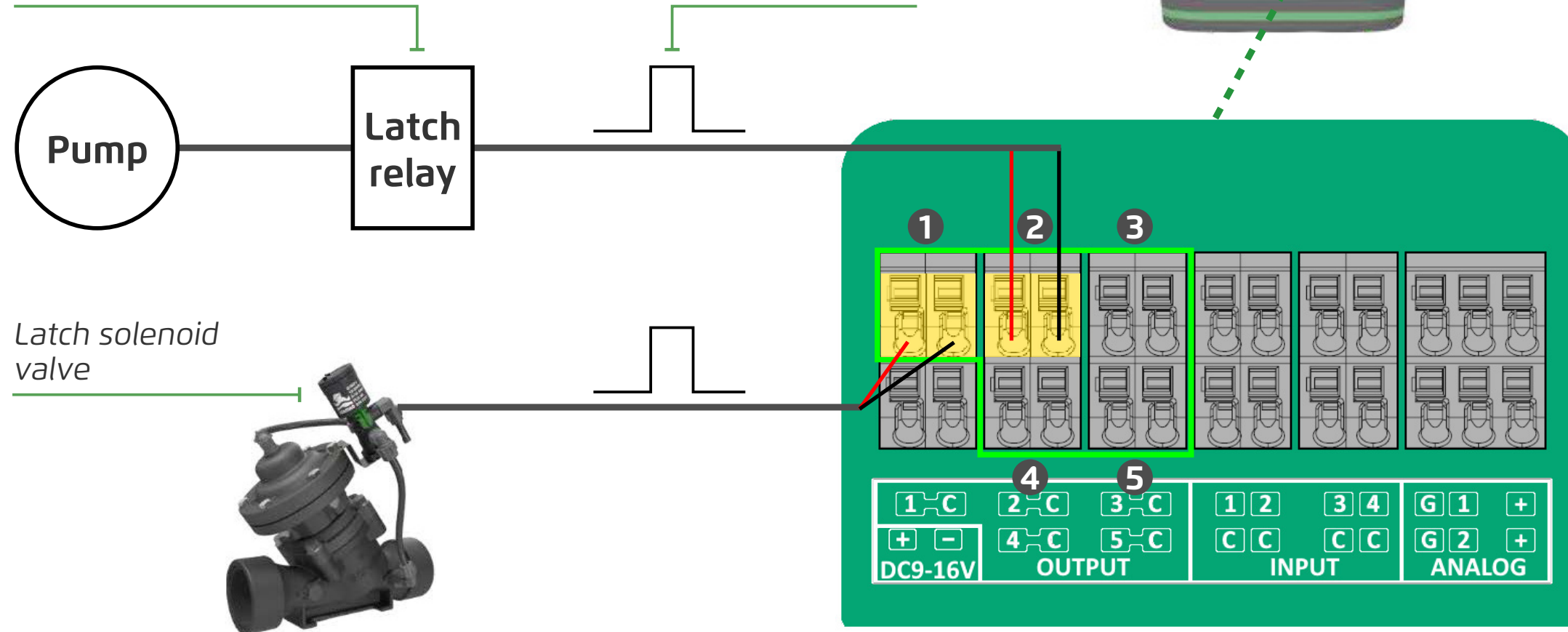
NOTE: The Omega RS model features up to four latch outputs and one RS-485 Modbus.

Digital Input Connections

Up to four devices (such as water meters and digital sensors) can be connected to the Omega controller digital inputs.
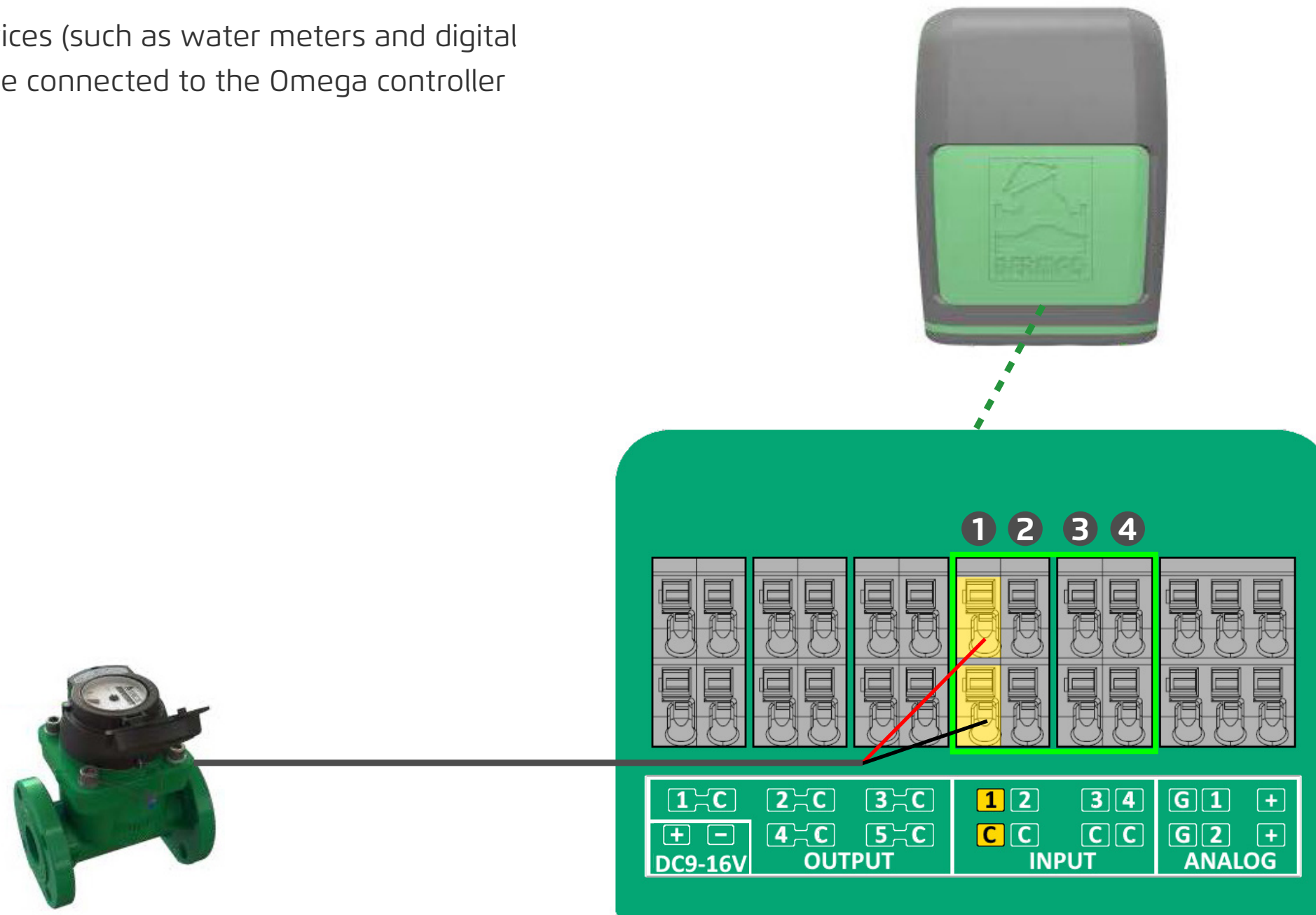
NOTE: Digital inputs can be connected to devices with one of the following outputs:
- Dry contact
- Open collector

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

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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)
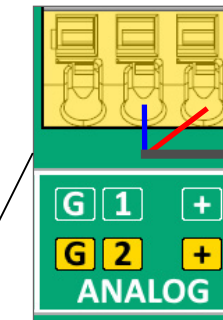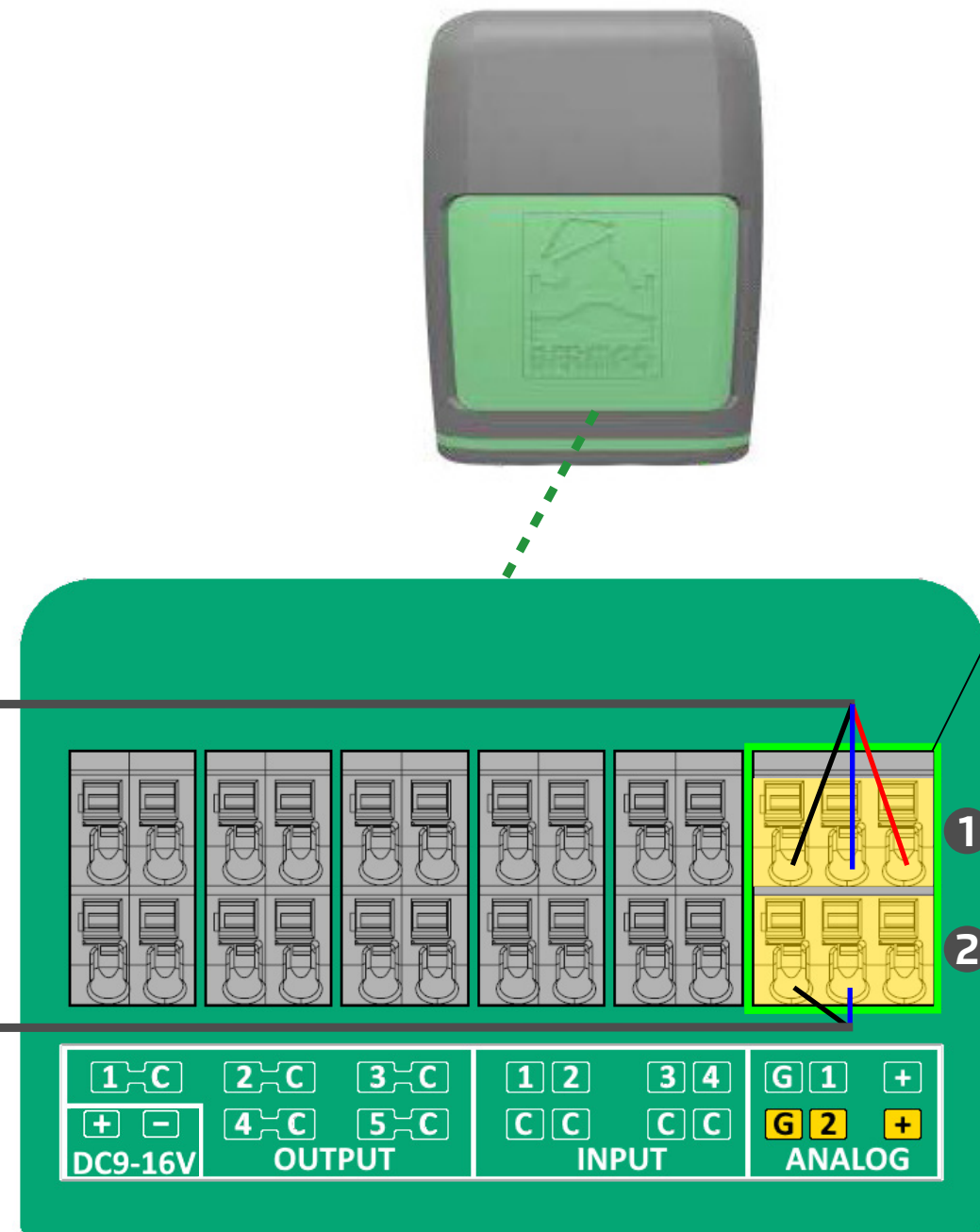
Two-wire passive analog sensor

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 BERMAD Cloud

Communication via RS-485 Cable

Additional peripheral equipment can be connected to the Omega controller via the RS-485 communication protocol.

RS models only

Peripheral devices

RS-485

P N G

1–C	2–C	3–C	1	2		3	4	G	1	+
+	–	4–C	5–C	C	C		C	C	G	2	+
DC9-16V	OUTPUT		INPUT					ANALOG		
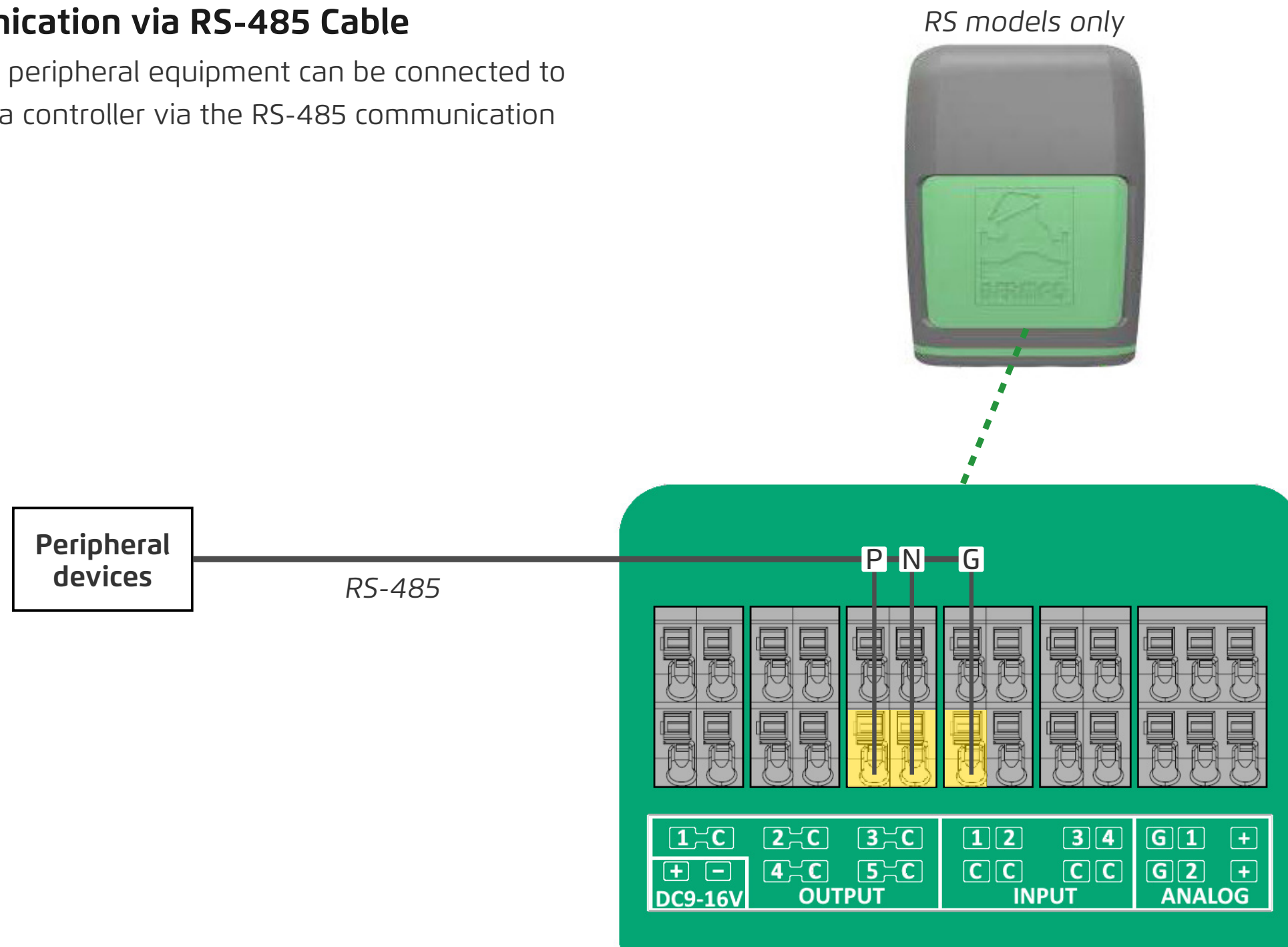
NOTE: Ground (G) is optional and is connected only when needed.

NOTE: Omega Modbus protocols are written specifically for RS-485 communication with peripheral device solutions offered by BERMAD.

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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*

Omega M and Omega L Controllers

This section reviews the Omega M and Omega L controllers and includes:

- Output, Input, and Analog Connections
- Power and Communication Connections

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Output, Input, and Analog Connections

The Omega M and Omega L controllers include the following options for connecting to peripheral devices:

Omega M model
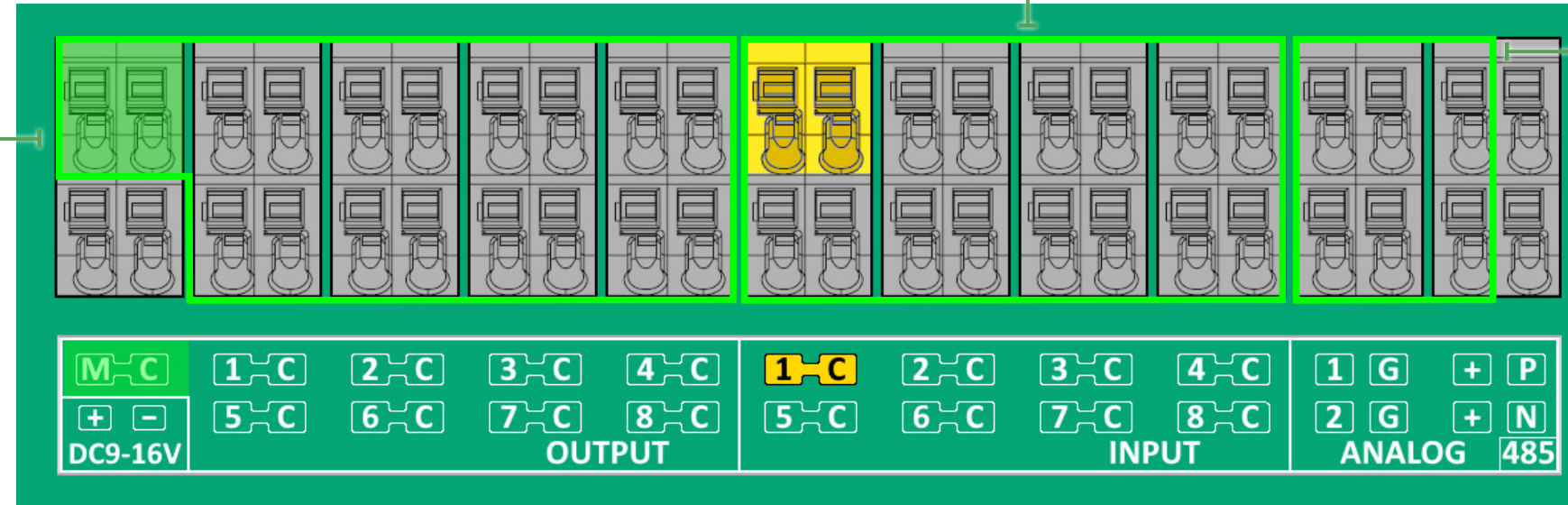
Up to eight digital input devices

Up to two analog input devices

Up to nine output devices

Up to thirteen output devices

Omega L model
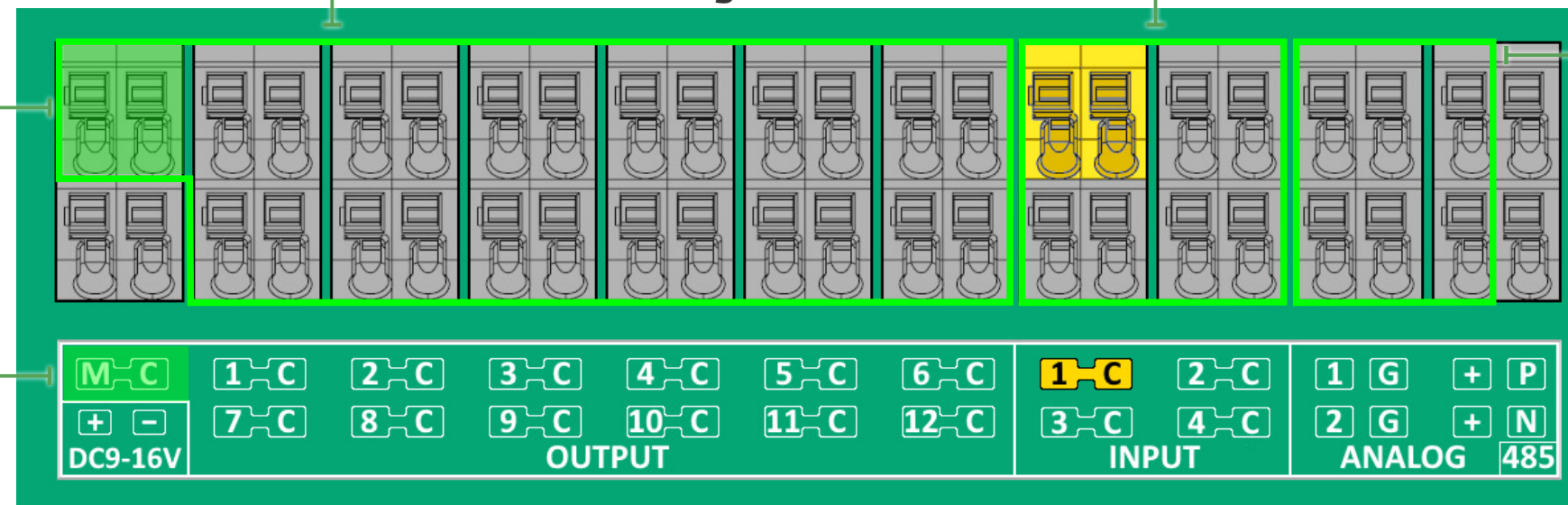
Up to four digital input devices

Up to two analog input devices

NOTE: M-C is the default connection for a master valve. If there is no master valve, an additional valve can be connected here.

