Waterworks

EPSILON

Controller
Installation and Operation Guide

BERMAD

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1. SAFETY

This chapter reviews the EPSILON safety concerns and includes:

- Safety Conventions
- Safety Instructions
- Certificates
- EPSILON 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.

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 EPSILON 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.
- EPSILON Controller is not intended for use by children.

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

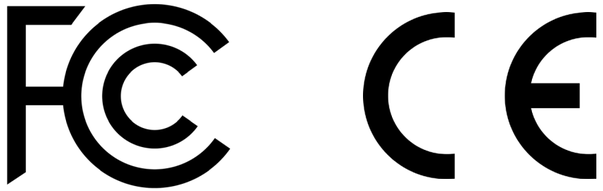
Battery Safety Instructions

- 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 EPSILON controller connector board.
- The power supply cables must first be connected to the EPSILON controller power connectors before plugging into an external power source.
- The EPSILON controller must first be unplugged from the external power source before disconnecting the power supply cables from the power connectors.

Certificates



EPSILON Controller Nameplate

This EPSILON controller nameplate is located on the back of the controller.
It contains the following information:

2. INTRODUCTION

This chapter reviews the controller and includes:

- Overview
- Typical System Layout
- EPSILON Controller
- Cloud Management System
- Installation Kit

Overview

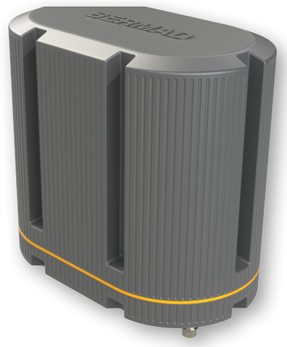
The Epsilon-C is an advanced system for pressure management, network monitoring, and system analysis. It is run using a battery-operated remote control.
It uses cyber-secure technology to transfer data to a cloud platform.

Controller Features

- 5-year internal battery life, or external power
- Large capacity data storage log
- Full connection to the Bermad Cloud and other platforms via API or FTP for monitoring and remote setting.
- Intuitive and user-friendly platform
- Advanced graphs and reports
- Alerts and notifications via E-mail
- Two built-in internal pressure sensors with +/- 0.5% accuracy

Application Features

- Two pressure systems that can switch between LOW and HIGH set points, according to the flow rate or time window (Day/Night)
- Monitoring and controlling that uses digital and analog inputs:
  - Pressure Sensors
    A) in critical points of the DMA for pressure management
    B) for valve operation and performance monitoring
  - Water meters for counting the flow rate, accumulated volume and to assist water balance calculation
  - Water level grade in tanks, reservoirs, and water towers
  - Temperature sensors
  - Limit switch and valve position transmitter



Typical System Layout

The chart below illustrates a typical system layout:

BERMAD Cloud
Enables configuring and monitoring the EPSILON controller, see Configuration

Pressure Reducing Valve
Monitored and controlled by EPSILON controller see Adding Fittings to Valve

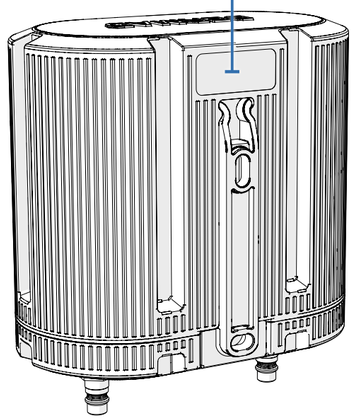
Water Meter
The water meter is connected to monitor water flow data, see Connecting to Water Meter (Optional)

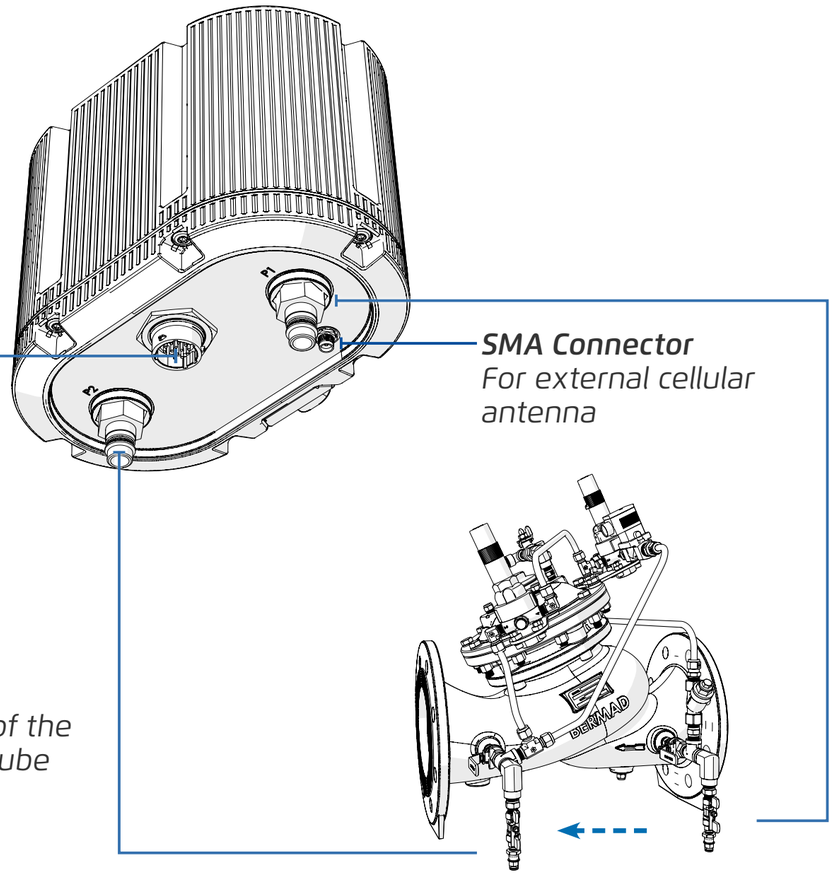
EPSILON Controller

The EPSILON Controller includes the following:

EPSILON Controller
Includes analog sensors that measure the upstream and downstream pressures

Mounting Grooves
Enables mounting on a wall mount bracket





I/O Connector
For all inputs and outputs (i.e. water meter and external power)

SMA Connector
For external cellular antenna

P2
Enables connection of the downstream water tube

P1
Enables connection of the upstream water tube

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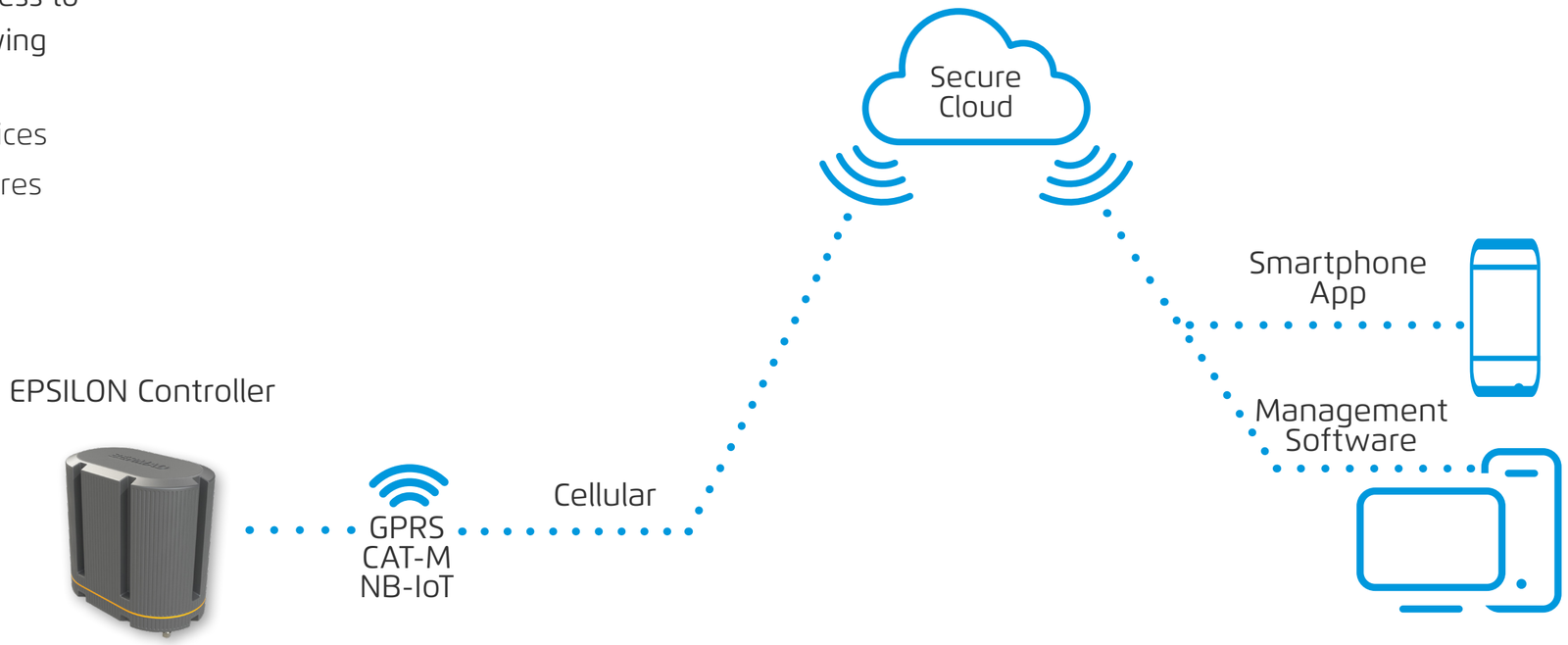
Cloud Management System

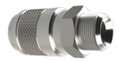
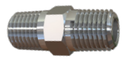
BERMAD Cloud offers web-based internet access to the EPSILON Controller and includes the following features:

- Global management of all EPSILON devices
- User-friendly and intuitive control features
- Real time status and monitoring



Installation Kit

This section reviews the installation kit.