NOTE: For more information on output, input, and analog connections, see Connecting Peripherals.

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Power and Communication Connections

Omega M and Omega L controllers are connected to an external power source and an RS-485 communication cable in the following locations:

Omega M model

External Power Source

Communication via RS-485 Cable

Omega L model

NOTE: Ground (G) is optional and is connected only when needed.
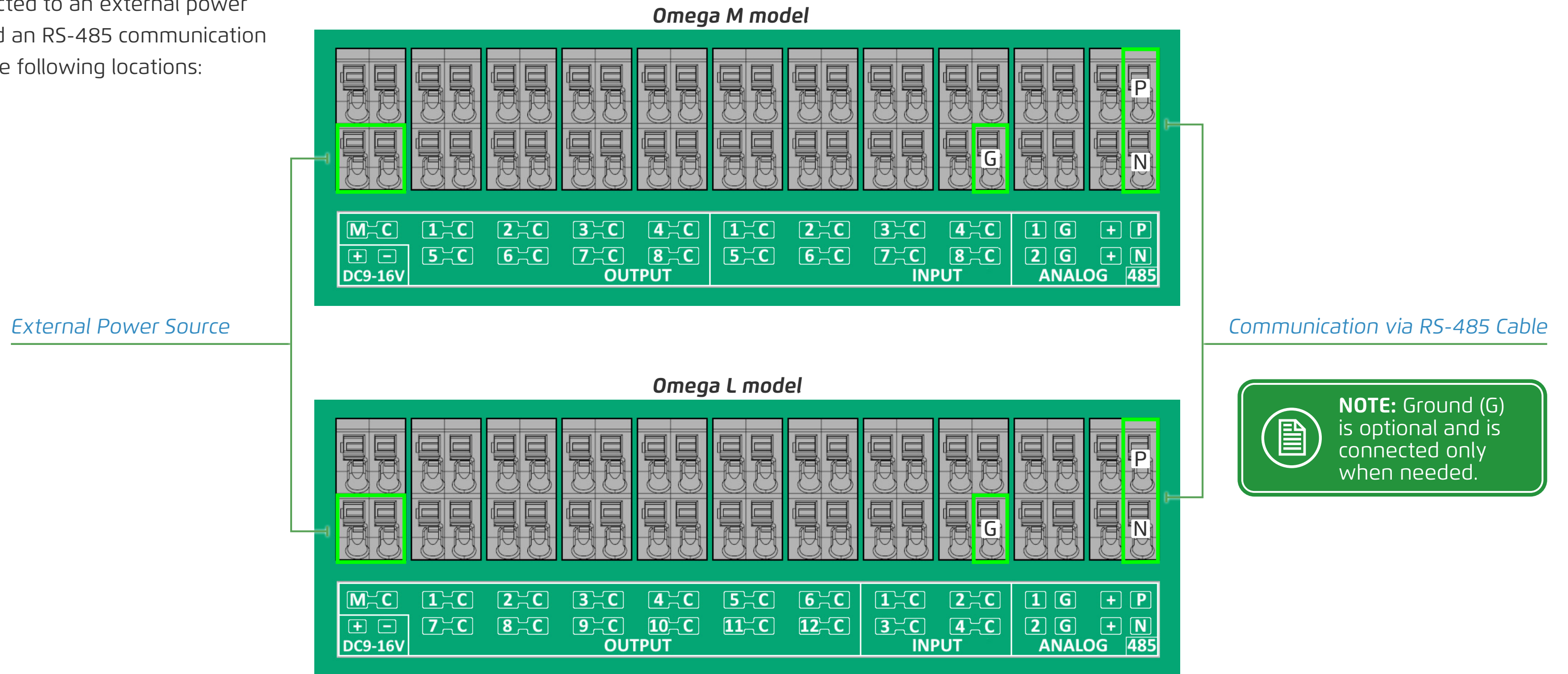
4. CONFIGURING CONTROLLERS

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

- Downloading BERMAD Cloud App

- Registering

- Logging In

- Site Dashboard Overview

- Managing Sites and Controllers

- Basic Device Settings

- Managing Programs

New Users:
Before being able to use the Omega controller, a BERMAD Cloud user account must be created. This can be done either through the application or through the website.

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 site, or select a pre-existing site (see Creating a Site).

3. Add the Omega controller to the selected site (see Adding Controllers).

4. Power up the Omega controller and wait for it to connect to BERMAD Cloud (see Powering Omega).

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Downloading BERMAD Cloud App

Perform the following steps to download the BERMAD Cloud application:

1. *Go to the relevant app store*

(click to open)

2. *Search for the **BERMAD Cloud** app and select it from the list*
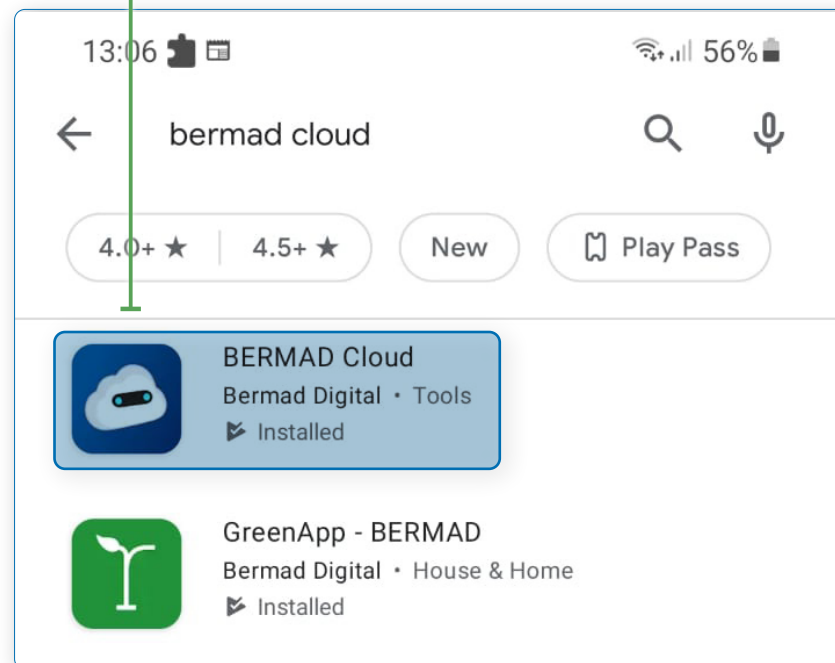
3. *Tap **Install***
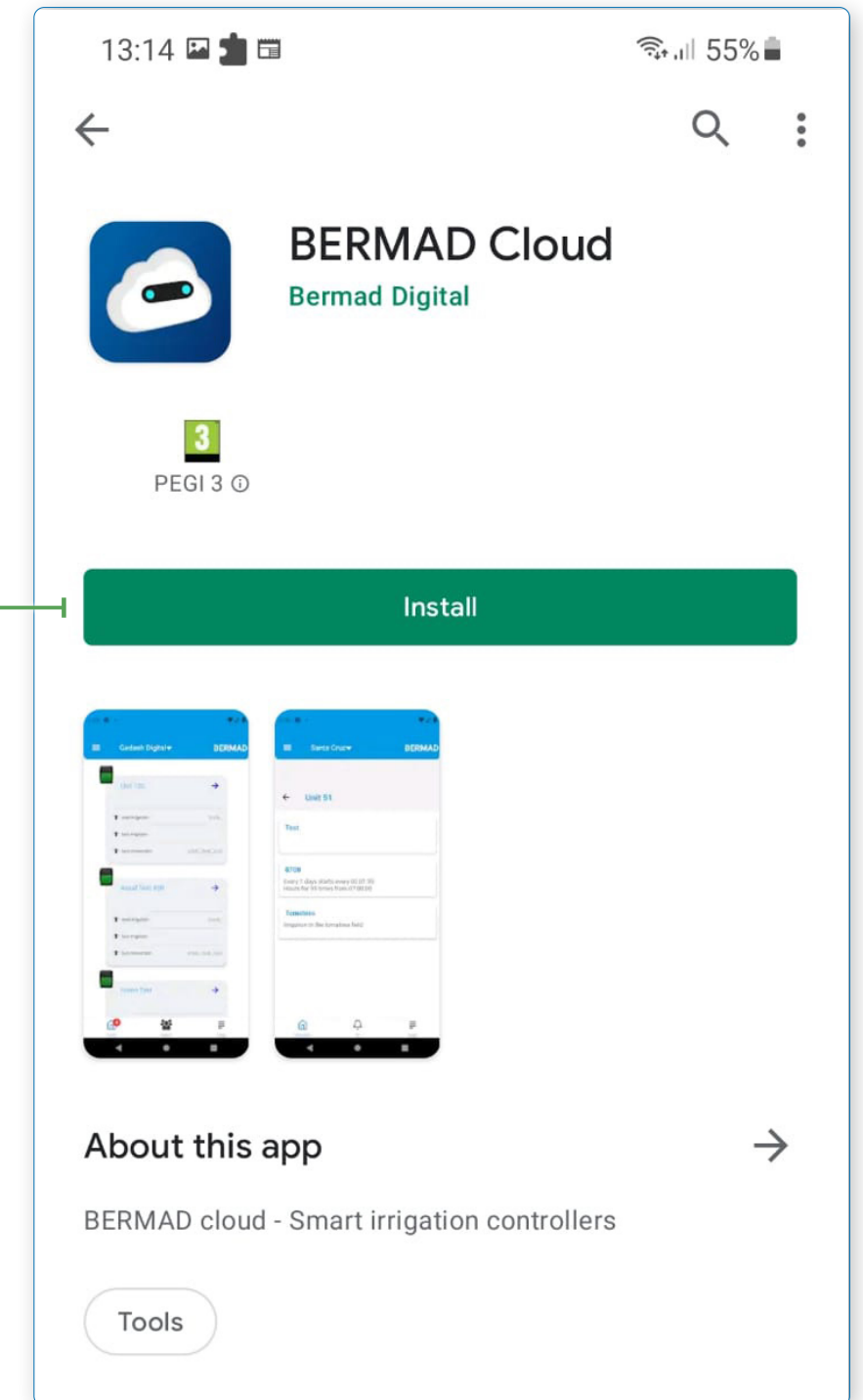
Registering

Perform the following steps to register as a new user:

NOTE: The registration process can also be completed in the BERMAD Cloud application.

1. *Open the BERMAD Cloud app, or type* **cloud.bermad.io** *in the Internet browser address bar. The BERMAD Cloud login window is displayed*

2. *Click* **sign up***. The registration window opens*

BERMAD Cloud

E-mail

Password

show password

Login

new user - click here to sign up

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

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

5. *Select the relevant options*

6. *Click* **Sign Up**

First Name

Last Name

E-mail

Password

Confirm password

Timezone
Asia/Jerusalem

week's first day:
Sunday

Language
English

system units
Metric

Flow unit
Cubic Meter Per Hour (m³/h)

By clicking Sign Up, you agree to our Terms and Cookies Policy

Sign Up

Logging In

Perform the following steps to log in to BERMAD Cloud:
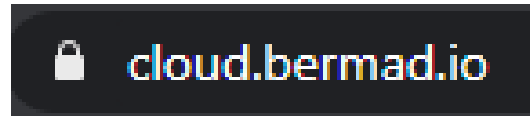
cloud.bermad.io

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

2. Type the user credentials (e-mail address and password)

3. Click **Login**. The *site dashboard* window opens

BERMAD Cloud

E-mail
_____

Password
_____
show password

Login

new user - click here to sign up

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

Site Dashboard Overview

The site dashboard opens, displaying the following:

NOTE: To create a site, see Creating a Site. To add controllers, see Adding Controllers

Site management – *enables selecting and managing the sites*

Main Toolbar (Sites) – *displays the main navigation options for the site*

Live map – *displays the site controllers on a live map*

User info – *displays and enables managing user information*

Controllers Display – *displays the selected site's controllers*

Cloud Assistant – *digital assistant (Claudio) that guides a user through the setup and configuration processes*

Santa Cruz

BERMAD

Dashboard

Alerts

Logs

Settings

Users

TN   Tim Niceman

Moshe
Next irrigation
Last irrigation
Last connection   NO_PHYSICAL_UNIT

Omega 117
Next irrigation
Last irrigation
Last connection

Omega 139
Next irrigation
Last irrigation
Last connection

Omega 121
Next irrigation
Last irrigation
Last connection

Omega 126
Next irrigation
Last irrigation
Last connection

Omega 117
Omega 139
Omega 126

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Managing Sites and Controllers

This section reviews managing sites and includes:

- Creating a Site

- Editing a Site

- Adding Controllers

- Selecting a Controller

- Controller Dashboard Overview

- Adding a Device

Creating a Site

Perform the following steps to create a site:

1. Click the **Settings** icon

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

3. Type the site name and description

4. Click **Save**. The new site is added to the list of sites

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

Editing a Site

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

1. Click the dropdown menu and select the site to be edited
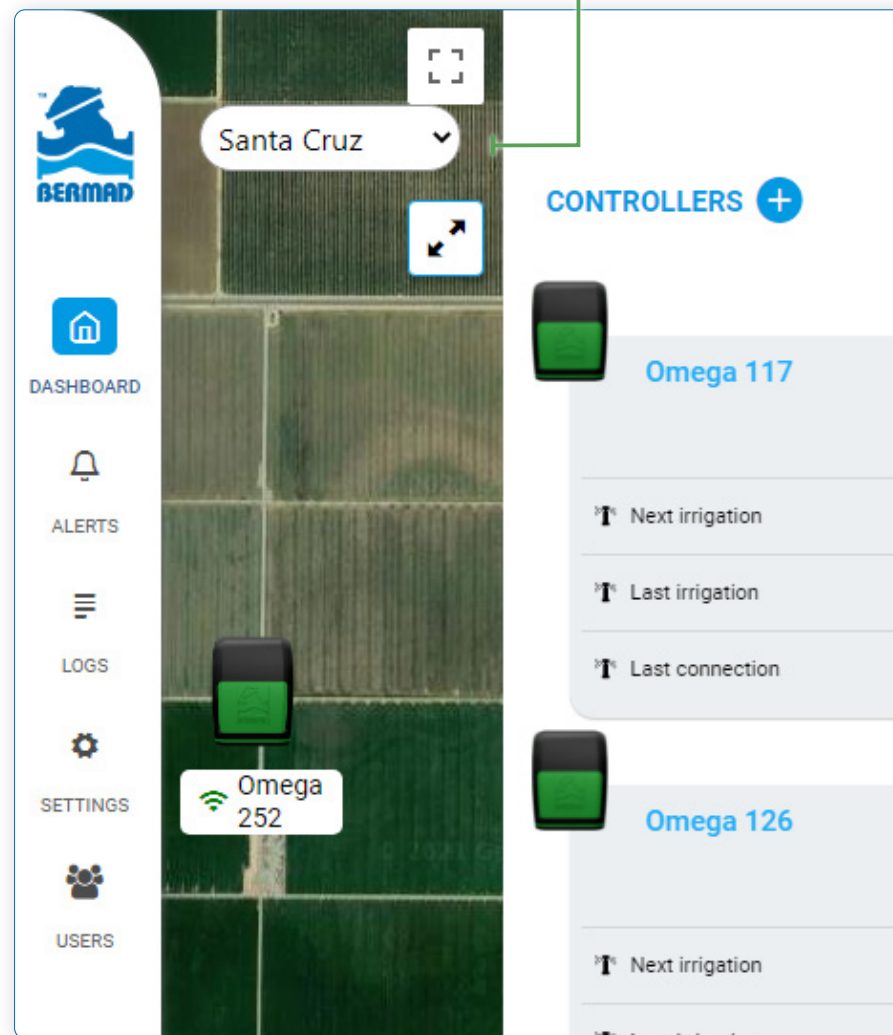
*2. Click the **Settings** icon*
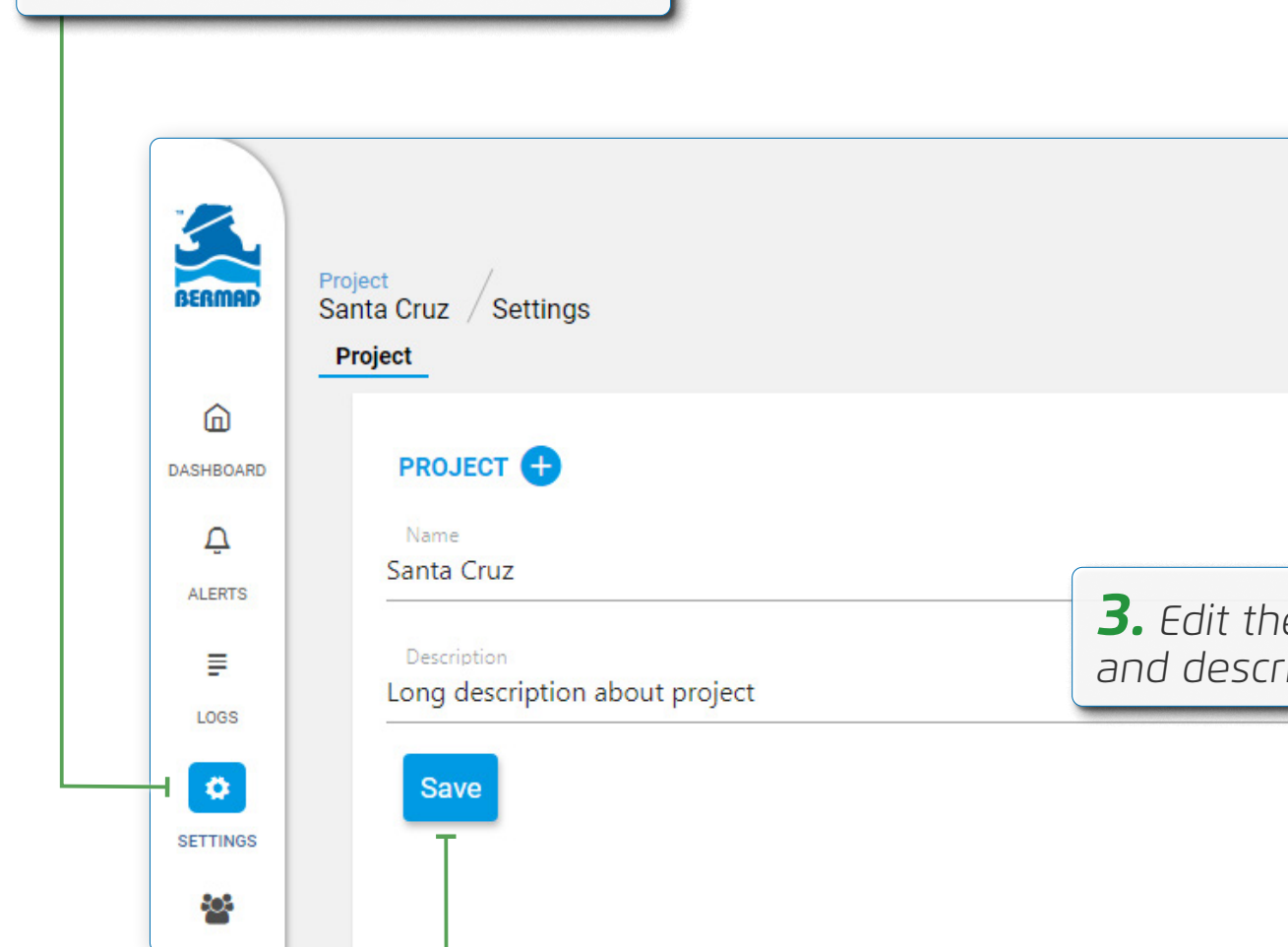
3. Edit the site's name and description

*4. Click **Save***

Adding Controllers

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

1. Verify the relevant site is selected

2. Verify that **Dashboard** is selected

3. Open Claudio

4. Click **Add New Controller**

5. Claudio guides the user through the process of adding the new controller

6. Type answers to the questions

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

Selecting a Controller

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

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

1. *Verify that* **Dashboard** *is selected*

3. *The controller dashboard is displayed (see Controller Dashboard Overview)*

Controller Dashboard Overview

When selecting a controller, the following information is displayed:

Selected controller identification

Main toolbar (controller)

Valves monitoring and control

Water meter readings

Fertilizer injectors monitoring and control

General overview of the controller

Controller program panel

Analog input readings

Fertilizer injector readings

NOTE: A water meter's reading is the cumulative flow from all the open valves connected to that water meter

Adding a Device

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

1. Verify that the relevant controller is selected

2. Open Claudio

3. Click the device to be added

4. Claudio guides the user through the process of adding the new device

5. Type answers to the questions

6. At the end of the device adding process, the new device is added to the display

Basic Device Settings

This section reviews basic device settings and includes:

- Entering Controller Settings
- General Settings
- Master Valve Settings
- Valve Settings
- Fertilizer Injectors Settings
- Water Meter Settings
- Analog Input Settings

Entering Controller Settings

Perform the following steps to view and modify controller settings:

1. *Verify that the relevant controller is selected (see Selecting a Controller)*

2. *Click the **Controller Settings** icon*

3. *Select the desired setting from the menu*

4. *The information associated with the selected setting is displayed and can be modified*

Gadash Digital / Bermad demo kit 252 ▾ / Controller settings

Search

Dashboard

Controller

Alerts

Reports & Logs

Controller Settings

CONTROLLER
- General
- Valves (3)   ‹
- Fertilizer Injectors (2)   ‹
- Water meters (1)   ‹
- Switch indicators (1)   ‹
- Analog inputs (1)   ‹
- Programs (4)   ‹
- Irrigation restriction: dates & hours
- General alerts reaction
- Bluetooth
- Logging
- Communication

GENERAL

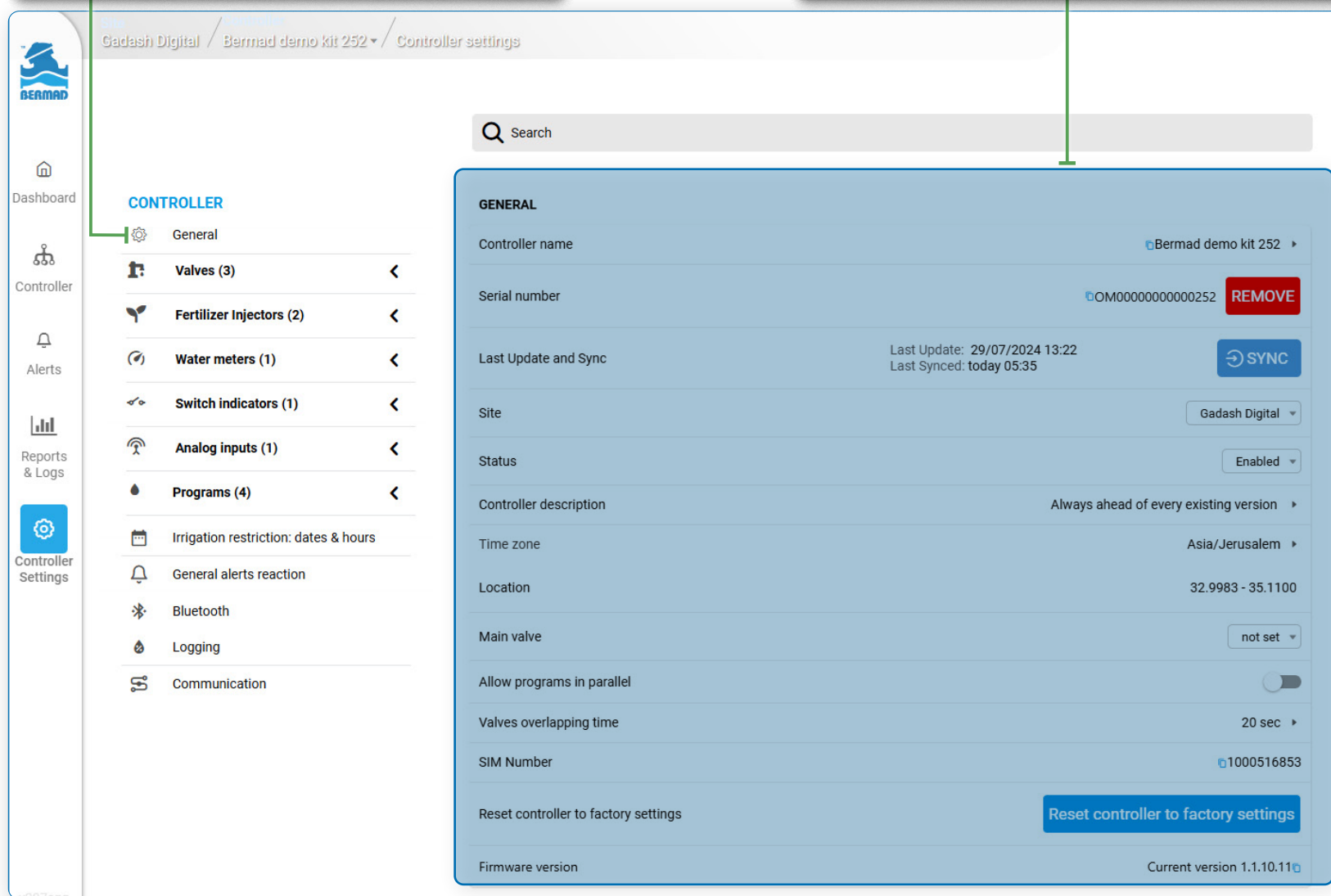|	
Controller name	Bermad demo kit 252 ▸
Serial number	OM00000000000252 REMOVE
Last Update and Sync	Last Update: 29/07/2024 13:22 Last Synced: today 10:03 SYNC
Site	Gadash Digital ▾
Status	Enabled ▾
Controller description	Always ahead of every existing version ▸
Time zone	Asia/Jerusalem ▸
Location	IL 32.9983 - 35.1100
Main valve	not set ▾
Allow programs in parallel	⬤
Valves overlapping time	20 sec ▸
SIM Number	1000516853
Reset controller to factory settings	Reset controller to factory settings
Firmware version	Current version 1.1.10.11

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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

Controller name	Enables naming of the controller
Serial number	Displays the controller's serial number
Last update and sync	Enables synchronizing between the server and controller
Site	The site to which the controller belongs. The drop-down list allows the user to move the controller to another site
Status	Enables activating and deactivating the controller
Controller description	Enables adding text describing the controller
Timezone	Defines the time zone in which the controller is located
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. Controller location can also be edited using the smartphone app by clicking Update Controller Location (found under General Settings in the app)
Master valve	Enables selecting which valve is the master valve
Allow programs in parallel	Enables running two or more irrigation programs simultaneously
Valves overlapping time	Defines the duration before a valve closes when the next valve opens
SIM Number	The controller SIM number
Reset to Factory Settings	Click to reset the controller to factory settings
Firmware version	Displays the firmware version currently installed on the controller

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

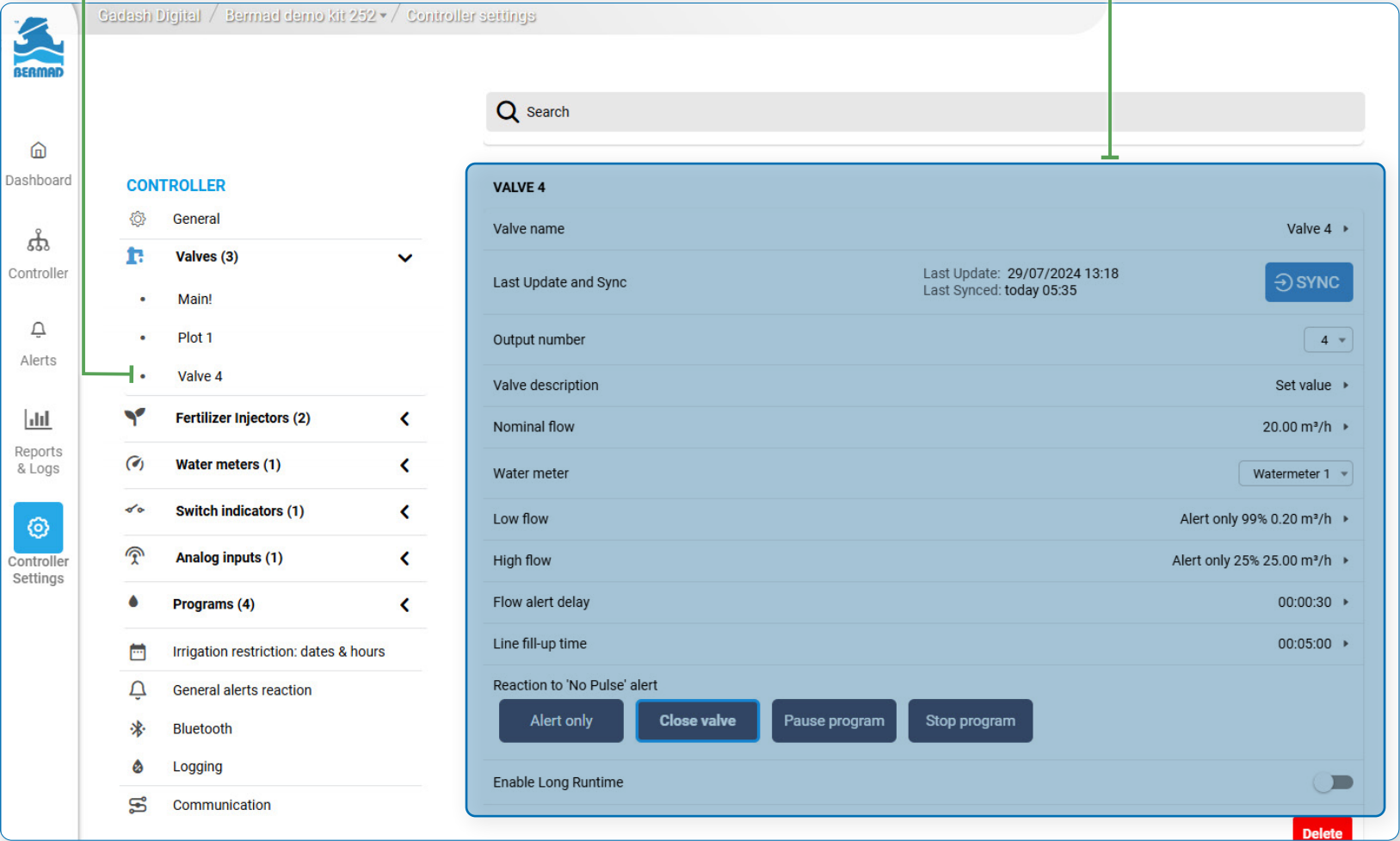| Valve name	Enables naming of the master valve
Output number	The physical output controller to which the master valve is connected
Valve description	Enables adding text describing the master valve
Opening order	Defines when the master valve opens in relation to the regular valves
Closing order	Defines 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:

1. *From the controller settings, select the relevant valve*
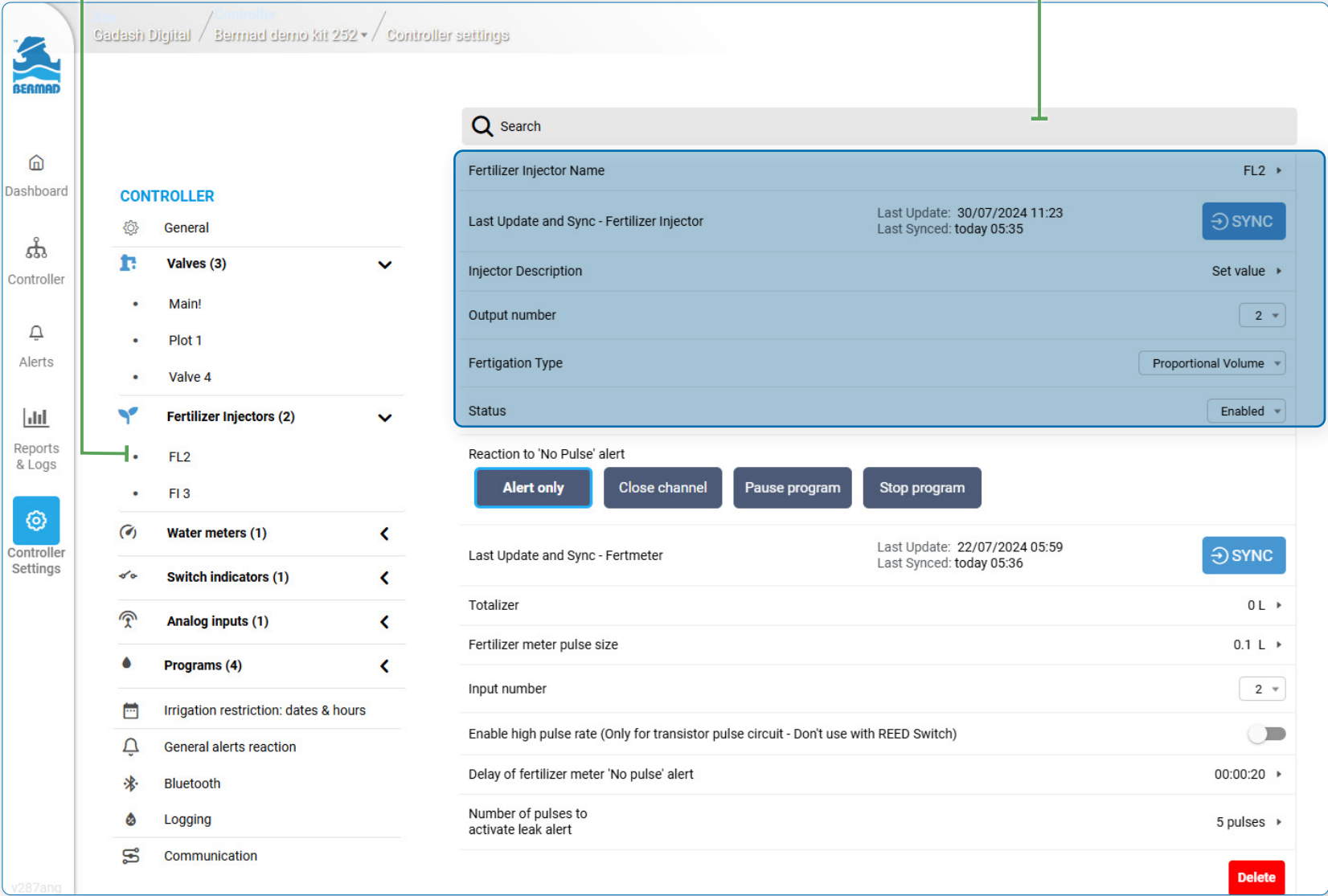
2. *The valve's settings are displayed*