Serial Number	Image	Description	QTY
066000N360		NICKEL PLATED BRASS QUICK COUPLING DN5(M)X6mmTUBE	2
9901260055		1/4" S.S 316 2W 1PC BALL VALVE, H10 NPT 800PSI T HANDLE FEMALE-FEMALE (FP) type S20	2
060400N918		NICKEL PLATED BRASS QUICK COUPLING WITH VALVE DN5(F) X G 1/8” (F)	2
060608N068		NICKEL PLATED PUSH IN BRASS FITTING MALE CONNECTOR 6mmxG1/8"BSPP 68F	2
060400N908		NICKEL PLATED BRASS QUICK COUPLING DN5(F)X1/4''BSP(M)	2
060404C122		S.S 316 HEX NIPPLE 1/4NPT(M) x 1/4NPT(M) - 122B	2
060404C116		S.S 316 STREET ELBOW 1/4NPT(M) x 1/4NPT(F) - 116B	2
070400P010		LLDPE John Guest tube, 6mm, BLACK – 10 Meter	10m

3. INSTALLATION

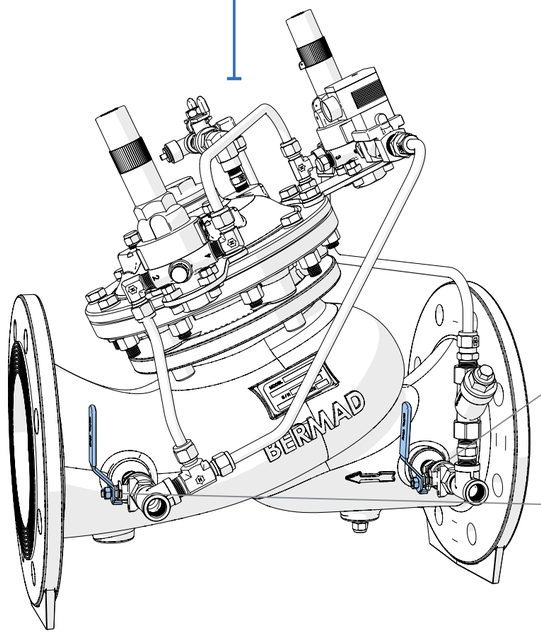
This chapter reviews EPSILON installation and includes:

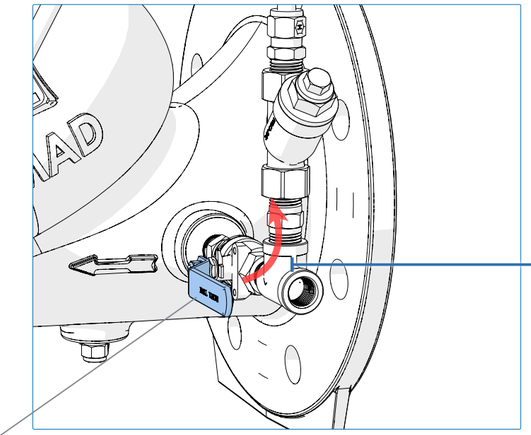
- Adding Fittings to Valve
- Mounting EPSILON Controller to Wall
- Connecting to Upstream Outlet
- Connecting to Downstream Outlet
- Connecting to Water Meter (Optional)
- Cables Index
- Verifying BERMAD Cloud Connection

Adding Fittings to Valve

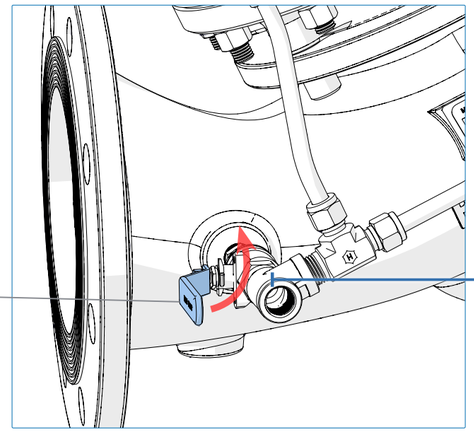
Perform the following steps to install fittings to the pressure reducing valve:

1. *Shut off the control cock valve to maintain the pressure in the mainline*

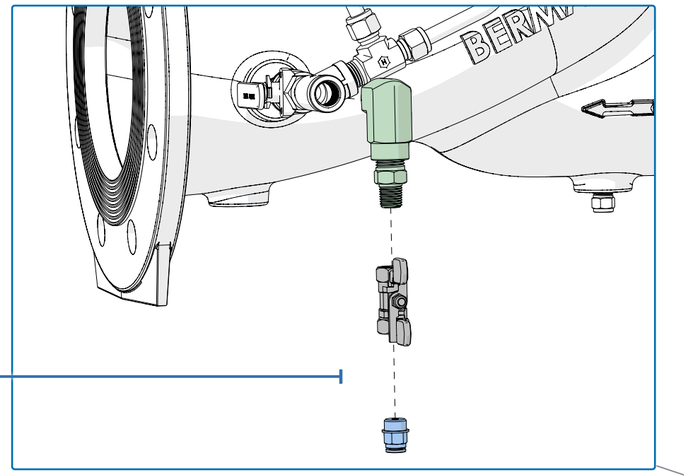




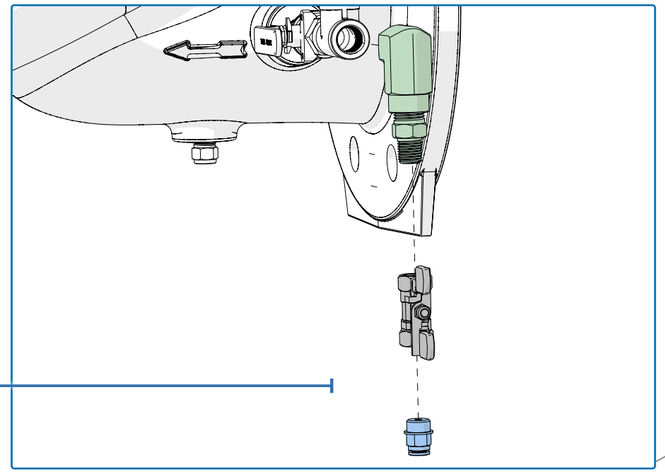
2. *Shut off the Upstream cock valve*



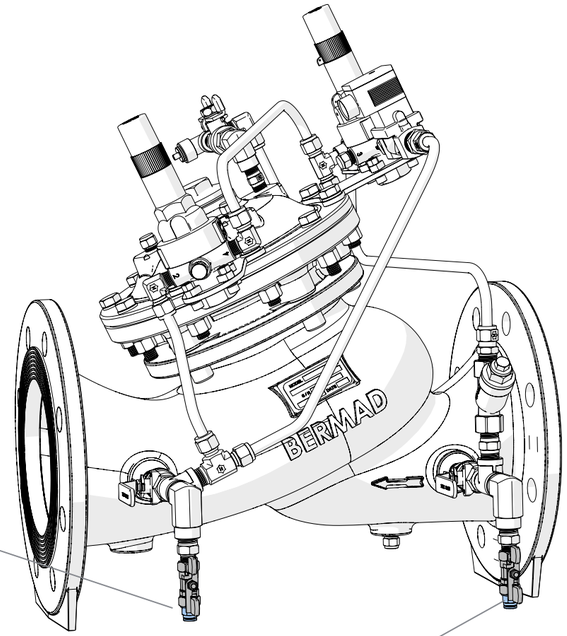
3. *Shut off the Downstream cock valve*



4. *Connect fittings to the downstream outlet*



5. *Connect fittings to the upstream outlet*



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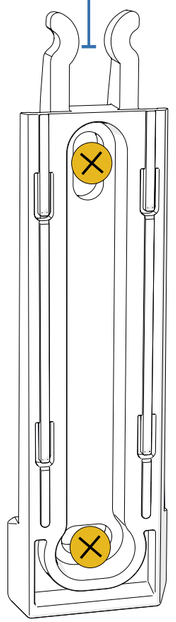
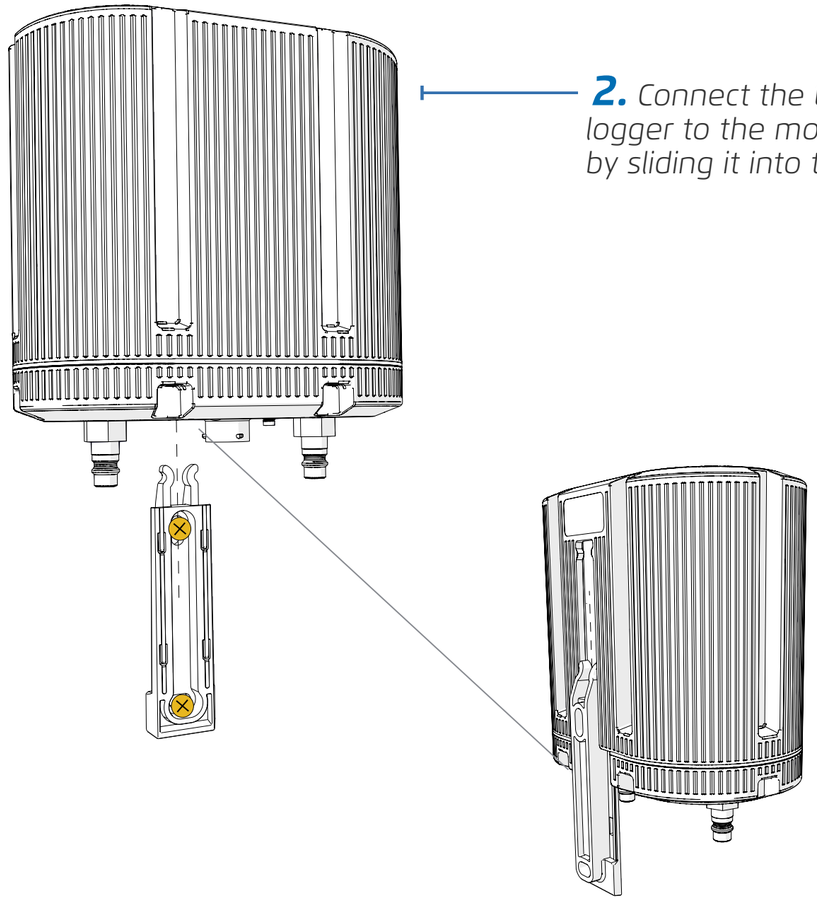
Mounting EPSILON Controller to Wall

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

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

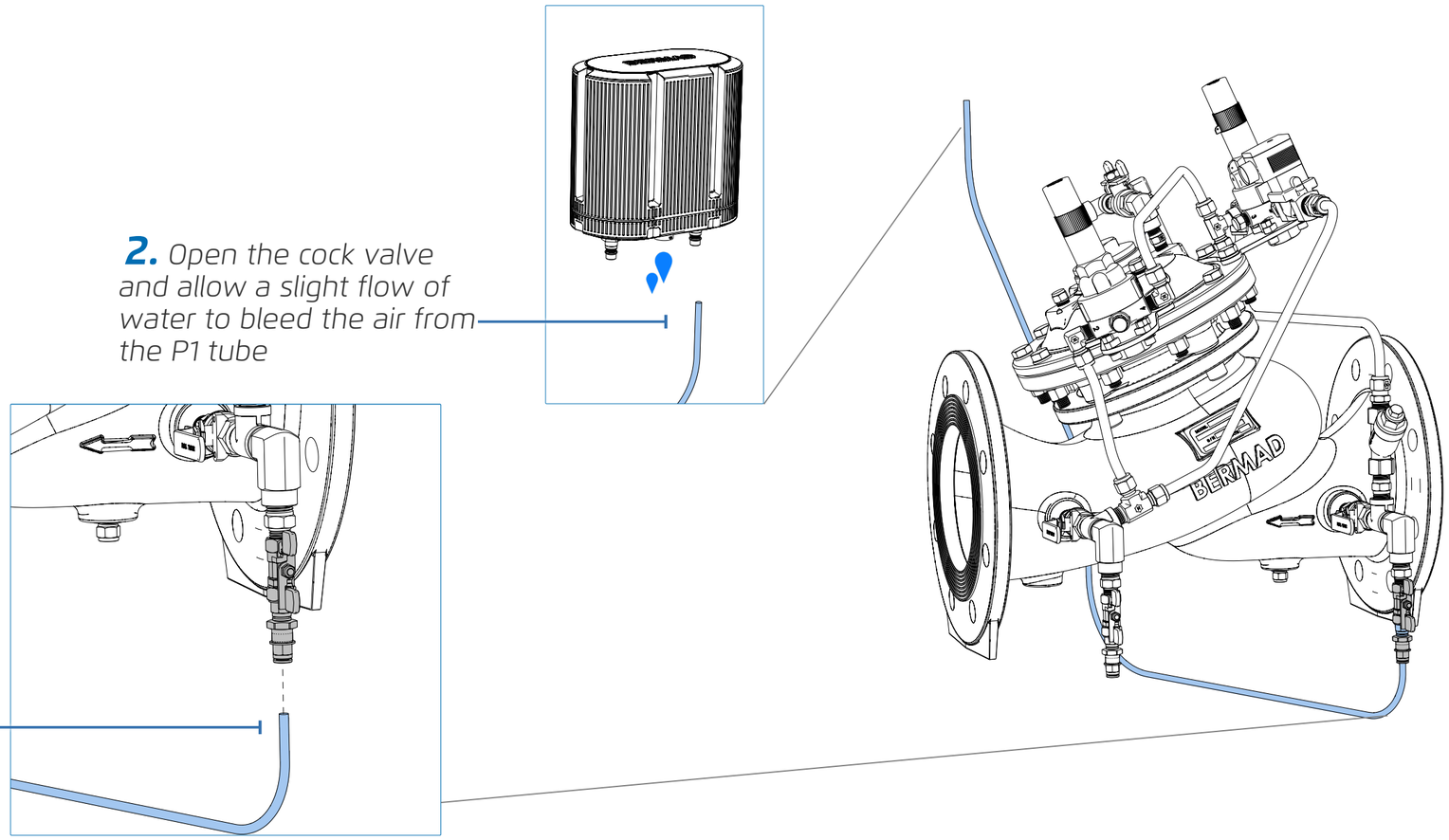




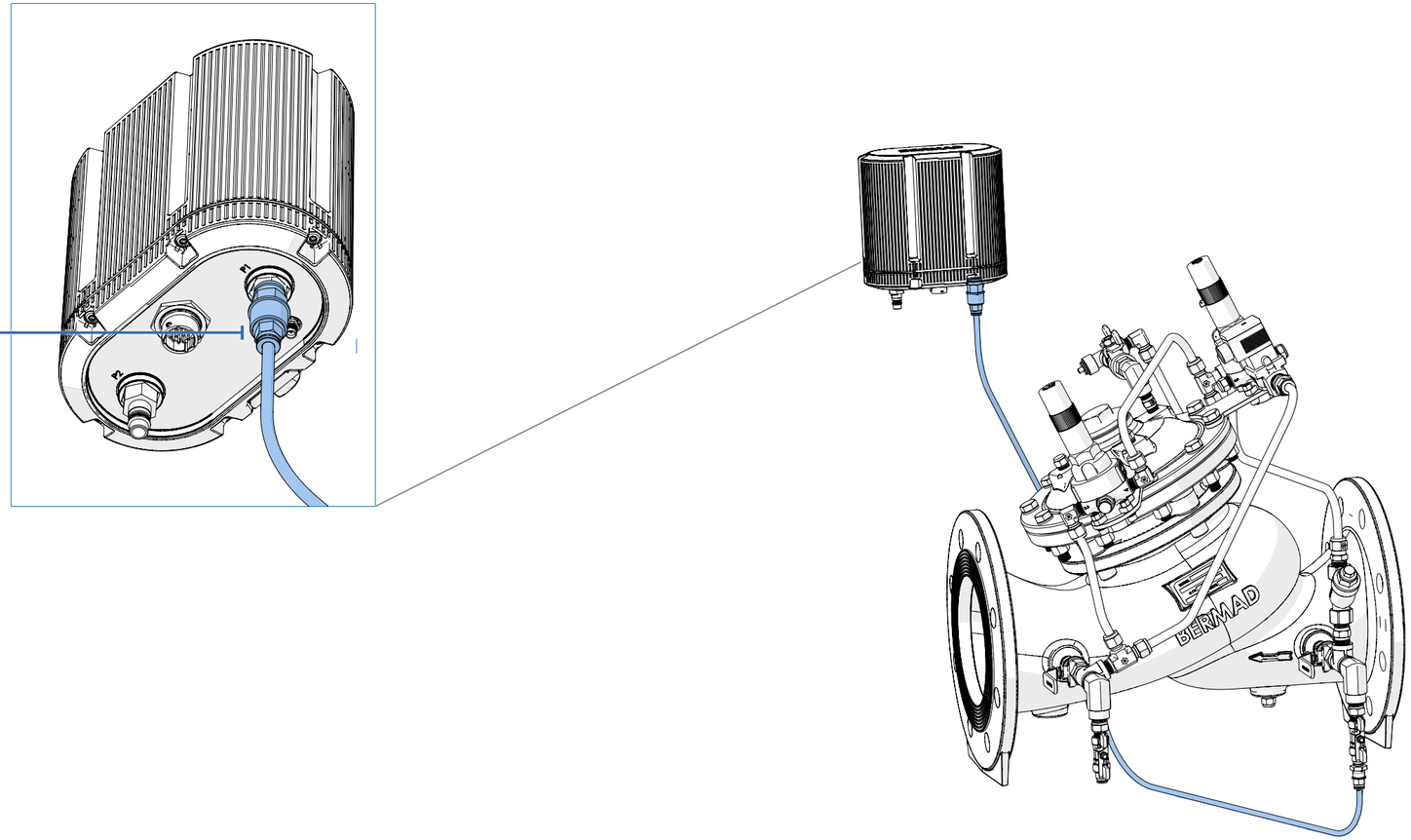
2. *Connect the EPSILON data logger to the mounting bracket by sliding it into the groove*