Valve name	Enables naming of the valve
Last update and sync	Enables synchronizing between the server and controller
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 meter	Enables linking a water meter to the valve
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
Flow alert delay	The amount of time a high or low flow trigger is on before an alarm is created
Line fill-up time	Amount of time before water fills the pipe and achieves a steady flow
Reaction to 'No Pulse' alert	Defines the action taken when there is no response from the water meter while the valve is open
Enable long runtime	Enables setting the valve to stay open for longer
Delete button	Enables deleting the valve

Fertilizer Injectors Settings

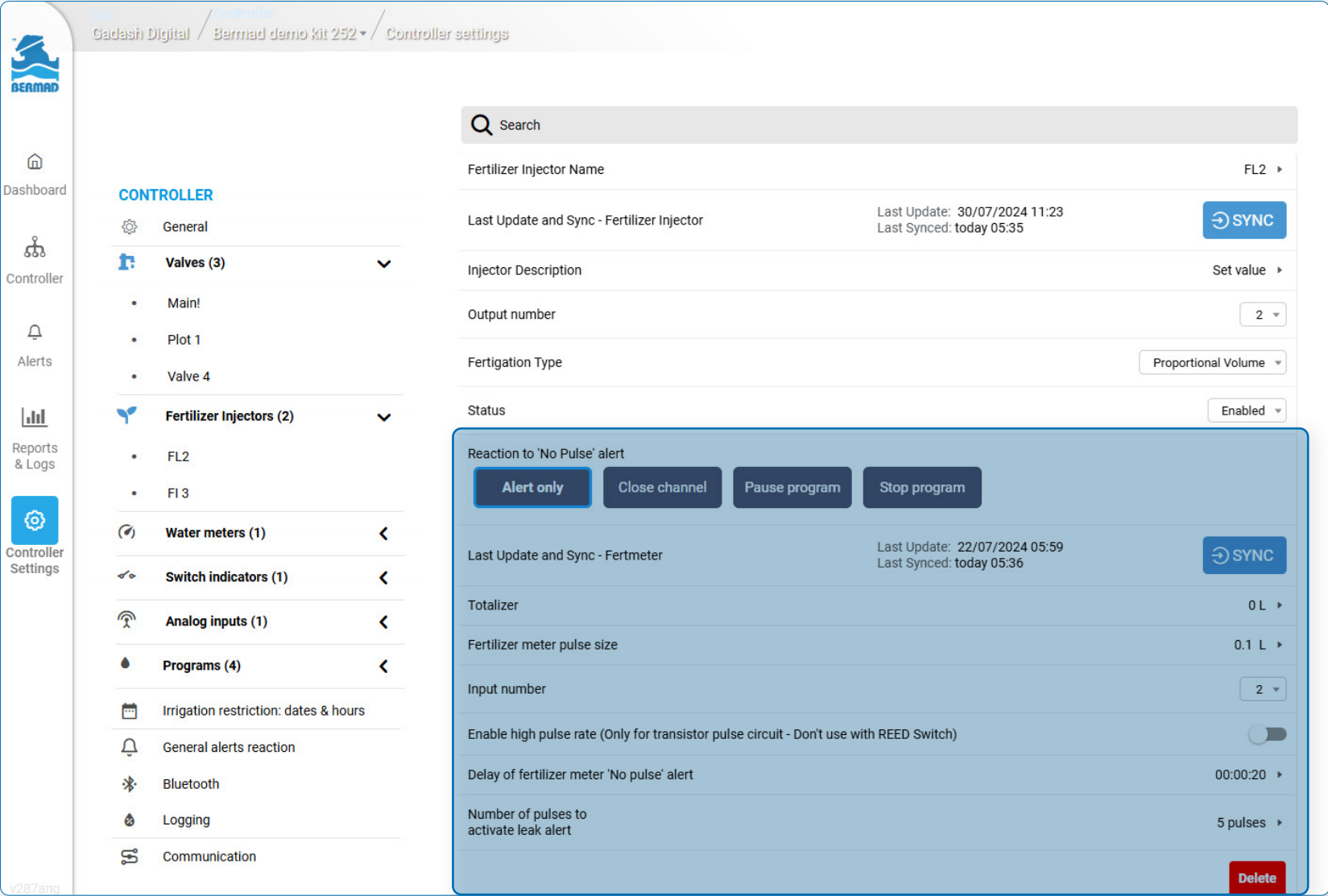Perform the following steps to manage the fertilizer injector settings:

1. *From the controller settings, select the relevant fertilizer injector*

2. *The fertilizer injector's settings are displayed*

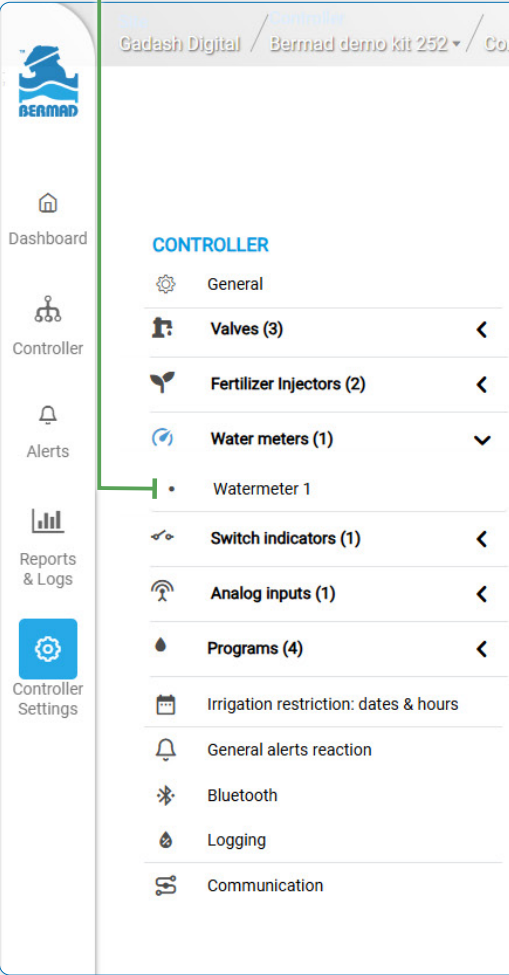| Fertilizer Injector Name	Enables naming of the fertilizer injector
Last update and sync	Enables synchronizing between the server and controller
Injector description	Enables adding text describing the fertilizer injector
Output number	The output number to which the fertilizer injector valve is connected
Fertigation type	**Time**: Injects the fertilizer in one pulse. The pulse duration is calculated to inject the defined quantity **Proportional Time:** Injects the fertilizer quantity in pulses proportionaly along the total time of irrigation (excluding the Water before and water After duration) **Volume:** Injects the fertilizer in one pulse. The fertilizer injector will be activated until the required fertilizer volume has been counted. This option is only relevant if a fertilizer meter is used **Proportional Volume:** Injects the fertilizer quantity in pulses proportionaly along the total volume of irrigation (excluding the Water Before and Water After duration). This option is only relevant if a fertilizer meter is used See Fertigation Overview **for more details** **NOTE:** The fertigation type must match the irrigation method. For example: If irrigation is defined by Duration, the fertigation must be set to Time or Proportional Time
Status	Enables activating and deactivating the fertilizer injector

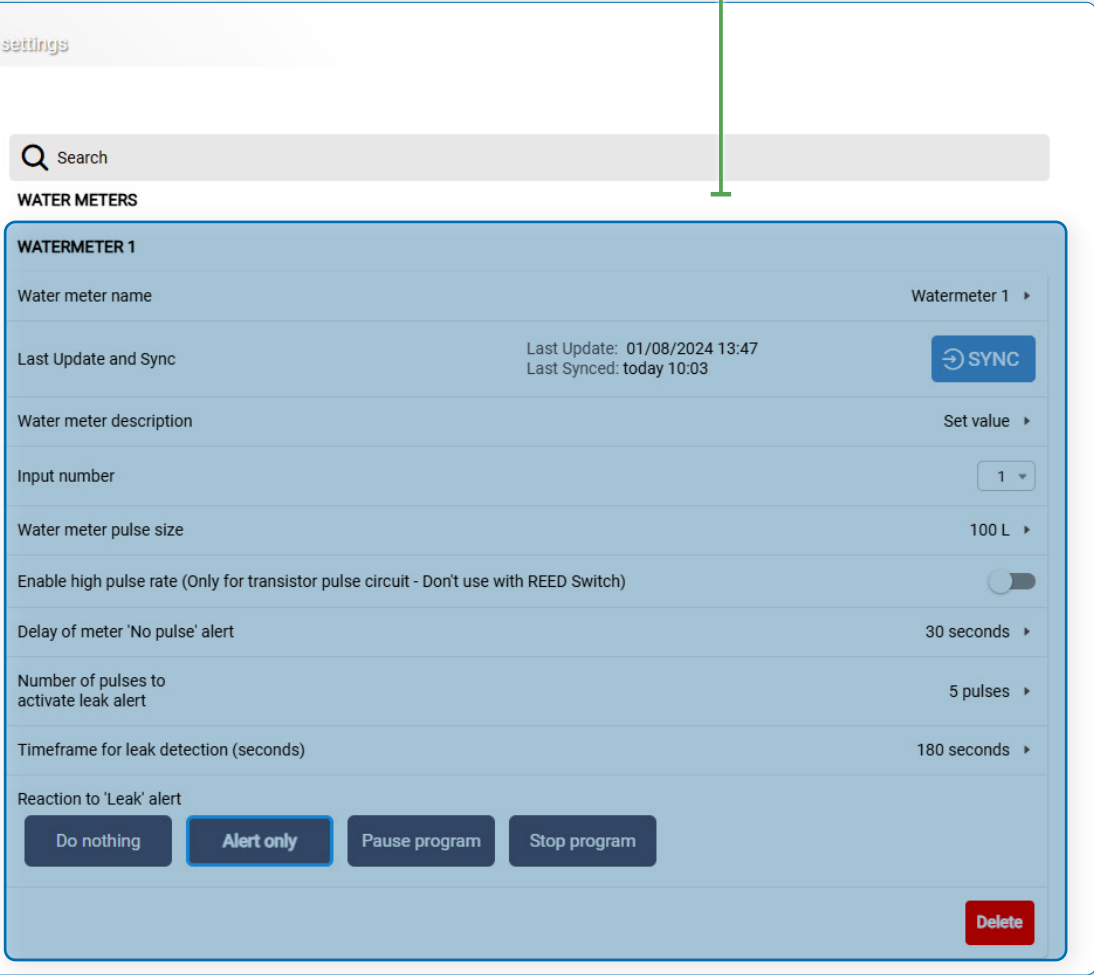| Reaction to 'No Pulse' alert	Defines the action taken when there is no response from the fertilizer meter while the valve is open
Last update and sync	Enables synchronizing between the server and controller
Totalizer	Defines the cumulative volume of fertilizer flowing through the system
Fertilizer meter pulse size	Defines the volume of fertilizer which has to flow through the fertilizer meter to transmit a pulse
Input number	Defines the fertigation meter connected to the valve
Enable high pulse rate	Enables high speed pulses when using a fertigation meter with a transistor output
Delay of fertilizer meter 'No Pulse' alert	The delay time that is counted from the opening of the injector valve and until the system will check for No Pulse alert
Number of pulses to activate leak alert	The delay time that is counted from the closing of the injector valve and until the system will check for Leak alert
Delete button	Enables deleting the fertilizer injector

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*

Water meter name	Enables naming of the water meter
Last update and sync	Enables synchronizing between the server and controller
Water meter description	Enables adding text describing the water meter
Input number	The physical input controller to which the water meter is connected
Water meter pulse size	Defines the volume of water which has to flow through the water meter to transmit a pulse
Enable high pulse rate	Enables high speed pulses when using a water meter with a transistor output
Delay of meter 'No Pulse' alert	After a valve is opened, an alert is triggered if the defined amount of time has passed and a pulse has not been transmitted
Number of pulses to activate leak alert	After all valves have closed, an alert is triggered if the defined number of pulses were transmitted
Timeframe for leak detection	Defines the timeframe according to the number of pulses for activating alert
Reaction to 'Leak' alert	Action performed when there is no flow reading while the valve is open
Delete button	Enables deleting the water meter

Switch Indicators Settings

Perform the following steps to navigate to the switch indicators settings:

1. *From the controller settings, select the relevant switch indicator*

2. *The switch indicator's settings are displayed*
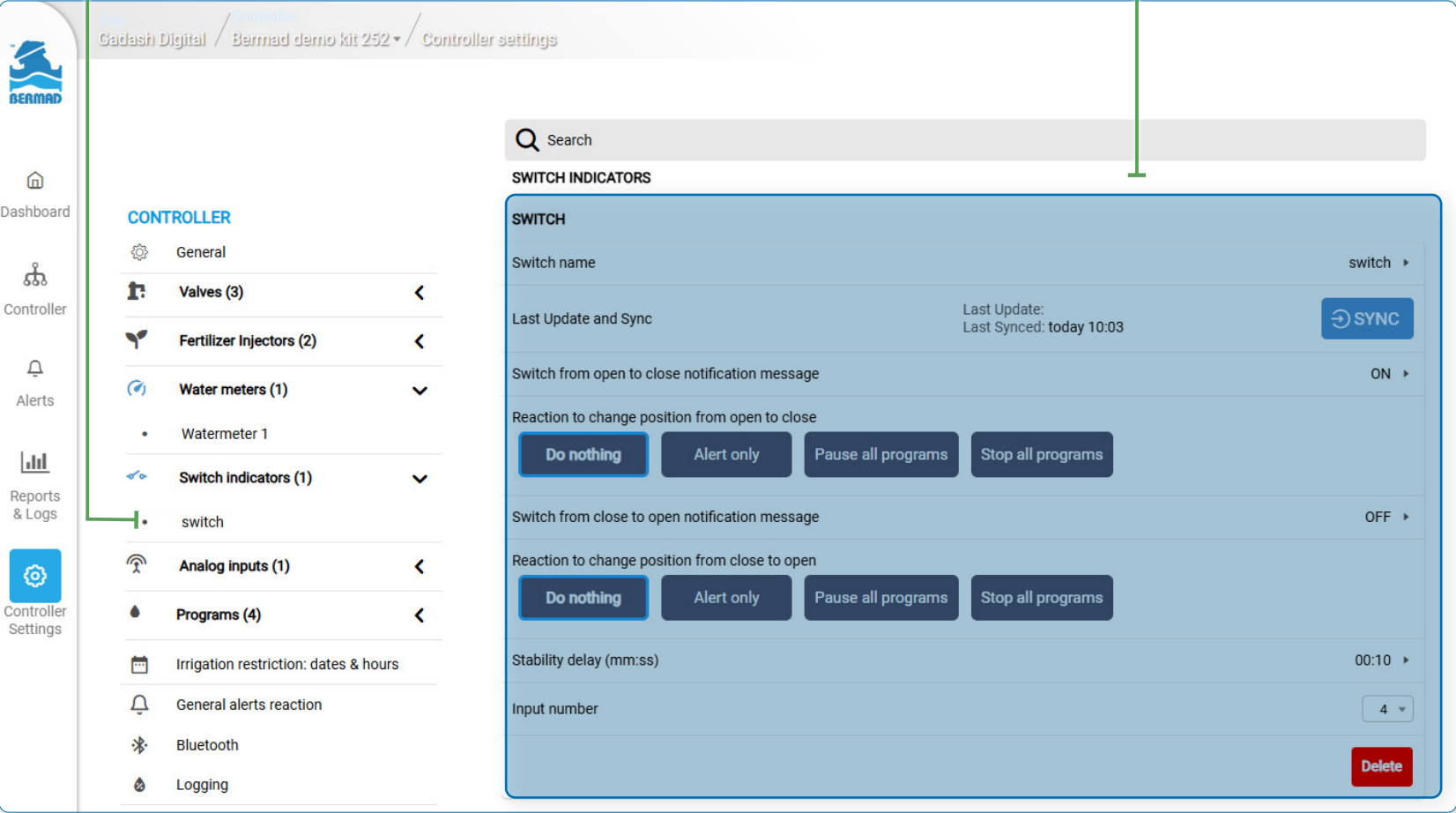
Switch name	Enables naming of the switch
Last update and sync	Enables synchronizing between the server and controller
Switch from open to close notification	Enables adding text describing the switch changes from open to close
Reaction to change position from open to close	Action performed when switch changes from open to close
Switch from close to open notification	Enables adding text describing the switch changes from close to open
Reaction to change position from close to open	Action performed when switch changes from close to open
Stability delay	Defines the delay time until the switch changes
Input number	The physical input controller to which the switch is connected
Delete button	Enables deleting the switch indicator