Connecting to Upstream Outlet

Perform the following steps to connect the EPSILON controller to the upstream outlet:



3. *Connect the other end of the P1 tube to the P1 port on the controller*



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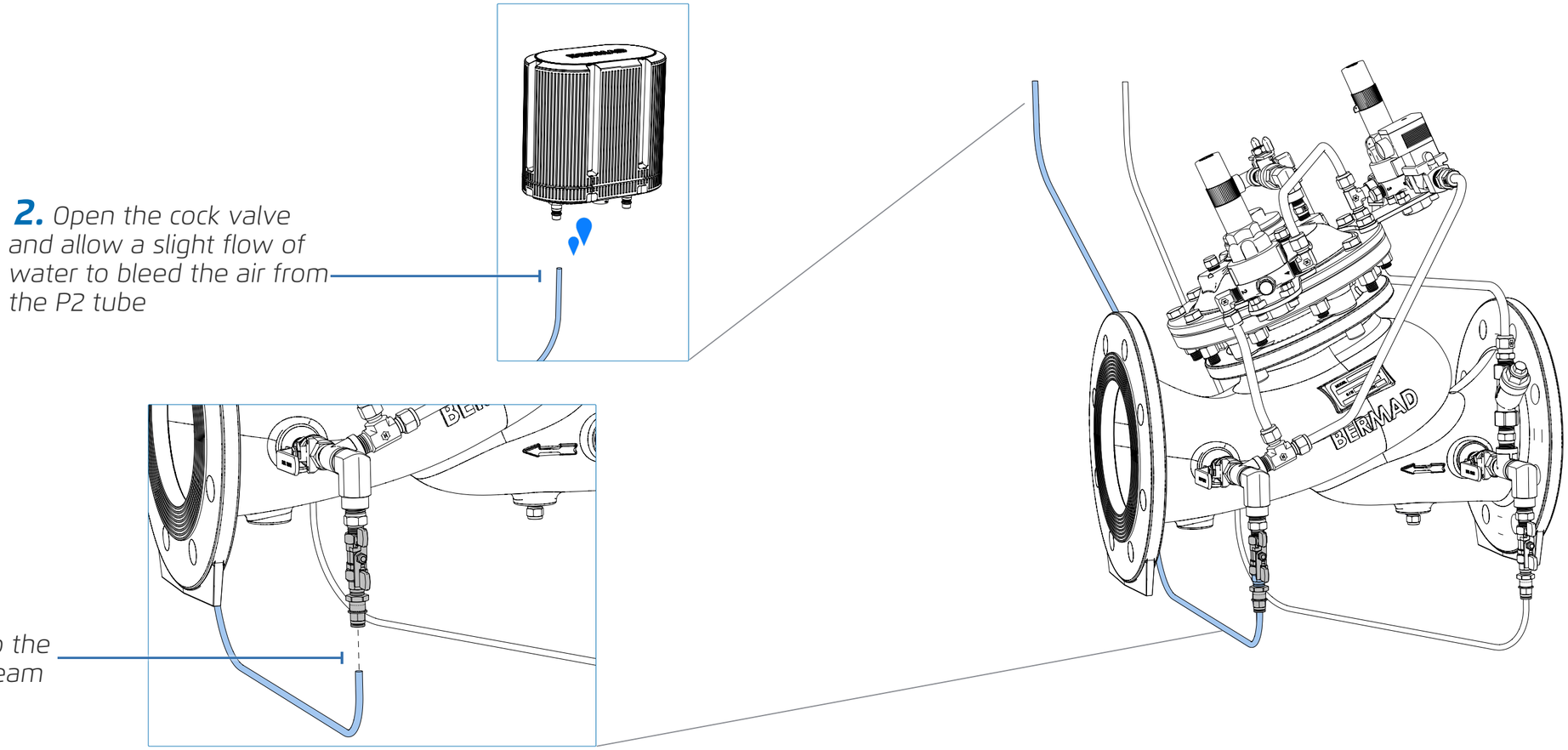
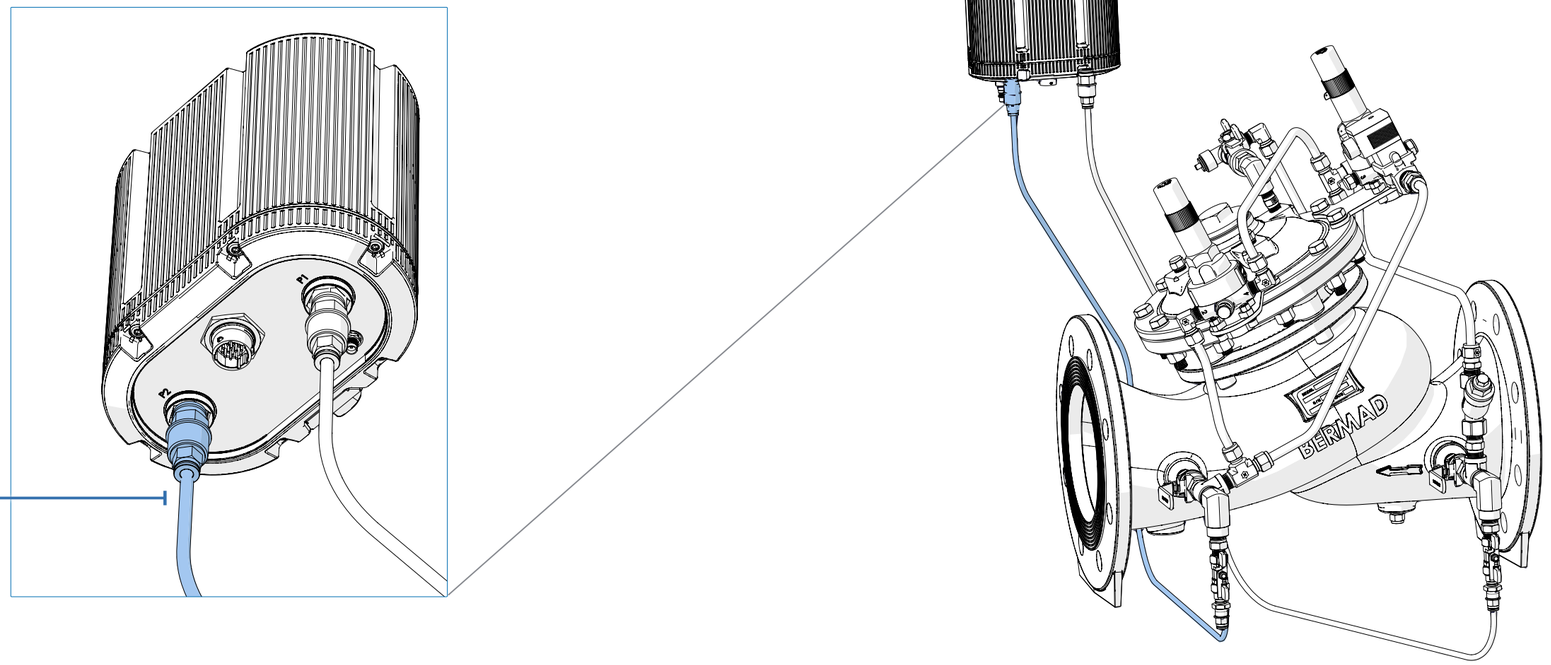
Connecting to Downstream Outlet

Perform the following steps to connect the EPSILON controller to the downstream outlet:



3. *Connect the other end of the P2 tube to the P2 port on the controller*



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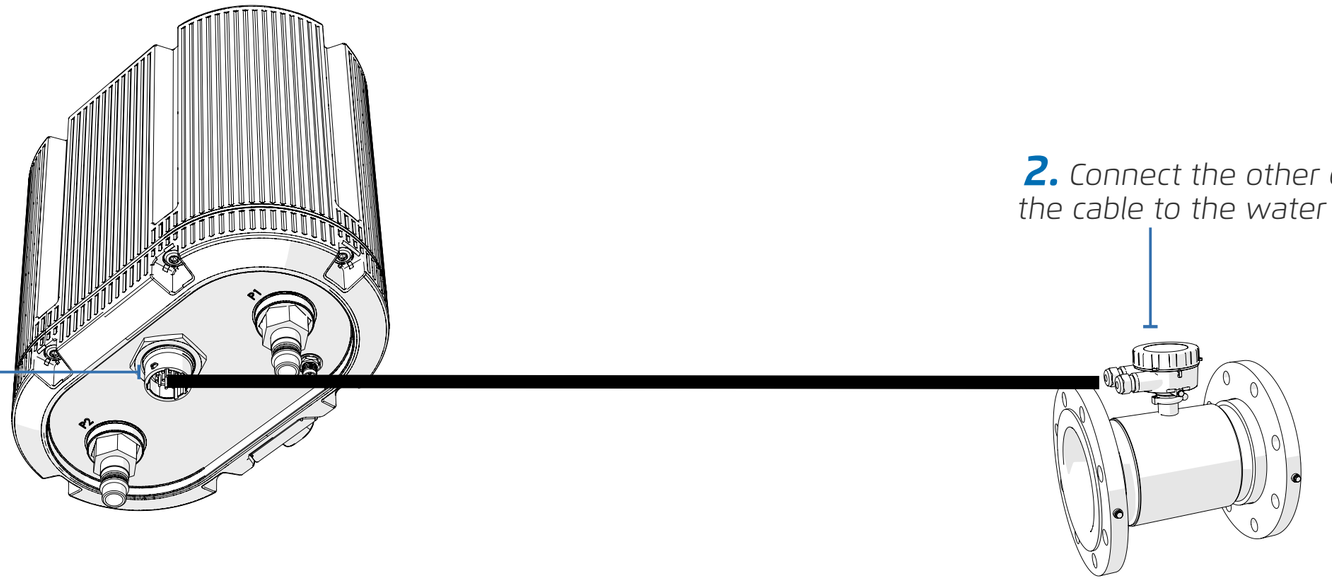
Connecting to Water Meter (Optional)

Perform the following steps to connect the EPSILON controller to the water meter:

1. *Connect the cable to the I/O port on the EPSILON controller. Connect the water meter to Digital Input #1 with K and P cables. See Cables Index*

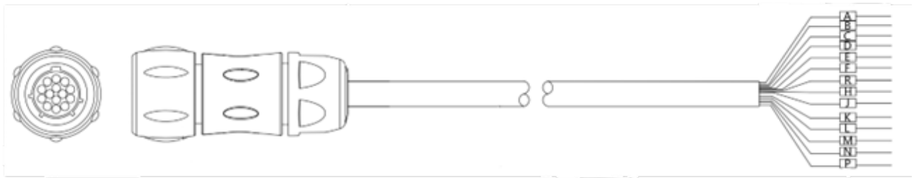


2. *Connect the other end of the cable to the water meter*

Cables Index

This section reviews the various cables.

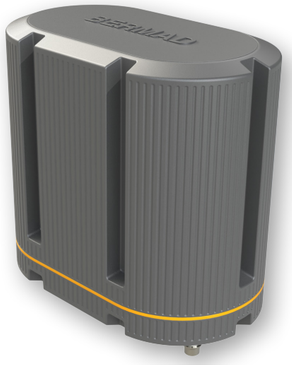
BDE0000010 - DELTA & EPSILON 14 Wire Cable with SOURIAU Connector UTS6JC12E14S L=2.5M for External Latch, Digital & Analog Inputs		
Label	**Function**	**Color**
A	Power -	**Black**
B	Power +	**Red**
C	RS485	**Orange**
D	RS485	**Green**
E	Digital Out 1	**Blue**
F	Digital Out COM 1	**Gray**
R	Digital Out 2	**White**
H	Digital Out COM 2	**Brown**
J	Digital Input COM 3-4	**Purple**
K	Digital Input COM 1-2	**Light Purple**
L	Digital Input 4	**Navy Blue**
M	Digital Input 3	**Light Green**
N	Digital Input 2	**Yellow**
P	Digital Input 1	**Pink**



Verifying BERMAD Cloud Connection

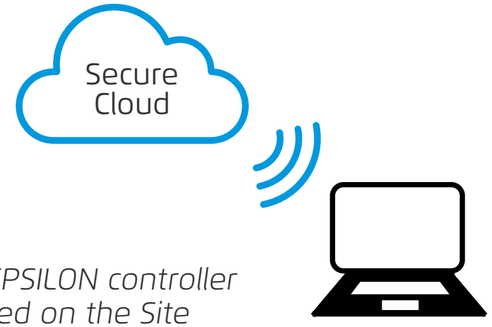
Perform the following steps to verify that the EPSILON Controller connects to the BERMAD Cloud:

1. *Using the Blueart, take the Epsilon out of Storage mode using this command:*
*'**DISABLE_STORAGE_MODE**'*
** Contact Bermad contact person if any assistance is needed*

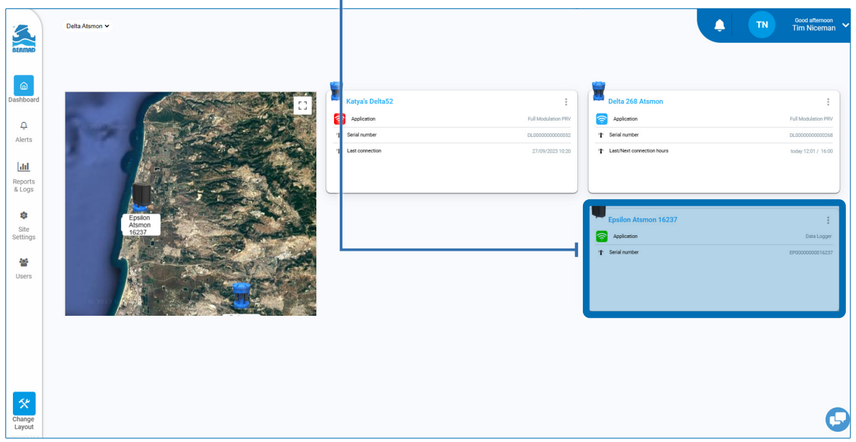


2. *Register, log in and connect to BERMAD cloud with a remote computer.*
See Getting Started

3. *The EPSILON controller is connected to the Cloud*



4. *The EPSILON controller is displayed on the Site Dashboard screen*



Tip: It is recommended to perform this process at the office before installation at site.

4. CONFIGURATION

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

- Getting Started
- Registering
- Logging In
- Site Dashboard Overview
- Managing Sites and Controllers
- Controller Settings

Getting Started

This section reviews setup and calibration and includes:

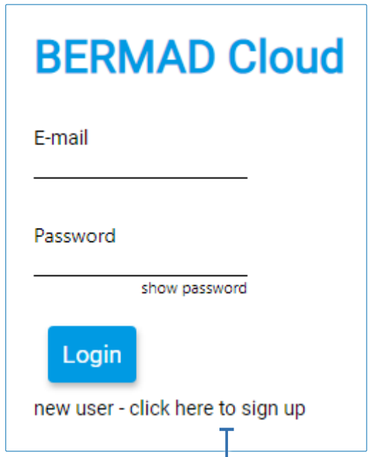
- Registering
- Logging In
- Site Dashboard Overview
- Controller Display
- Main Toolbar
- Changing Layout

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



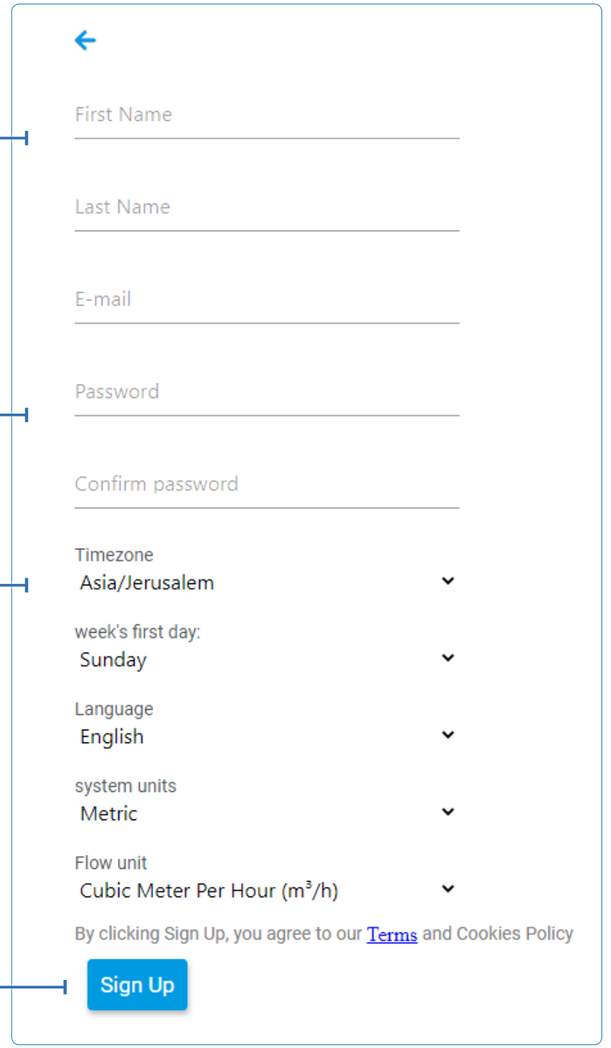
2. *Click **sign up**. The registration window opens*

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***



Logging In

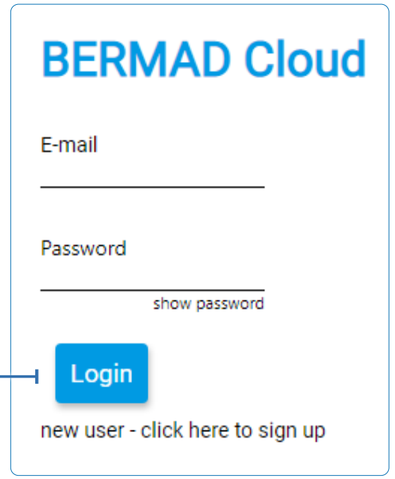
Perform the following steps to log in to BERMAD Cloud:

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*



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

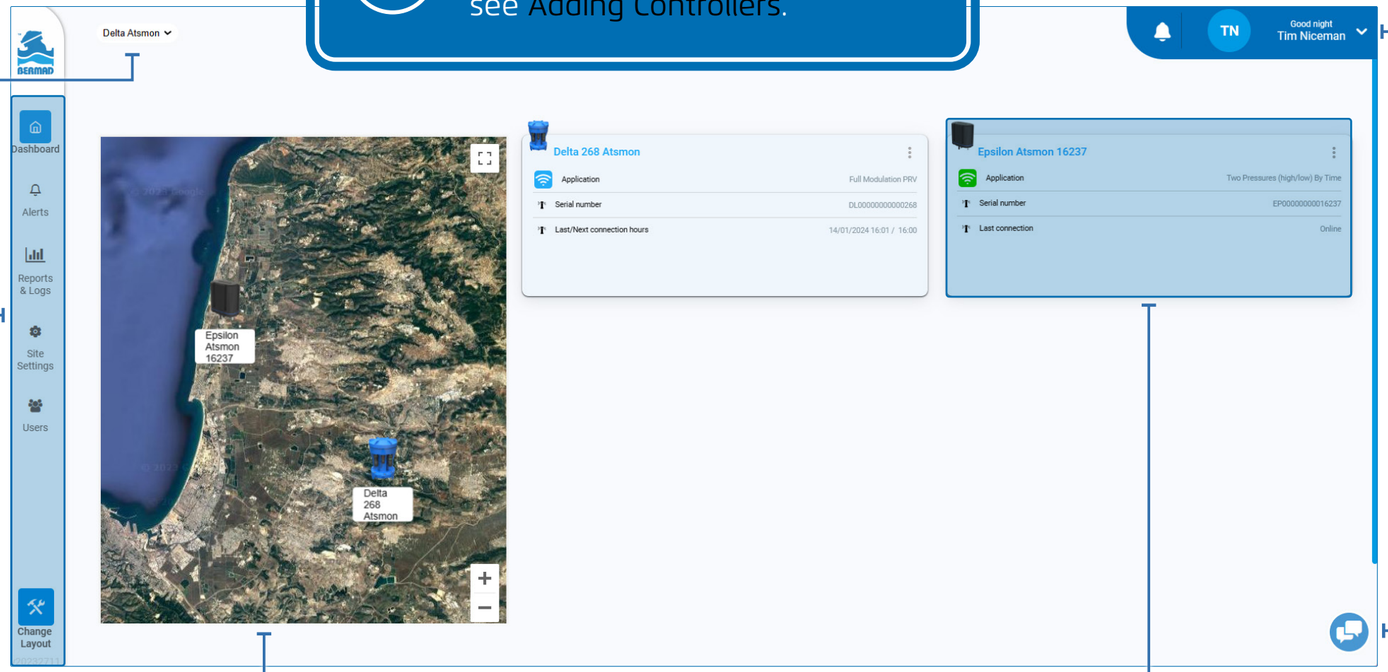
Site Dashboard Overview

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*
See Main Toolbar



User Info – *displays and enables managing user information*

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

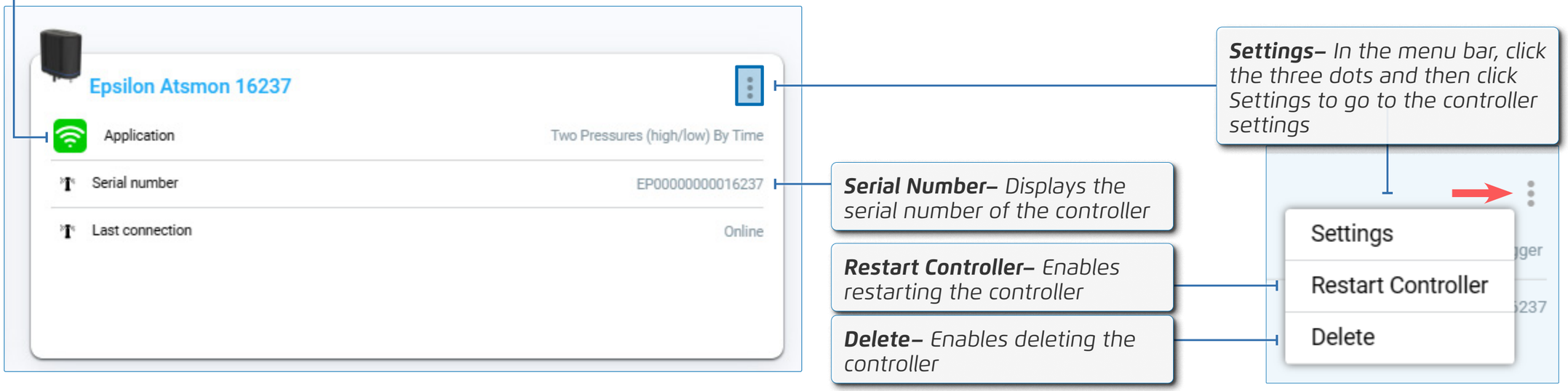
Live Map – *displays the site controllers on a live map*

Controller Display – *displays the selected site's controllers*
See Selecting a Device

Controller Display

The EPSILON controller displays the following:

Status Icon– *icon with the communication status:*
- *Green - Online mode (successfully connected)*
- *Blue - Successfully connected in the last 24 hrs*
- *Red - Failed to connect in the last 24 hrs*



Settings– *In the menu bar, click the three dots and then click Settings to go to the controller settings*