Analog Input Settings

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

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

**2.** *The analog input's settings are displayed*

Analog name	Enables naming of the analog device
Last update and sync	Enables synchronizing between the server and controller
Sensor type	Enables setting the controller's input according to the sensor's analog type. Options include 0-10 V and 4-20 mA
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)
Measuring range	Defines the signal range as the minimum and maximum values of the physical measurement unit designated by the sensor
Disable threshold alerts	Enables eliminating the option for setting low and high threshold
Low threshold	Enables choosing an action to be performed when the measurement drops below a defined value
High threshold	Enables choosing an action to be performed when the measurement exceeds a defined value
Delay	Amount of time (in seconds) between when the low/high value threshold is reached and when the alert is triggered
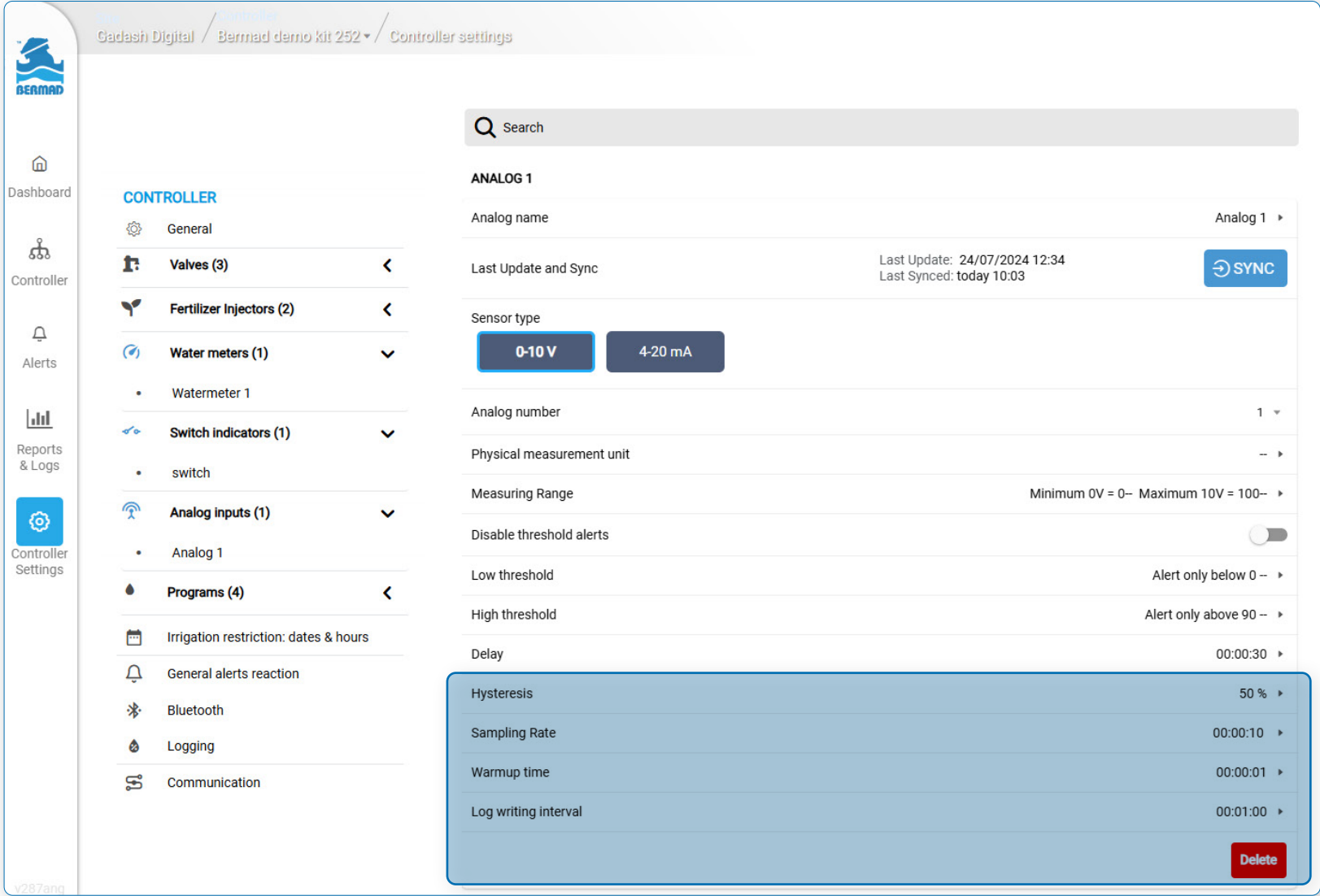
Hysteresis	Defines a range for both the high and low threshold values. When the threshold values are reached, the action is not triggered again until the value falls out of this range
Sampling rate	Defines the number of samples per second at which the analog signal is sampled
Warmup time	Defines the time (in seconds) required to energize the sensor before it can perform the measurement
Log writing interval	Defines the amount of time between the logging of measurements (see Logs section)
Delete button	Enables deleting the analog input

Hysteresis example

Low value threshold = 10

50 = High value threshold

10

50

11

49

Hysteresis range = 1
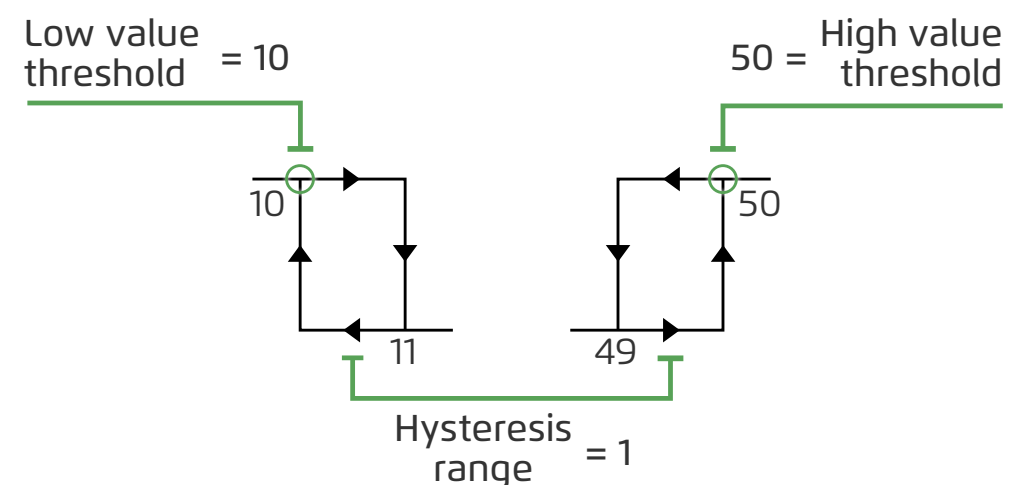
In the example on the left, when the measurement drops below 10 the defined action is triggered, and will not be triggered again until the measurement rises above 11 (low value + hysteresis value). Likewise, when the measurement rises above 50 the defined action is triggered, and will not be triggered again until the measurement drops below 49 (high value - hysteresis value).

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

NOTE: Log writing interval time must be greater than analog reading interval time.

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Fertigation Overview

This section reviews the irrigation when using a fertilizer injector valve.

Water Before and Water After

This chart displays the mandatory water that is flowed during the irrigation cycle before and after irrigation:

Water sent before fertigation in the irrigation cycle

Water sent after fertigation in the irrigation cycle

Irrigation cycle
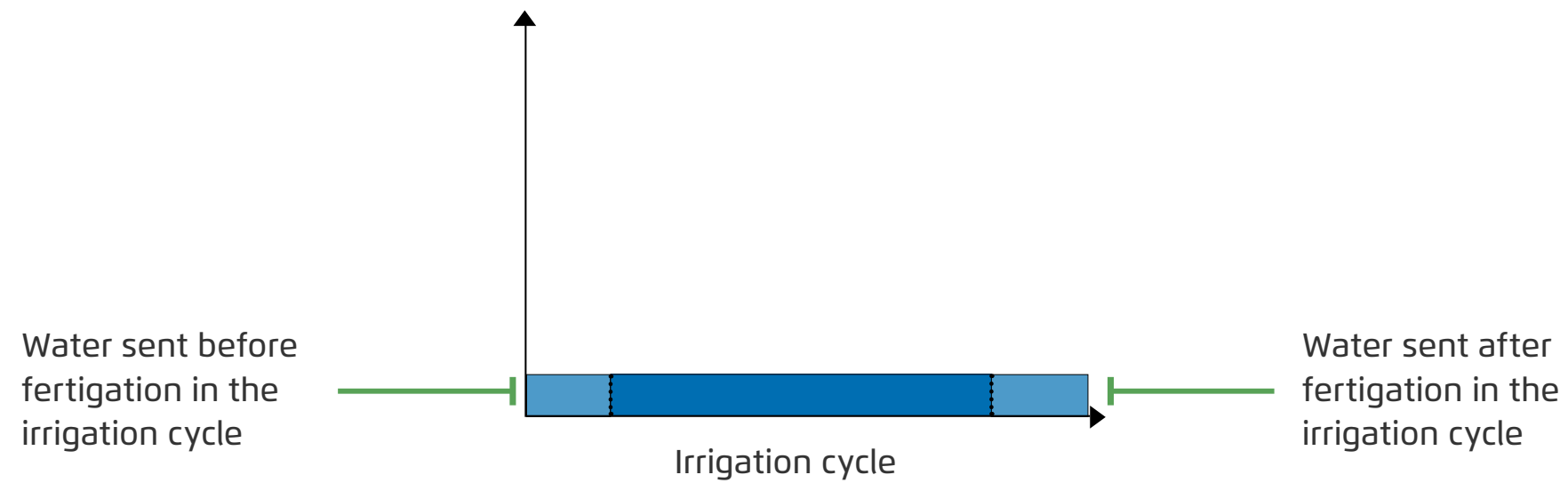
Fertigation Types

These charts display the different methods of setting up fertigation:

Fertigation by Time

Fertigation
Injects the fertilizer in one pulse. The pulse duration is calculated to inject the defined quantity

Water before fertigation

Water after fertigation
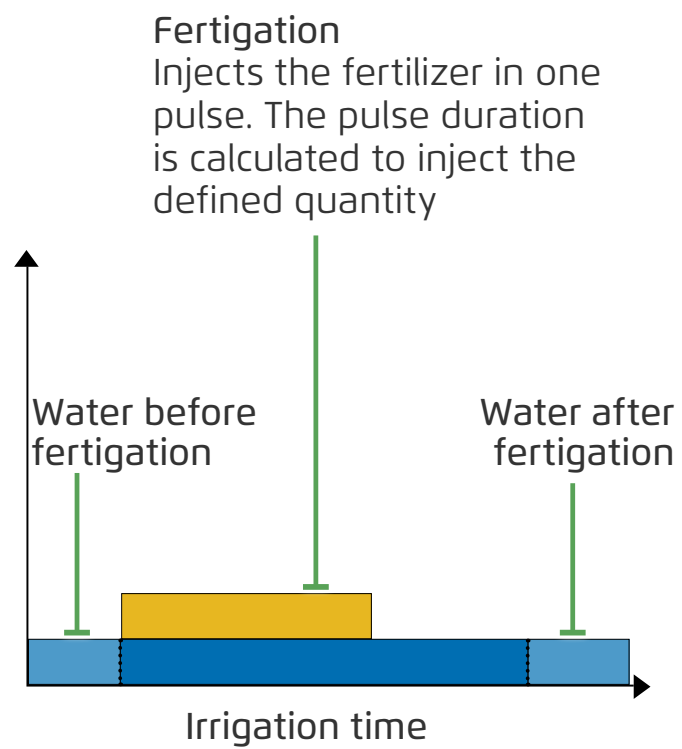
Irrigation time

Fertigation by Proportional Time

Fertigation
Injects the fertilizer quantity in pulses proportionaly along the total time of irrigation

Water before fertigation

Water after fertigation
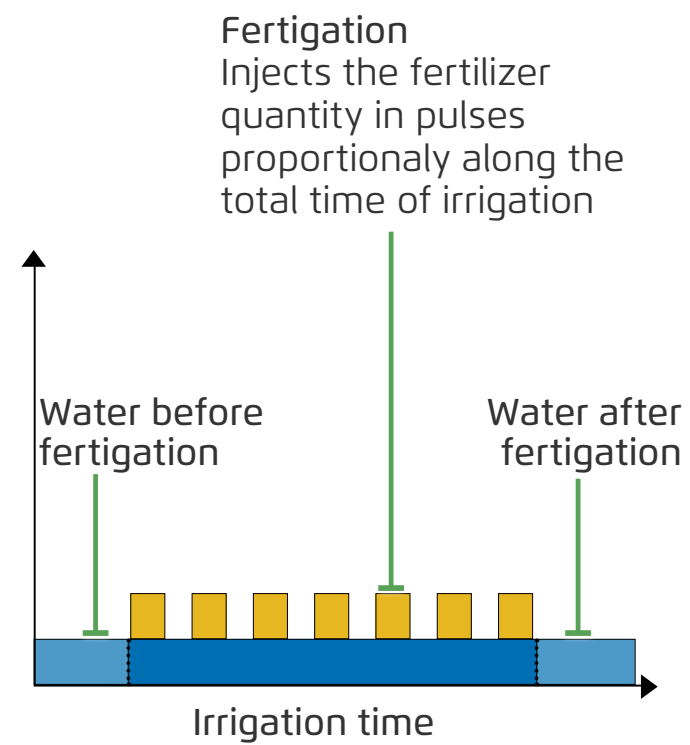
Irrigation time

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 Irrigation Measuring Type

- Defining Fertigation Measuring Type

Program Panel Overview

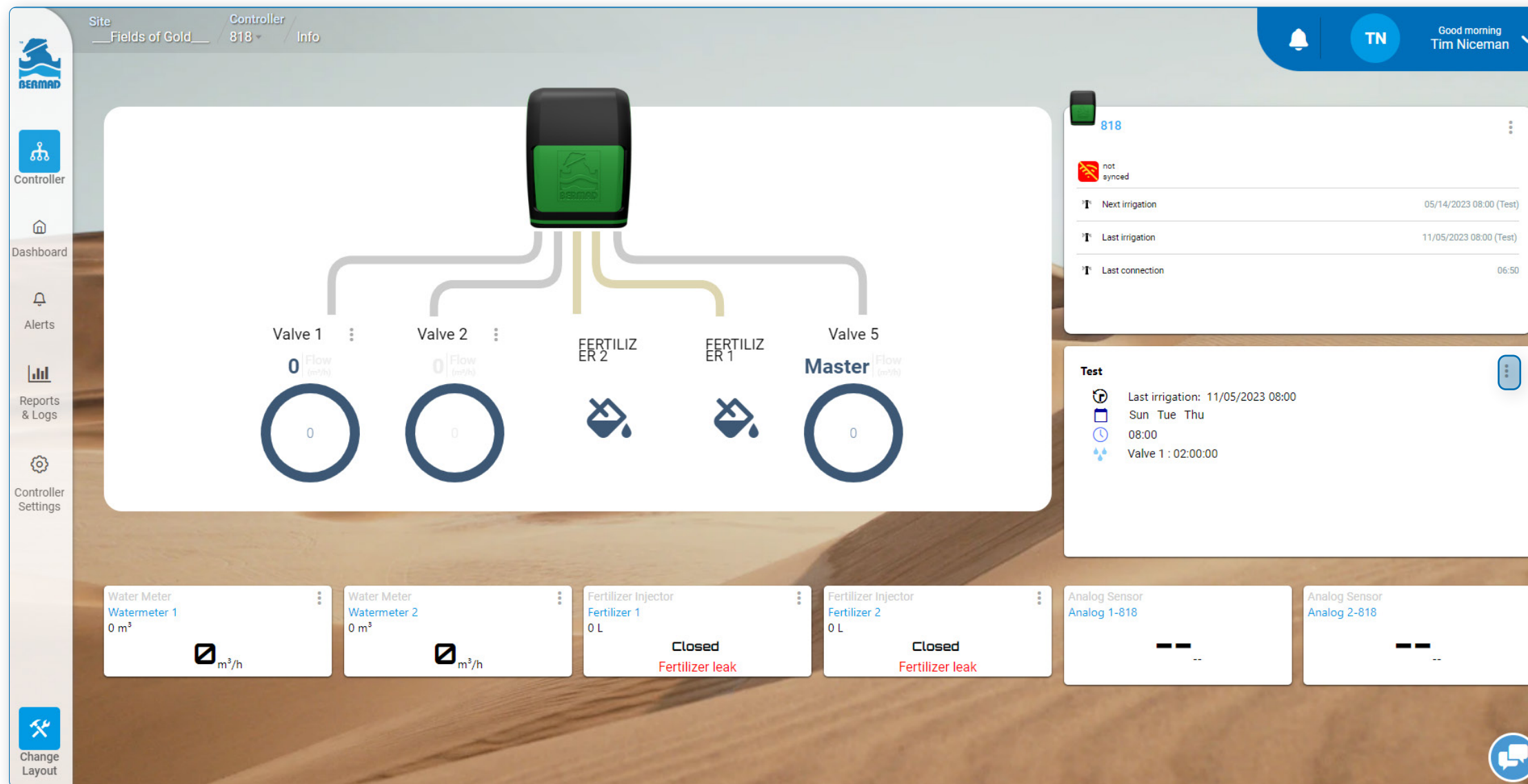A controller's program panel is displayed in the controller dashboard screen and includes the following:

Program menu

The program menu consists of the following options:

- Start/stop the program (see Manually Starting a Program)
- Enable/disable the program
- Rename the program
- Delete the program

To access a program's settings (see Program Workflow), click the program

To create a program, open Claudio

Creating a New Program

Perform the following steps to create a new program:

1. *Verify that the relevant controller is selected*

2. *Open Claudio*

3. *Click* **Set a program**

4. *Claudio displays questions which guide the user through the new program definition process*

5. *Type answers to the questions*

6. *At the end of the new program definition process the new program is added to the list*

Program Workflow

Creating a program consists of the following steps:

2. *Defining when irrigation starts during the predefined irrigation days (see Defining Cycle Type)*

1. *Defining irrigation program type by days of the week or by cycle (see Defining Irrigation Type)*

3. *Defining how the irrigation is measured and controlled (see Defining Irrigation Measuring Type)*

4. *Defining how the fertilizer injector is measured and controlled (see Defining Fertigation Measuring Type)*

5. *(optional) Selecting advanced options to prevent irrigation during specific hours (see Advanced Irrigation Settings (Optional))*

6. *Saving the program*

Program interface

PROGRAM TYPE

Weekly | Cyclic

IRRIGATION DAYS

Sunday | Monday
Tuesday | Wednesday
Thursday | Friday
Saturday

IRRIGATION START

Hours | Cyclic

SET START TIME

10 : 00

⊕ End time

HOURS INTERVAL

03 : 00

CYCLES PER DAY

1

Advanced

Save Changes

IRRIGATE BY AMOUNT

Amount | Duration

VALVE SEQUENCE IN PROGRAM

Enabled | Valve 2 | 20 m³ | ✕

test 2 | 2 m³ Before | 50 L Amount | 2 m³ After | ✕
Arthur test | 2 m³ Before | 20 L Amount | 2 m³ After | ✕

Enabled | Valve 1 | 20 m³ | ✕

test 2 | 3 m³ Before | 50 L Amount | 3 m³ After | ✕
Arthur test | 5 m³ Before | 70 L Amount | 5 m³ After | ✕

+ Add valve

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*

PROGRAM TYPE

Weekly | Cyclic

IRRIGATION 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*

PROGRAM TYPE

Weekly | Cyclic

START DATE

29/06

DAYS INTERVAL

4

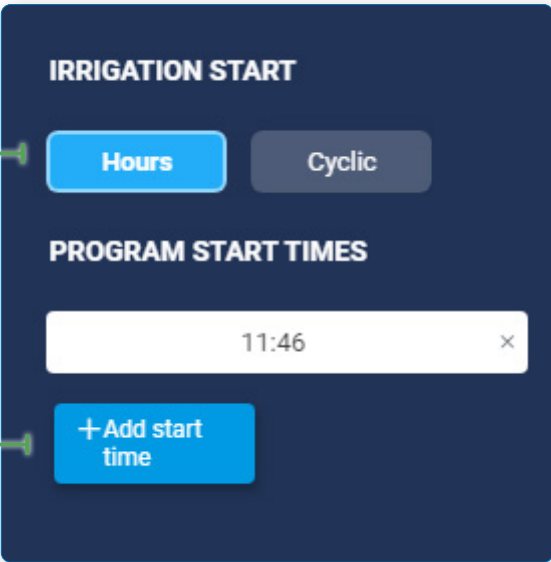*2. Select the date on which the irrigation cycle will start*

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 option:
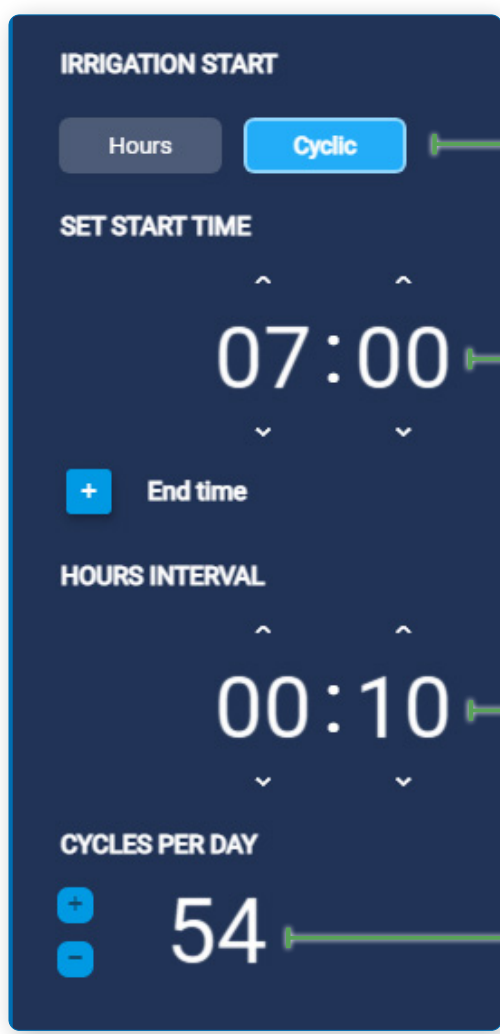
Hours

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

IRRIGATION START

Hours | Cyclic

PROGRAM START TIMES

11:46 ×

+Add start time

2. Click **Add start 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

07:00

+ End time

HOURS INTERVAL

00:10

CYCLES PER DAY

54
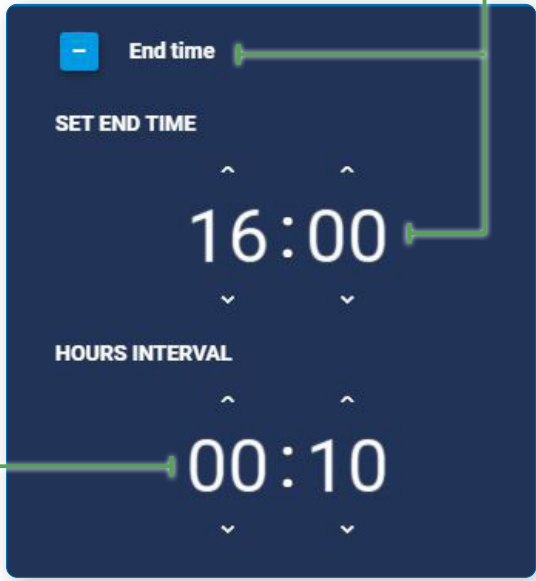
2. Set the time of the day to start the irrigation program

3. Define the amount of time between two irrigation cycles

Option #1: Define the number of irrigation cycles 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

16:00

HOURS INTERVAL

00:10

Defining Irrigation Measuring Type

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

Amount Measuring Type

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

IRRIGATE BY AMOUNT

Amount | Duration

VALVE SEQUENCE IN PROGRAM

Enabled | **Valve 1** | 0 m³ | ✕

+Add valve

2. *Click to add a new valve to the program*

3. *Select the valve and set the volume of water*

SET AMOUNT

Valve 1 | Valve 2
Valve 3 | Valve 4

+ **–** **120 m³**

Save | Cancel

4. *Click **Save***

Duration Measuring Type

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

IRRIGATE BY DURATION

Amount | **Duration**

VALVE SEQUENCE IN PROGRAM

Enabled | **Valve 1** | 02:00:00 | ✕

+Add valve

2. *Click to add a new valve to the program*

3. *Select the valve and set the irrigation duration*

SET AMOUNT

Valve 1 | Valve 2
Valve 3 | Valve 4

01 : 30 : 00

Save | Cancel

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.

Defining Fertigation Measuring Type

Define the method used to control the amount of fertilizer injector used during an irrigation session (see Fertilizer Injectors Settings) using one of the following two options:

Amount Measuring Type

NOTE: These options are only relevant if there is a fertilizer injector connected to the controller.

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

IRRIGATE BY AMOUNT

| Amount | Duration |

VALVE SEQUENCE IN PROGRAM

Enabled | Valve 1 | 0 m³ | ✕

+ Add valve

2. *Select the valve and set the volume of water*

SET AMOUNT

Enabled | Valve 1

+
−

0   m³

FERTIGATION

Fertilizer 1
0 m³   0 L   0 m³
Before   Amount   After

Fertilizer 2
0 m³   0 L   0 m³
Before   Amount   After

Save   Cancel

3. *Select the fertigation*

8. *Click **Save***

FI1

Water Before Fertigation
+
−
0   m³

Fertigation Amount
+
−
0   L

Water After Fertigation
+
−
0   m³

Save   Cancel

4. *Set the volume of waterflow before fertigation*

5. *Set the volume of fertigation*

6. *Set the volume of waterflow after fertigation*

7. *Click **Save***

9. *The irrigation volume is displayed*

10. *The fertigation volume is displayed*

IRRIGATE BY AMOUNT

Amount   Duration

VALVE SEQUENCE IN PROGRAM

Enabled   **Valve 1** | 100 m³   ✕

Fertilizer 1   10 m³ Before   50 L Amount   10 m³ After   ✕

+ Add valve

11. *Click to add a new fertilizer injector valve to the program*

OMEGA

Duration Measuring Type

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

IRRIGATE BY DURATION

| Amount | **Duration** |

VALVE SEQUENCE IN PROGRAM

Enabled | **Valve 1** | 00:00:00 | ✕

+Add valve

2. *Click to add a new valve to the program*

3. *Select the valve and set the irrigation duration*

SET AMOUNT

Enabled | **Valve 1**   Enabled | Valve 2

02 : 00 : 00

FERTIGATION

FI1
00:00:00 00:00:00 00:00:00
Before   Amount   After

Save   Cancel

4. *Select the fertigation*

9. *Click **Save***

NOTE: This option is only relevant if there is a fertilizer meter connected to the controller.

FI1

Water Before Fertigation

00 : 00 : 00

Fertigation Duration

00 : 00 : 00

Water After Fertigation

00 : 00 : 00

Save   Cancel

5. *Set the waterflow duration before fertigation*

6. *Set the fertigation duration*

7. *Set the waterflow duration after fertigation*

8. *Click **Save***

IRRIGATE BY DURATION

Amount   **Duration**

VALVE SEQUENCE IN PROGRAM

Enabled   **Valve 1** | 12:00:00 ✕

Fertilizer 2   01:00:00 06:00:00 01:00:00 ✕
                Before   Amount   After

+ Add valve

9. *The irrigation duration is displayed*

10. *The fertigation duration is displayed*

11. *Click to add a new fertilizer injector valve to the program*

Advanced Irrigation Settings (Optional)

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

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

ⱽ   ⱽ

TO

^   ^

18:00

ⱽ   ⱽ

Save Changes

Additional Device Settings

This section reviews additional device settings and includes:

- Irrigation Date and Time Settings

- Alerts Reaction

- Bluetooth

- Logging

- Communication – Energy Save Mode

Irrigation Date and Time Settings

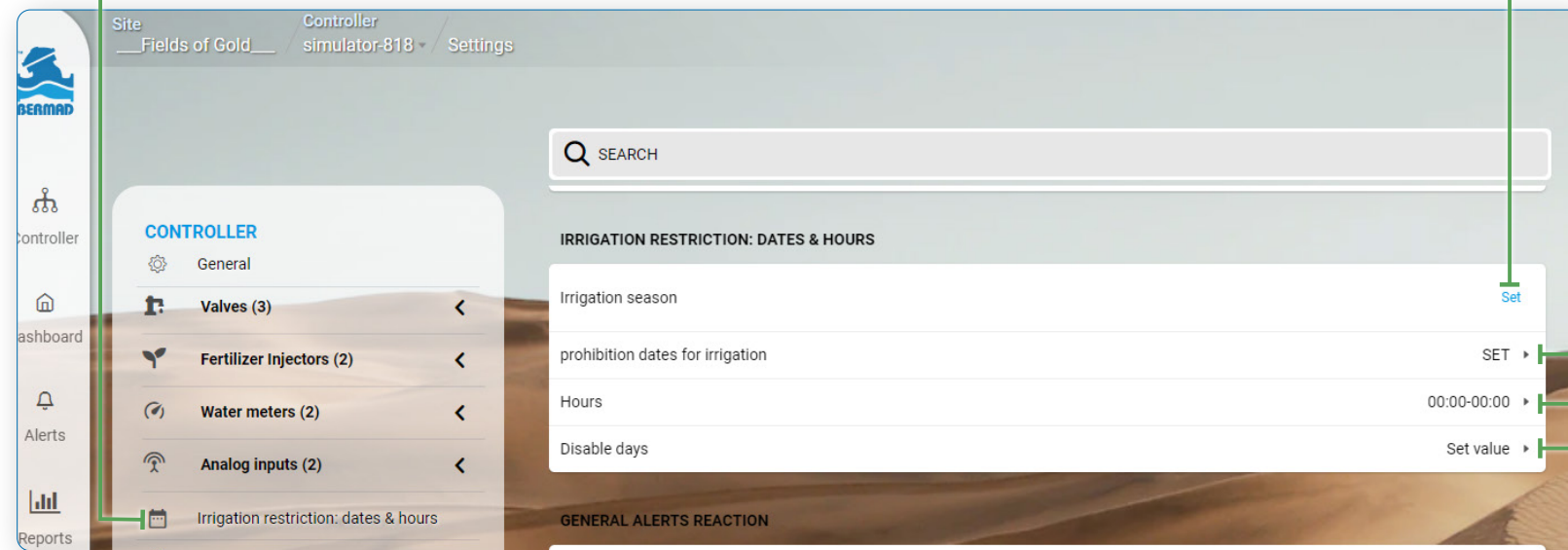To set irrigation date and time, perform the following steps:

1. *Enter controller settings and select **irrigation restriction: dates & hours***

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 allows for irrigation*

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

Site
___Fields of Gold___

Controller
simulator-818

Settings

Q SEARCH

CONTROLLER

⚙ General

🜂 Valves (3) ‹

🜲 Fertilizer Injectors (2) ‹

⊘ Water meters (2) ‹

📶 Analog inputs (2) ‹

📅 Irrigation restriction: dates & hours

IRRIGATION RESTRICTION: DATES & HOURS

Irrigation season   Set

prohibition dates for irrigation   SET ›

Hours   00:00-00:00 ›

Disable days   Set value ›

GENERAL ALERTS REACTION

Controller

Dashboard

Alerts

Reports

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

OMEGΔ

Alerts Reaction

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

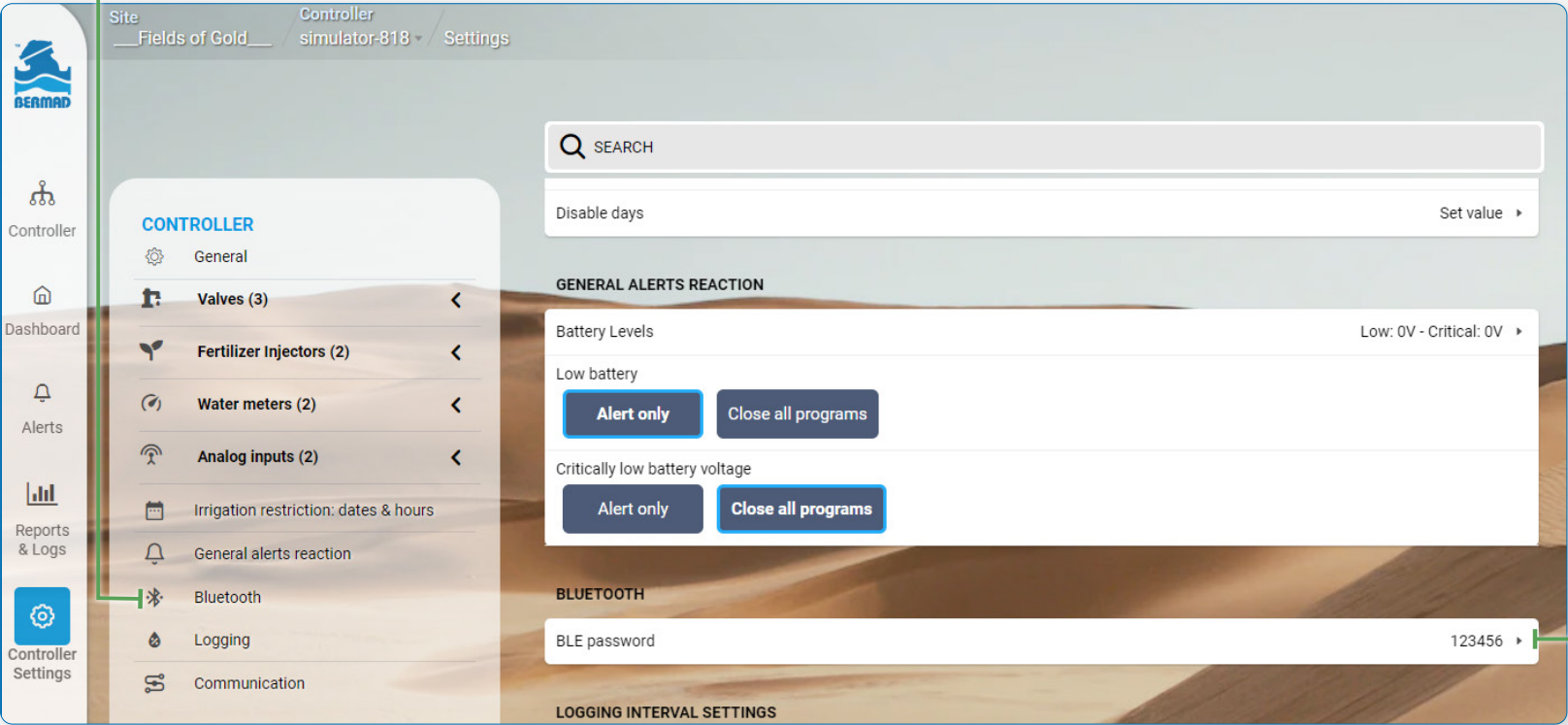**1.** *Enter controller settings and select **general alerts reaction***

2. *Select the relevant action for each alert*
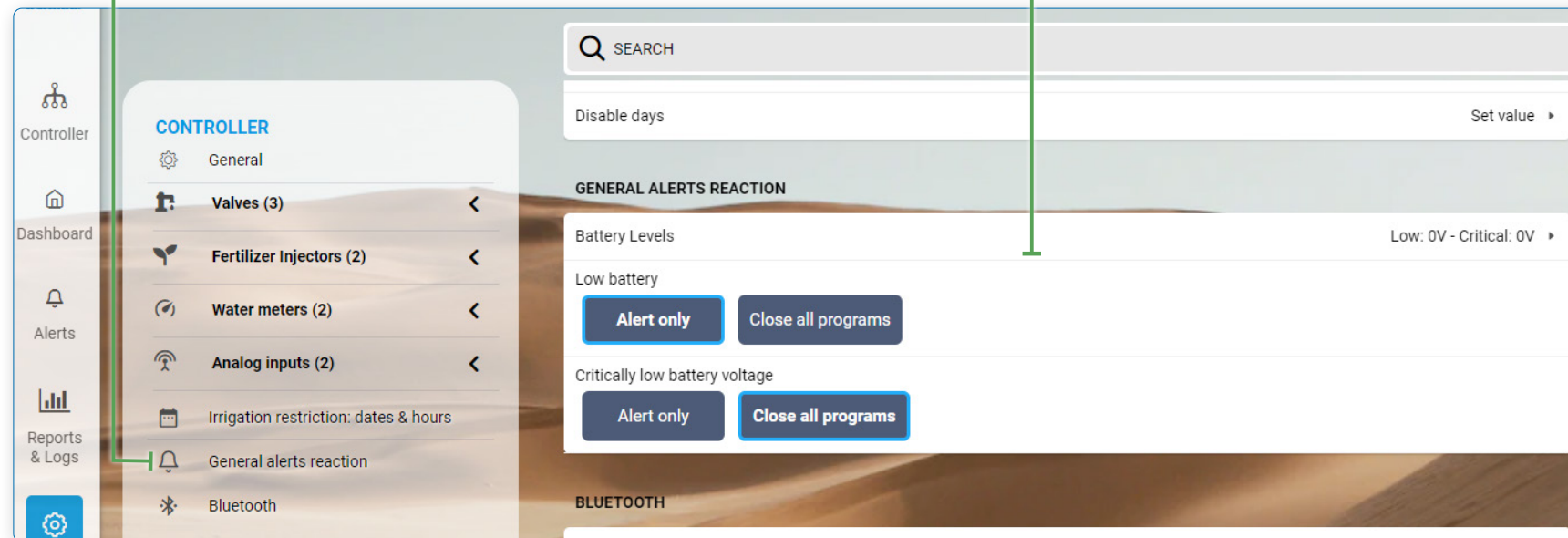
Bluetooth