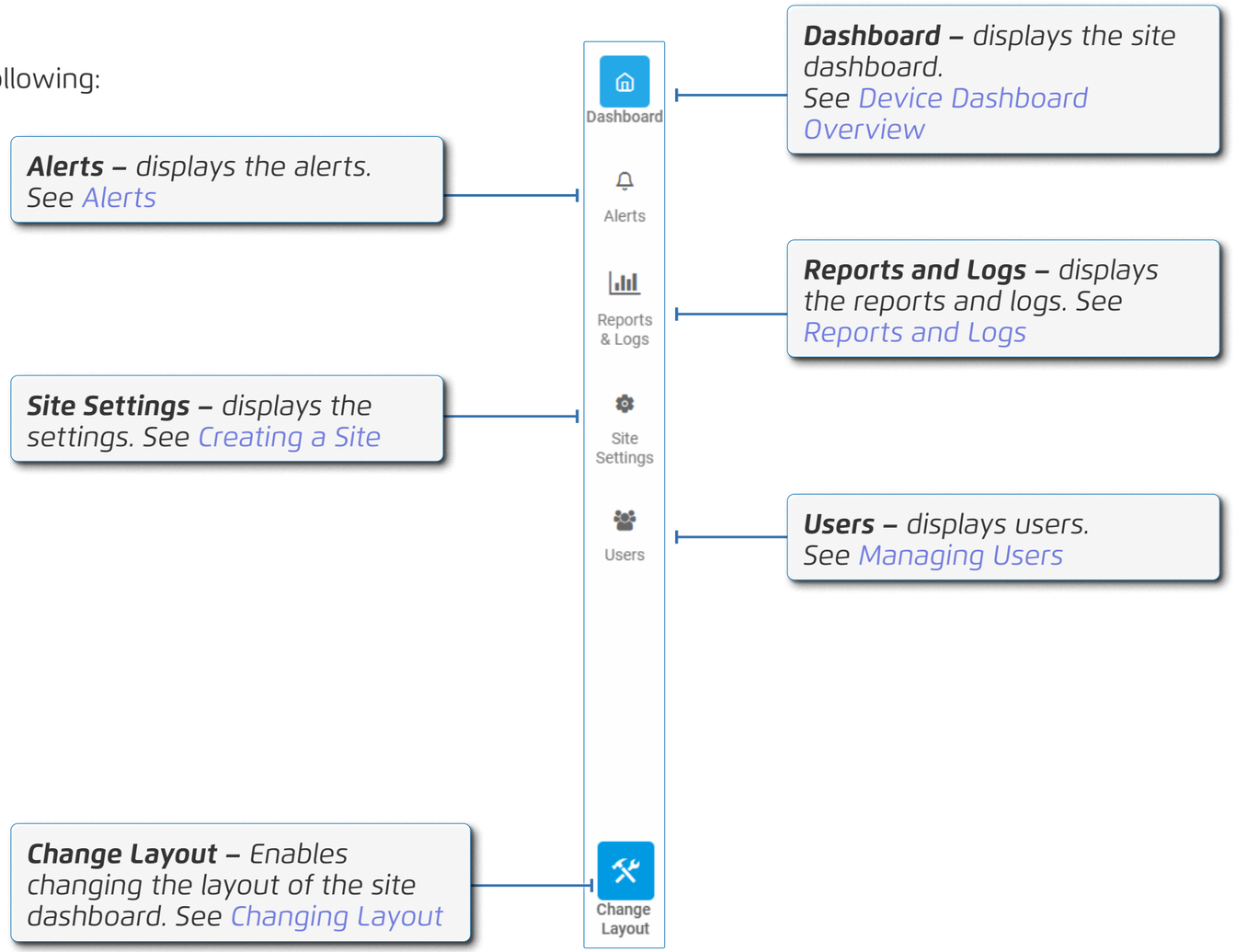
Serial Number– *Displays the serial number of the controller*

Restart Controller– *Enables restarting the controller*

Delete– *Enables deleting the controller*

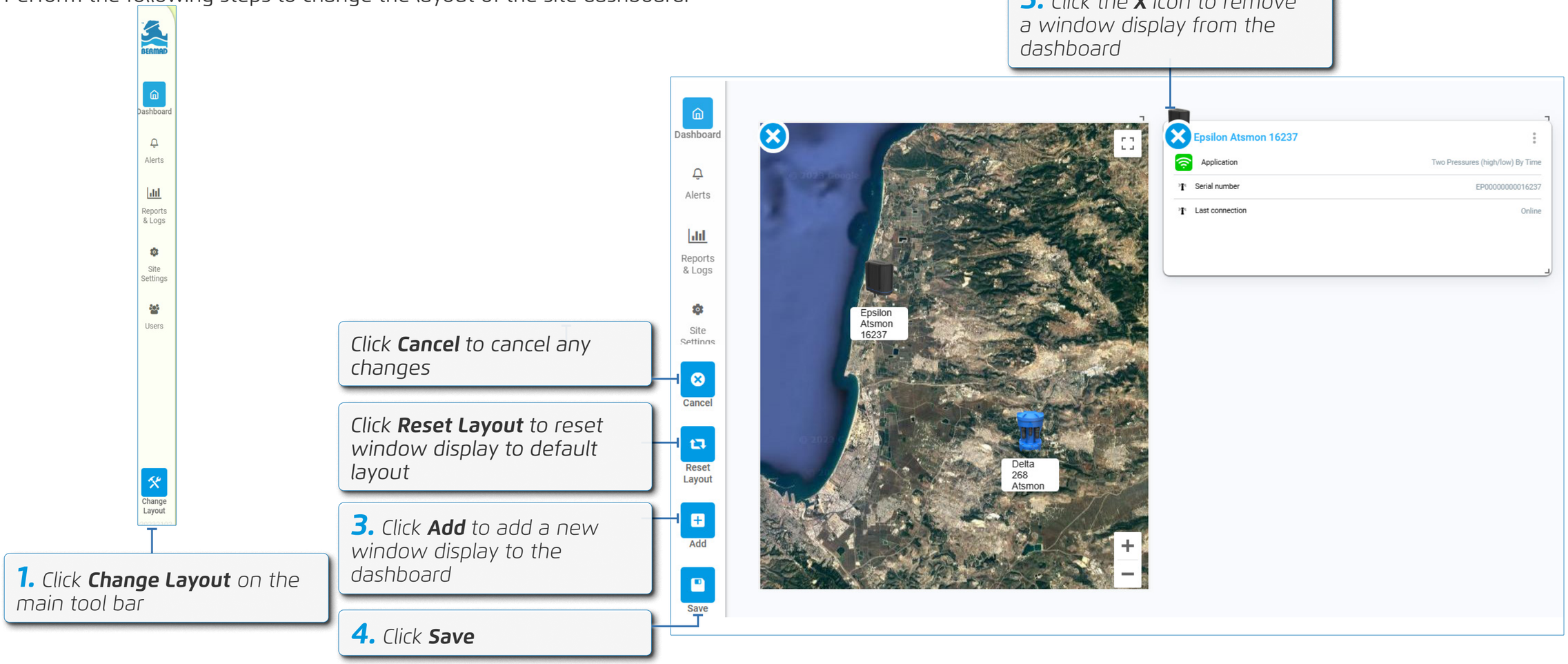
Main Toolbar

The main toolbar displays the following:



Changing Layout

Perform the following steps to change the layout of the site dashboard:



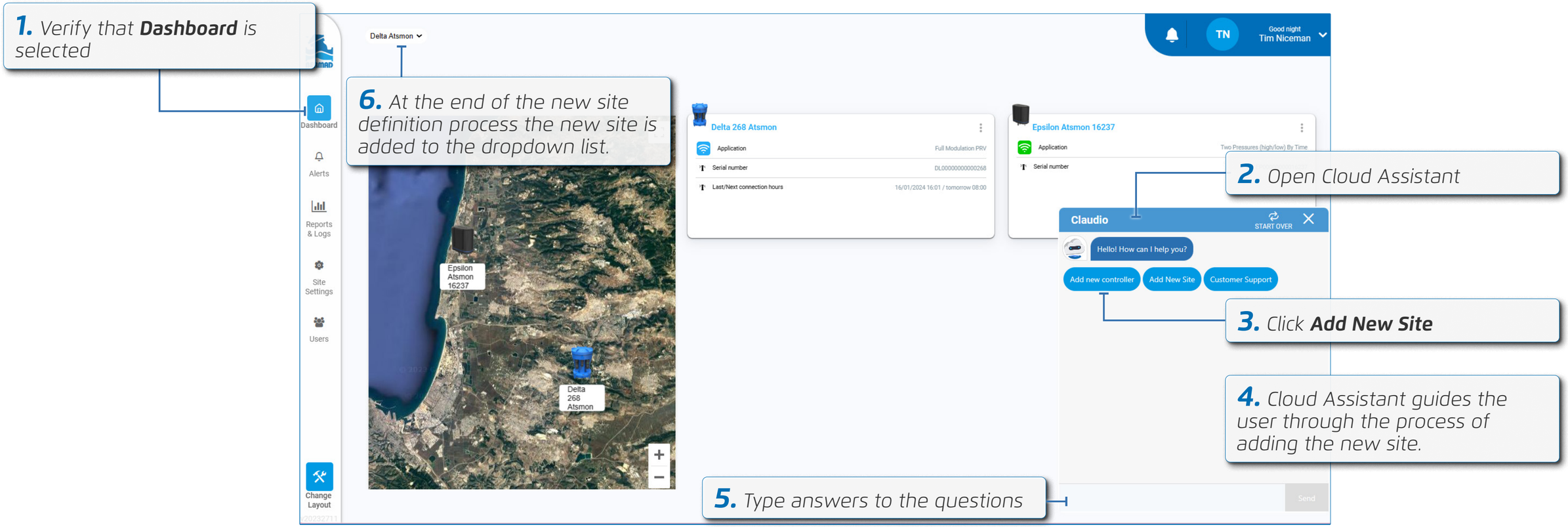
Managing Sites and Controllers

This section reviews managing sites and includes:

- Creating a Site
- Editing a Site
- Adding Controllers
- Selecting a Device
- Device Dashboard Overview
- Controller Main Toolbar