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

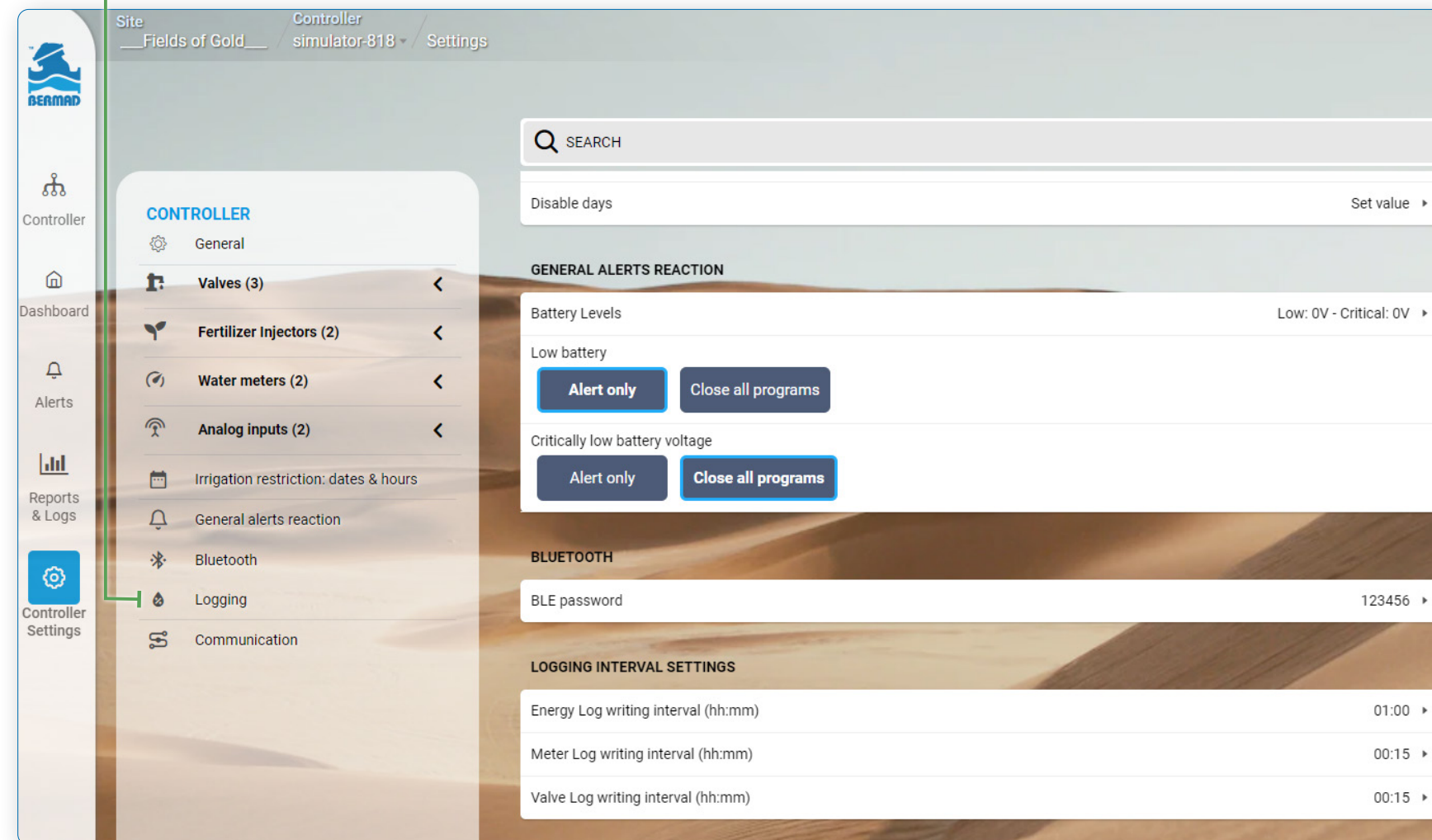*1. Enter controller settings and select **Bluetooth***

2. Click to type a new password

Logging

To set the logging interval times, perform the following steps:

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

2. *Click to select the time for the energy log interval*

3. *Click to select the time for the meter log interval*

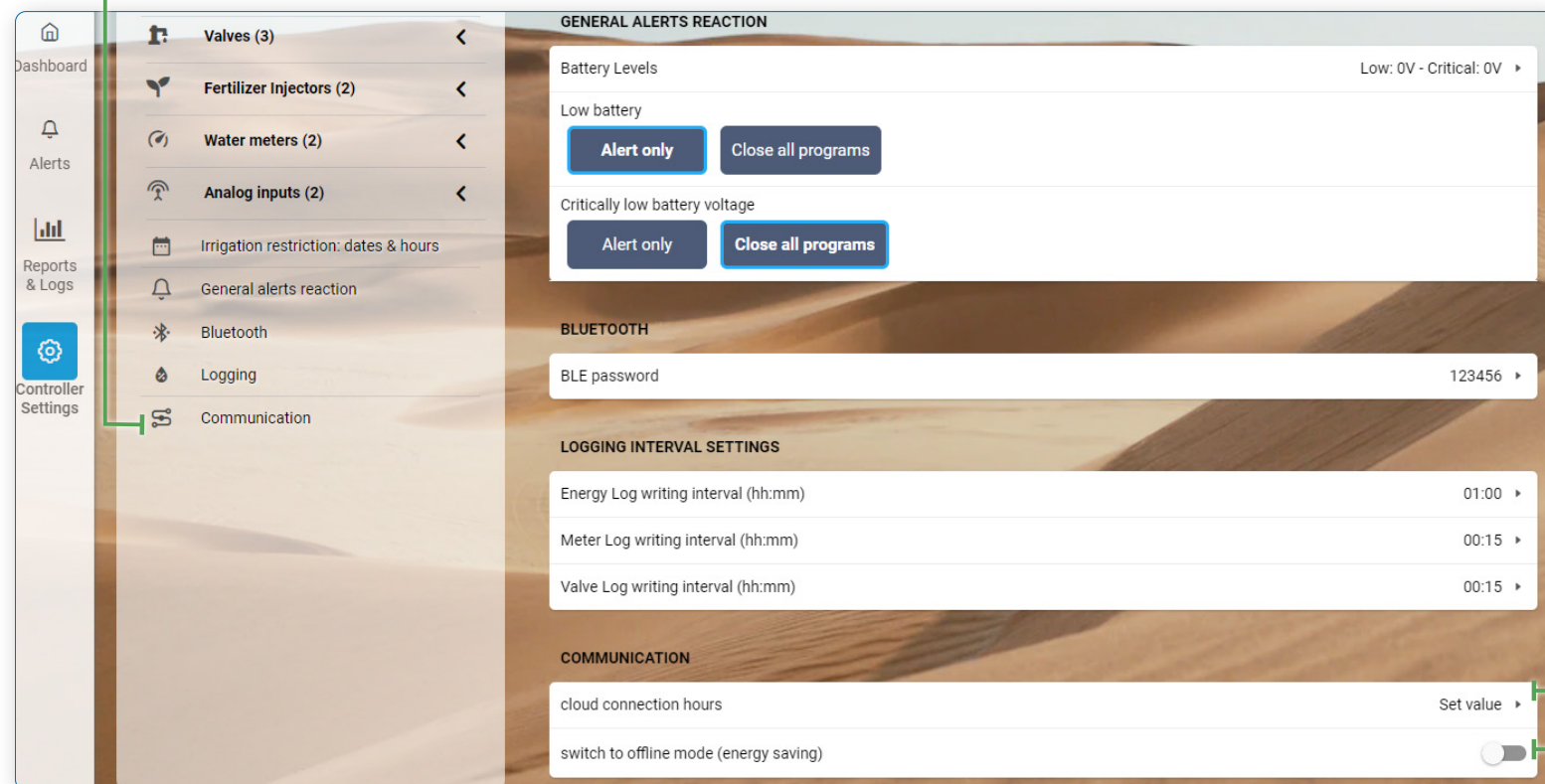**4.** *Click to select the time for the valve log interval*

Communication – Energy Save Mode

Controllers must be "woken up" when in **energy save** mode to enable the controller to communicate with BERMAD Cloud.

Perform the following steps to put the controller in low power mode and set controller wake up times:

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

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.

2. *Click* ***Set Value*** *to add up to 24 wake-up times per day*

3. *Enable* ***switch to Energy Save Mode***

Managing Users

This section reviews managing users and includes:

- Inviting a User

- Defining User Alerts

- Removing a User

Inviting a User

Only admin users can invite someone to be part of a site.

Perform the following steps to invite a user:

1. *Verify that the relevant site is selected*

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

4. *Type the user's email address, select relevant alerts, select permission role, and click* ***Send Invitation***

Gadash Digital / Users

Good morning
Tim Niceman

TN

Dashboard

Alerts

Reports & Logs

Site Settings

Users

USERS	ALERTS

Invite User

Name	Email	Permissions Role	
Yogev P	yogev@bermad.com	Admin ⌄	
Amit Shtutman	amit@bermad.com	Admin ⌄	
Jonathan Ben Asher	jonathan_ba@bermad.com	Admin ⌄	
Gilad Enav	gilad_e@bermad.com	Admin ⌄	
Assaf Bassi	assaf@bermad.com	Admin ⌄	
Ran Israeli	ran@bermad.com	Admin ⌄	
Pavel Rumberg	pavel@bermad.com	Admin ⌄	
Rani rn	rann.rn@gmail.com	Admin ⌄	
Danilo Pinto	danilo.br@bermad.com	Admin ⌄	

E-mail

Only registered users can receive an invitation

User alerts

All ⌄

Permissions Role

☑ Admin
☐ Irrigation manager
☐ Operator
☐ View only

Send Invitation   **Cancel**

2. *Click the* **Users** *icon*

NOTE: Only an admin can set permissions for new users.

NOTE: Only registered users can be invited (see Registering).

Defining User Alerts

Only admin users can define which alerts a user receives.

Perform the following steps to define alerts:

1. *Verify that the relevant site is selected*

3A. *Click the three dots and select Alerts to define alerts for a specific user.*

3B. *Click on Alerts to define alerts for multiple users.*

4. *Select the relevant alerts*

Gadash Digital / Users

Good morn
Tim Nicen

USERS | ALERTS

Dashboard

Alerts

Reports & Logs

Site Settings

Users

Invite User

Name	Email	Permissions Role	
Yogev P	yogev@bermad.com	Admin	
Amit Shtutman	amit@bermad.com	Admin	
Jonathan Ben Asher	jonathan_ba@bermad.com	Admin	
Gilad Enav	gilad_e@bermad.com	Admin	
Assaf Bassi	assaf@bermad.com	Admin	
Ran Israeli	ran@bermad.com	Admin	
Pavel Rumberg	pavel@bermad.com	Admin	
Rani rn	rann.rn@gmail.com	Admin	
Danilo Pinto	danilo.br@bermad.com	Admin	

Define As Payment Owner
Remove User
Alerts

Yogev P Alerts

Update

High threshold

Low threshold

High flow

Low flow

General error

Low battery

2. *Click the Users icon*

5. *Click Update*

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Removing a User

To remove a user, perform the following steps

1. *Verify that the relevant site is selected*

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

Name	Email	Permissions Role	
Yogev P	yogev@bermad.com	Admin ▾	⋮
Amit Shtutman	amit@bermad.com	Admin ▾	⋮
Jonathan Ben Asher	jonathan_ba@bermad.com	Admin ▾	
Gilad Enav	gilad_e@bermad.com	Admin ▾	
Assaf Bassi	assaf@bermad.com	Admin ▾	
Ran Israeli		Ḍmin ▾	⋮
Pavel Rumberg	pavel@bermad.com	Admin ▾	⋮
Rani rn	rann.rn@gmail.com	Admin ▾	⋮
Danilo Pinto	danilo.br@bermad.com	Admin ▾	⋮

Menu: Define As Payment Owner / Remove User / Alerts

USERS   ALERTS

Invite User

Good morni
Tim Nicen

Qadash Digital / Users

Dashboard
Alerts
Reports & Logs
Site Settings
Users

2. *Click the* ***Users*** *icon*

4. *Click* ***Yes***

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

Yes   Cancel

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5. MONITORING CONTROLLERS

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

- Manually Operating Valves
- Manually Starting a Program
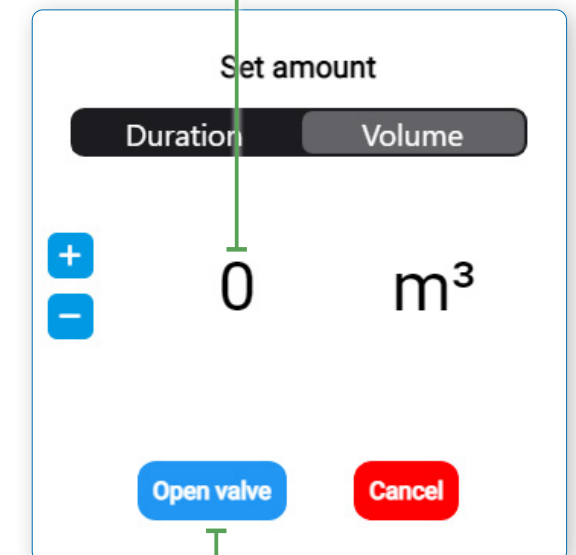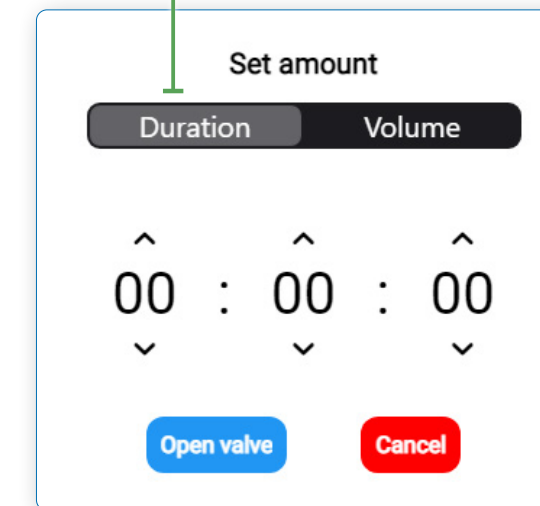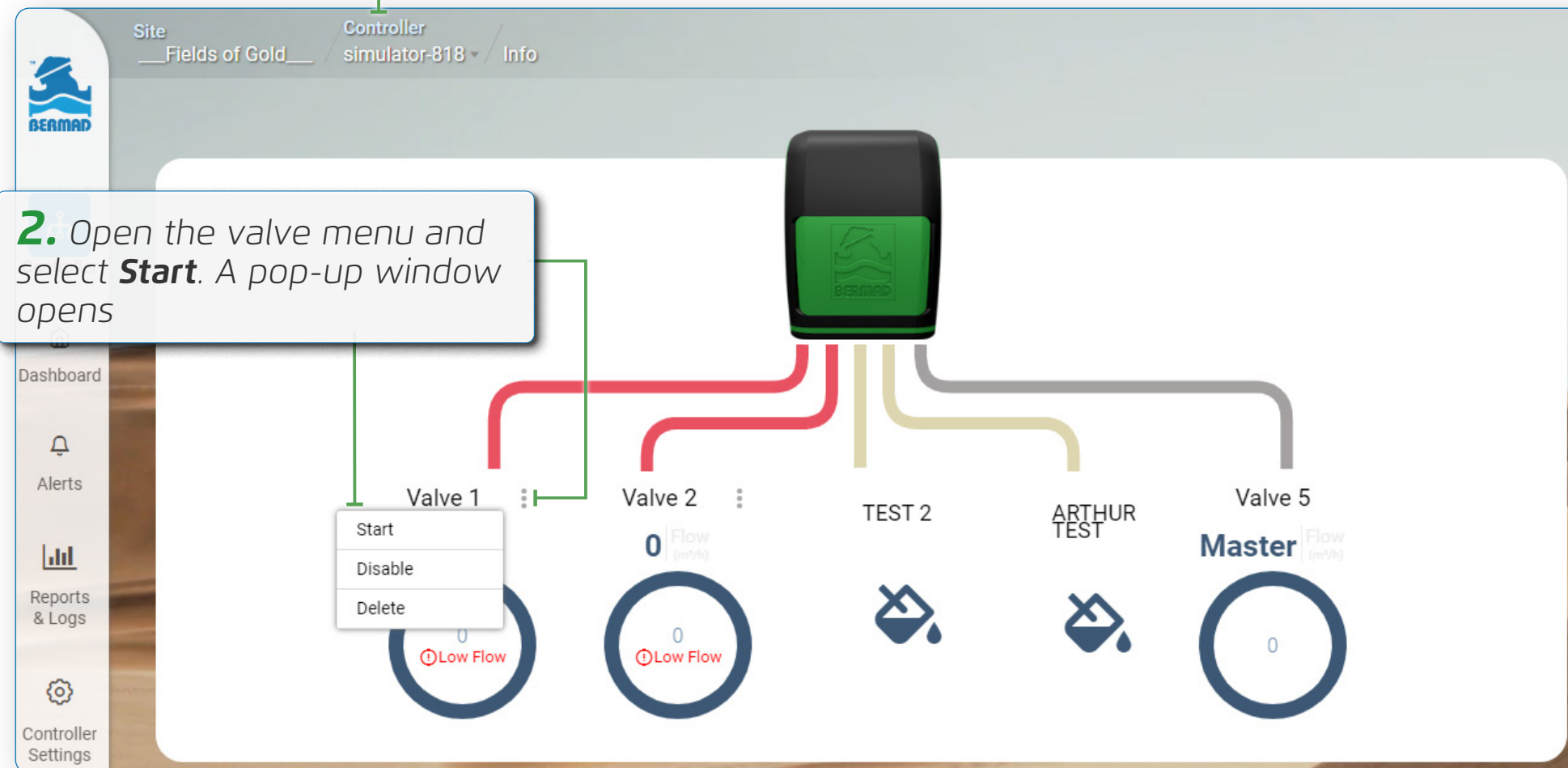- Alerts
- Logs

Manually Operating Valves

To manually open valves, perform the following steps:

1. *Verify that the relevant controller is selected*

3. *Select whether amount of water to be used is determined by duration or volume*

4. *Set the desired volume*

2. *Open the valve menu and select **Start**. A pop-up window opens*

Set amount

Duration	Volume

00 : 00 : 00

Open valve   Cancel

Set amount

Duration	Volume

0   m³

Open valve   Cancel

5. *Click **Open Valve***

6. *The valve remains open until the set amount of water is used*

Site
__Fields of Gold__

Controller
simulator-818   Info

Dashboard

Alerts

Reports & Logs

Controller Settings

Valve 1
Start
Disable
Delete
0
Low Flow

Valve 2
0 | Flow (m³/h)
0
Low Flow

TEST 2
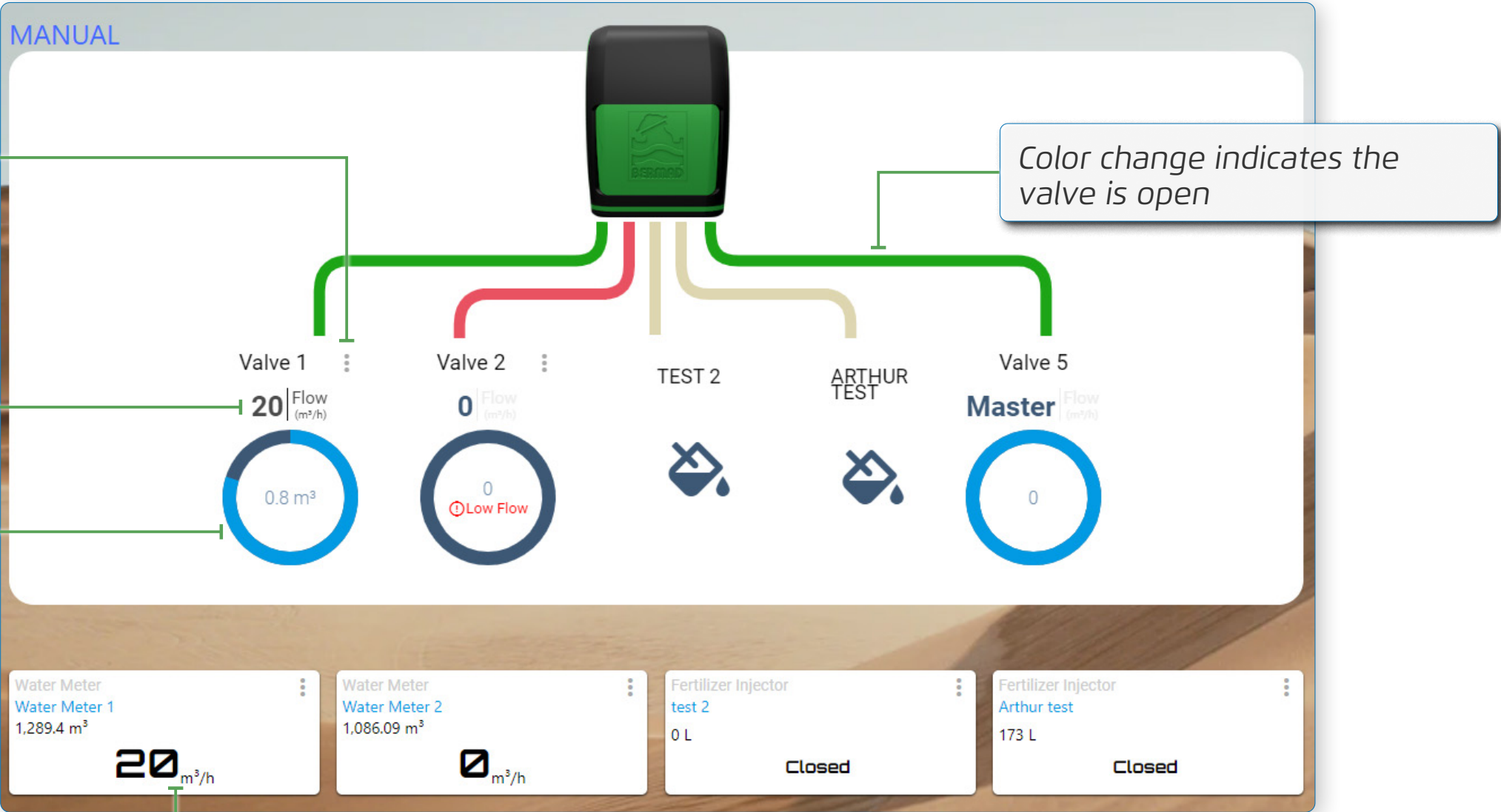
ARTHUR TEST

Valve 5
Master | Flow (m³/h)
0

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The following information is displayed while the valve is open:

Tip: To manually close the valve, open the valve menu and select **Stop**.

Color change indicates the valve is open

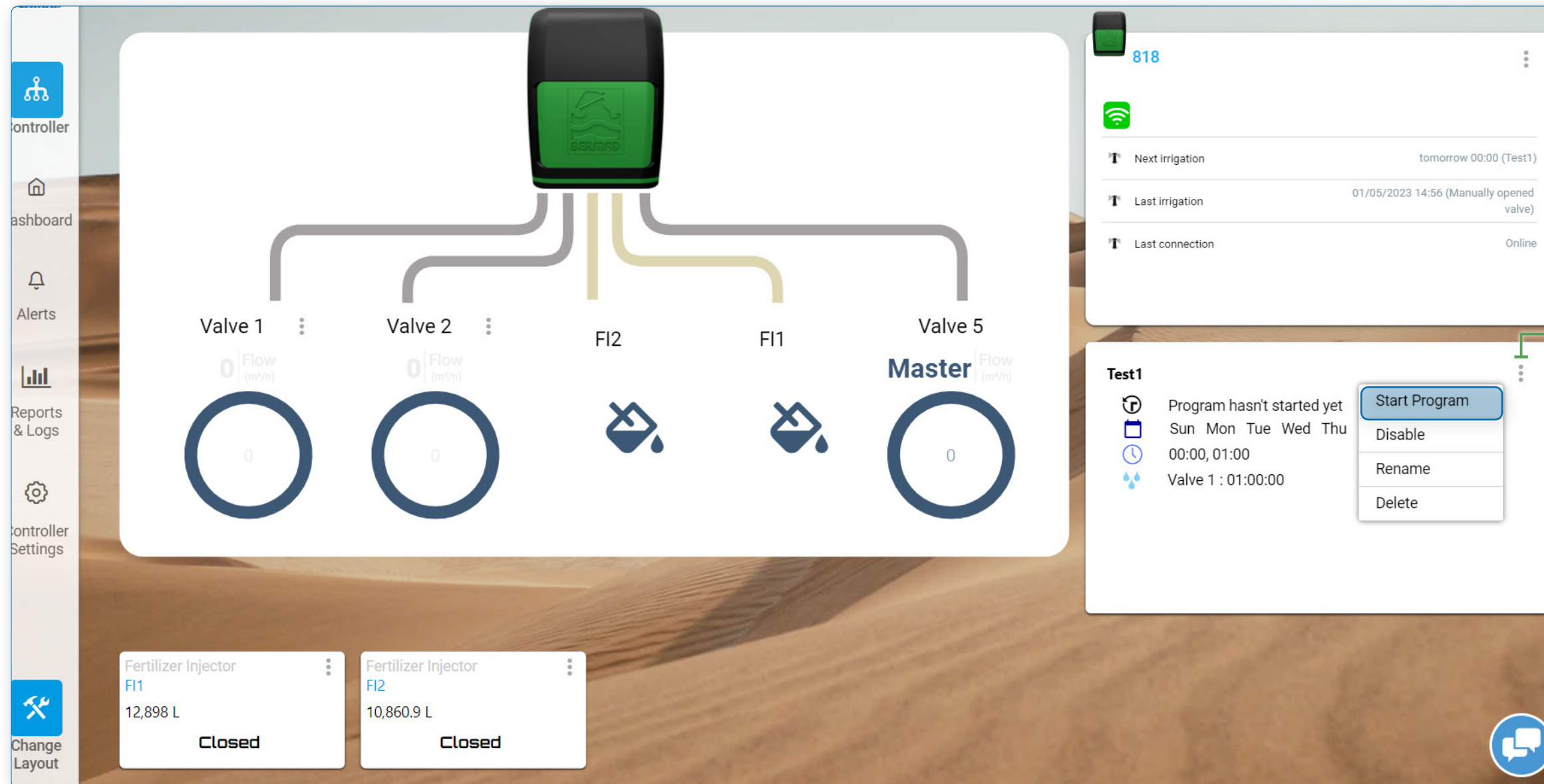*Flow rate as transmitted by the linked water meter*

Water volume/time remaining, indicated by a number and graph

NOTE: A water meter's reading is the cumulative flow from all the open valves connected to that water meter.

MANUAL

Valve 1

20 | Flow (m³/h)

0.8 m³

Valve 2

0 | Flow (m³/h)

0
⚠ Low Flow

TEST 2

ARTHUR TEST

Valve 5

Master | Flow (m³/h)

0

Water Meter
Water Meter 1
1,289.4 m³

20 m³/h

Water Meter
Water Meter 2
1,086.09 m³

0 m³/h

Fertilizer Injector
test 2
0 L

Closed

Fertilizer Injector
Arthur test
173 L

Closed

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Manually Starting a Program

To manually start a program, perform the following steps:

1. *Open the program menu*

2. *Click* **Start Program**

Alerts

To view alerts, perform the following steps:

1. *Verify that the relevant site is selected*

2. *Click the **Alerts** icon*

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

Clicking the refresh icon will sync the alerts data.

Alerts can be exported to a PDF or CSV file.

Gadash Digital / Alerts

Good morning
Tim Niceman   TN

Download CSV   Export to PDF

Filter

| Filter by controller | From 04/08/2024 | To 04/08/2024 | Event All | | Total records 100 |

Date		Controller	Event	Data
04/08/2024 13:39		Bermad demo kit 252	External Power Connected	
04/08/2024 13:37		Bermad demo kit 252	Controller connected	
04/08/2024 13:37		Bermad demo kit 252	Provider RSSI	99, Pelephone (42503)
04/08/2024 13:37		Bermad demo kit 252	Valve closed	Valve 4
04/08/2024 13:37		Bermad demo kit 252	Modem Connect	
04/08/2024 13:37		Bermad demo kit 252	Modem Disconnect	
04/08/2024 13:36		Bermad demo kit 252	Valve closed	Main!
04/08/2024 13:36		Bermad demo kit 252	Valve closed	Plot 1
04/08/2024 13:36		Bermad demo kit 252	Controller disconnected	Unknown, 06:00:59
04/08/2024 13:36		Bermad demo kit 252	Controller Reset	unknown
04/08/2024 12:03		677	Controller did not connect	
04/08/2024 12:03		1311	Controller did not connect	
04/08/2024 12:02		Bermad demo kit 252	Valve closed	Valve 4

Dashboard

Alerts

Reports & Logs

Site Settings

Users

OMEGA

Logs

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

1. Verify that the relevant controller is selected
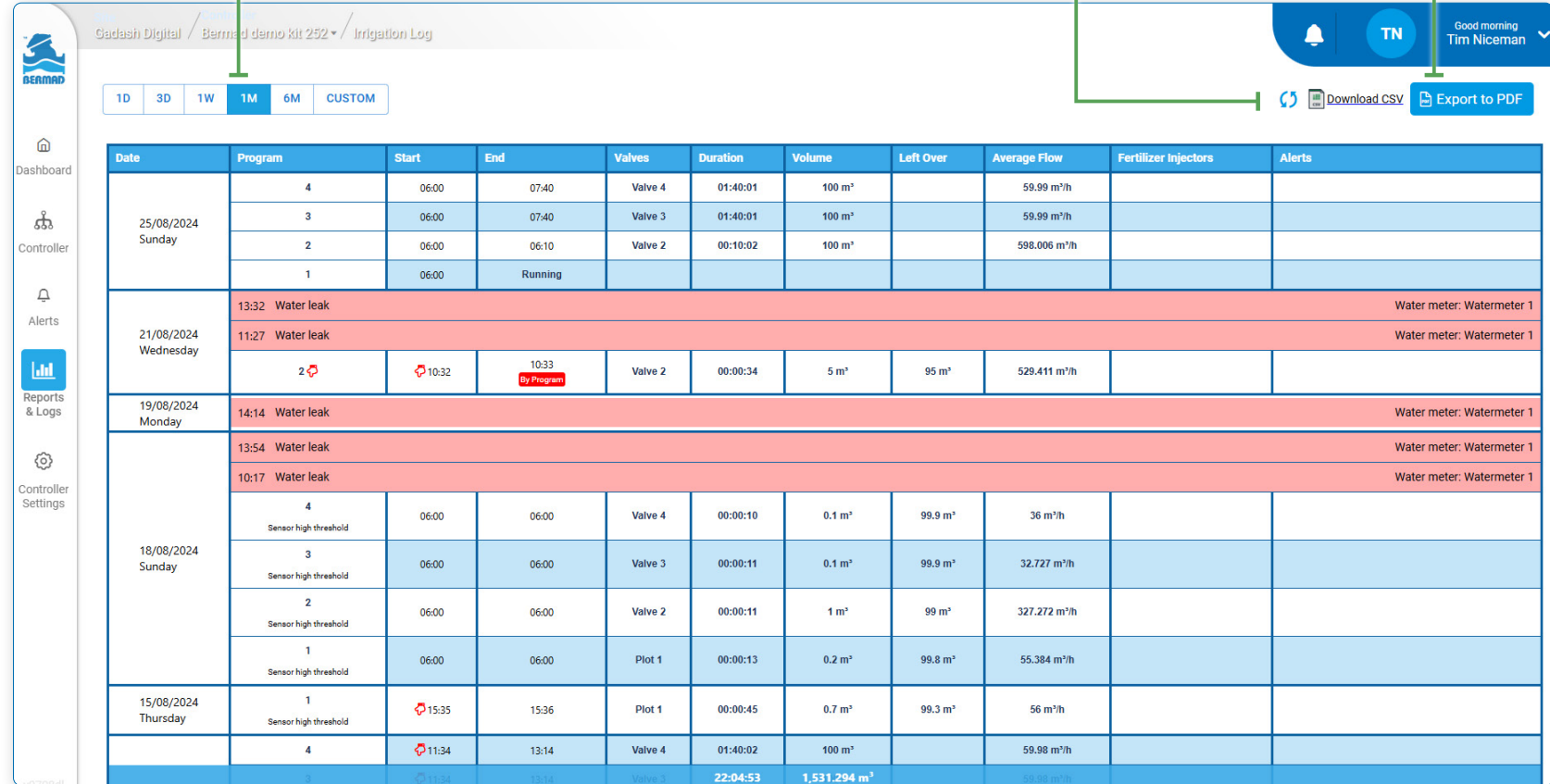
*2. Click the **Reports & Logs** icon*

The graphs display information on irrigation, water meter accumulation, user actions, valve accumulation, energy, system and fertigation meter accumulation

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

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Irrigation Log Daily Details

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

List of dates from which to select.

sync the log data.

Export report to a PDF or CSV file.

Date	The selected date
Program	The program which initiated the irrigation session
Start	Start time of the irrigation session. A red sign indicates there was an alert during the session
End	End time of the irrigation session
Valves	Valve name
Duration	Total duration of the session
Volume	Total amount of water in the session
Left Over	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 minus the amount actually used
Average Flow	Average flow of water throughout the session
Fertilizer Injectors	Amount of fertilizer injectors used in the session
Alerts	Displays the irrigation session alerts

6. SPECIFICATIONS

Power source

- Battery: four LR14 (C-size) alkaline batteries (up to 5 years operation in offline mode)
- External: 9-16 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
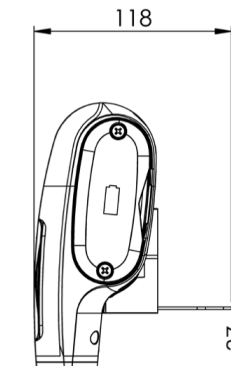
Packaging

No. of units: 1

Length (cm): 21

Width (cm): 25
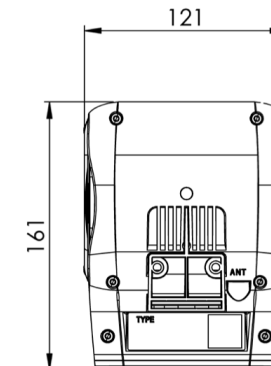
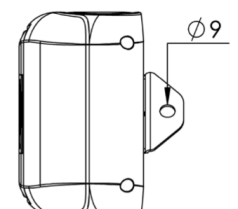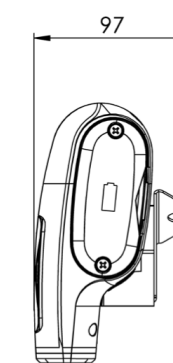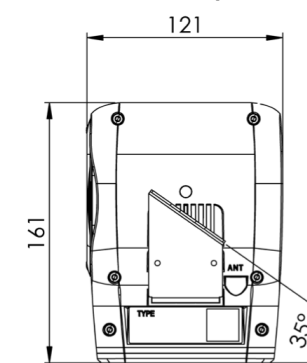Height (cm): 8

Gross weight (kg): 1.325

Dimensions

Wall mounted
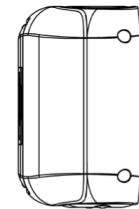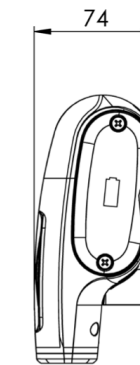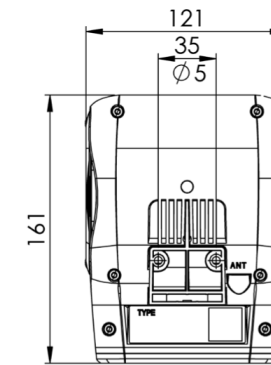
With globe valve adaptor
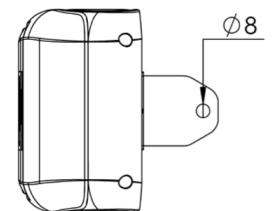
With oblique valve adaptor*

7. WARRANTY

BERMAD Standard International Limited Warranty

Product Details: OMEGA irrigation controller (the "**Product**")

BERMAD CS LTD. ("**BERMAD**") warrants that, for a period of 24 months from the retail purchase date of the original (first) purchaser (the "**Warranty Period**"), each component of the Product shall be free from defects in material or workmanship and the Product shall meet in all material respects its specification as detailed in BERMAD documentations.

General Conditions

This warranty shall be valid only if the Product is installed, handled and maintained in accordance with BERMAD's written manual provided together with the Products or publish on BERMAD website.

This Warranty does not cover defects or damages resulting from accident, inappropriate physical or operational environment, failure of electrical power, 'acts of nature' (which includes but is not limited to, hail, lightning storm, blizzard, flood and fire effects), improper installation, maintenance, service, repair, transportation, storage, modification, operation, use, damage by animals, negligence or fault by any party other than BERMAD.

This Warranty shall run solely to and in favor of the customer that purchased the defective Product directly from BERMAD (or any of its authorized dealers), and it does not extend to any other purchaser or user of the Product.

Claims, Notifications and Compensation

Every warranty claim must be notified in writing to BERMAD (or to the relevant authorized dealer from which the Product was purchased) as soon as reasonably possible after the discovery of the defective Product, enclosing the original sales receipt and this Warranty.

The claimant must allow BERMAD to inspect the Product involved and the installation site itself while the Product is still in its original position and has not been removed or altered in any way and/or return the Product to BERMAD for testing. BERMAD reserves the right to investigate independently the cause of any failure.

If a claim under this Warranty is properly notified within the Warranty Period and found to be justified by BERMAD, then BERMAD, at its sole option, shall: (i) replace such Product; or (ii) repair such Product.

In any way, BERMAD's liability shall not exceed the amounts actually paid by the customer to BERMAD (or to any of its authorized dealers) for the defective Products.

Limitations

This Warranty is the sole warranty in respect to the Products.

Under no circumstances shall BERMAD be liable for any indirect, special or consequential damages, including, without limitation, for any loss of profit, loss in connection with business interruption, loss of use, loss of revenues or damage to business or reputation.

This warranty does not cover any costs and expenses of removal and installation of the Product or shipping cost or taxes or any other direct or indirect loss(es) which may result from the Product failure and BERMAD shall not be liable for such costs and expenses.

OTHER THAN HAS BEEN SPECIFICALLY STATED IN THIS WARRANTY, ALL OTHER WARRANTIES, WHETHER EXPRESS OR IMPLIED, INCLUDING ALL IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE ARE EXCLUDED SO FAR AS THE LAW PERMITS.

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OMEGÂ Thank you!

Irrigation

BERMAD