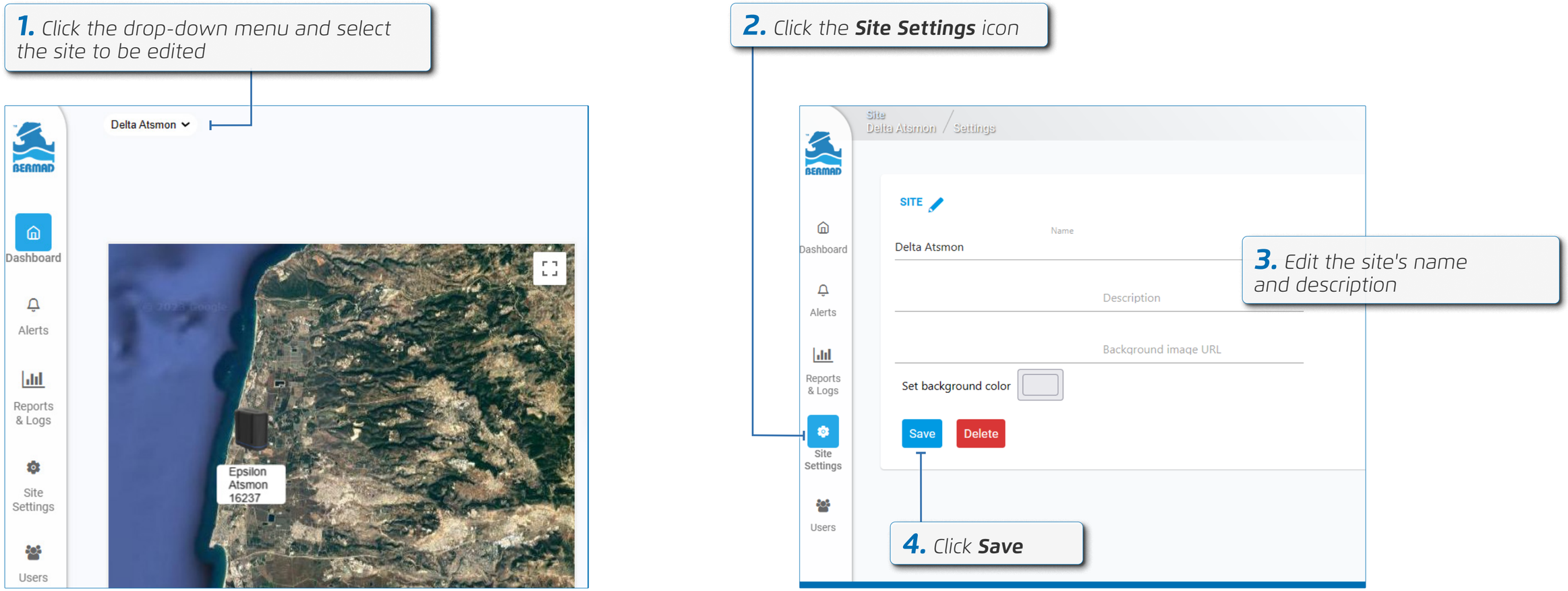
Creating a Site

Perform the following steps to add a new site:



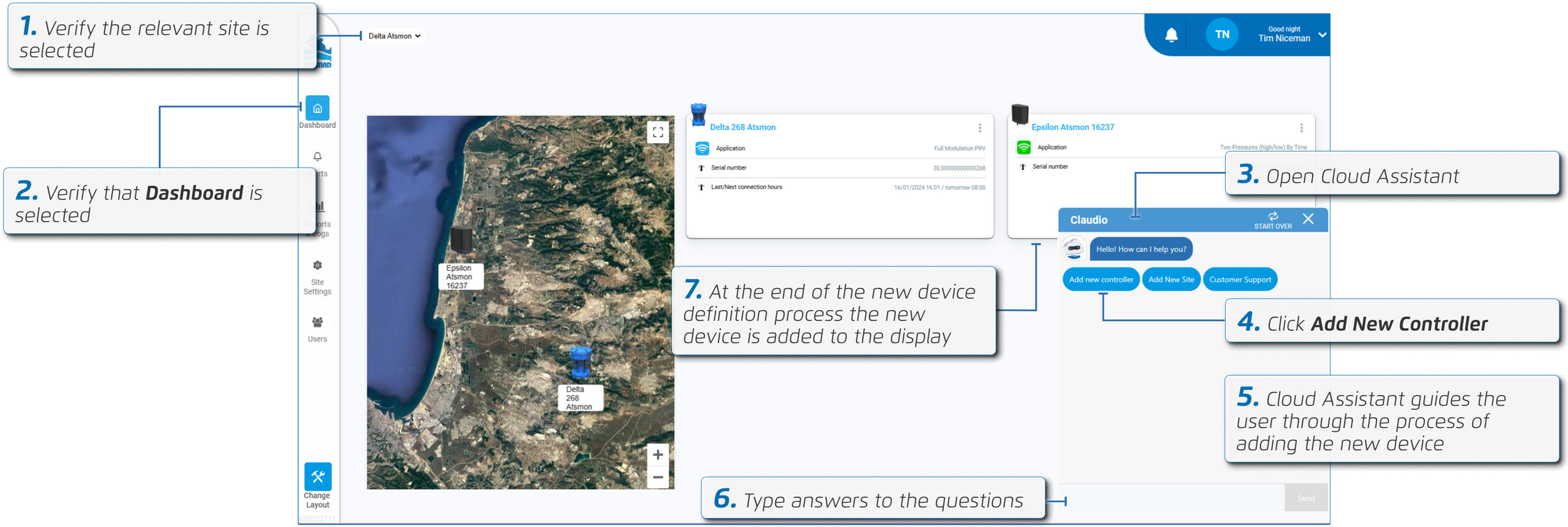
Editing a Site

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



Adding Controllers

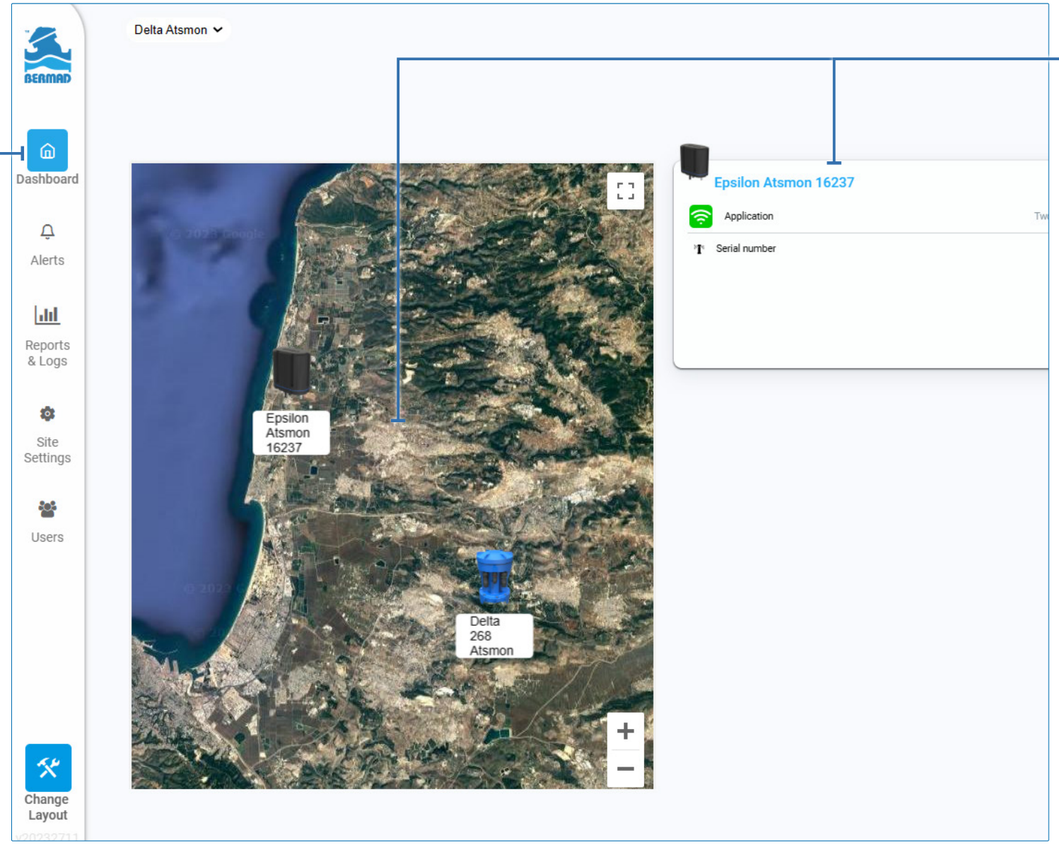
Perform the following steps to add a new controller to the selected site:



Selecting a Device

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

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



2. *Click on the relevant controller from the Controller Dashboard or from the Live Map*

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

Device Dashboard Overview

When selecting a device the following information is displayed:

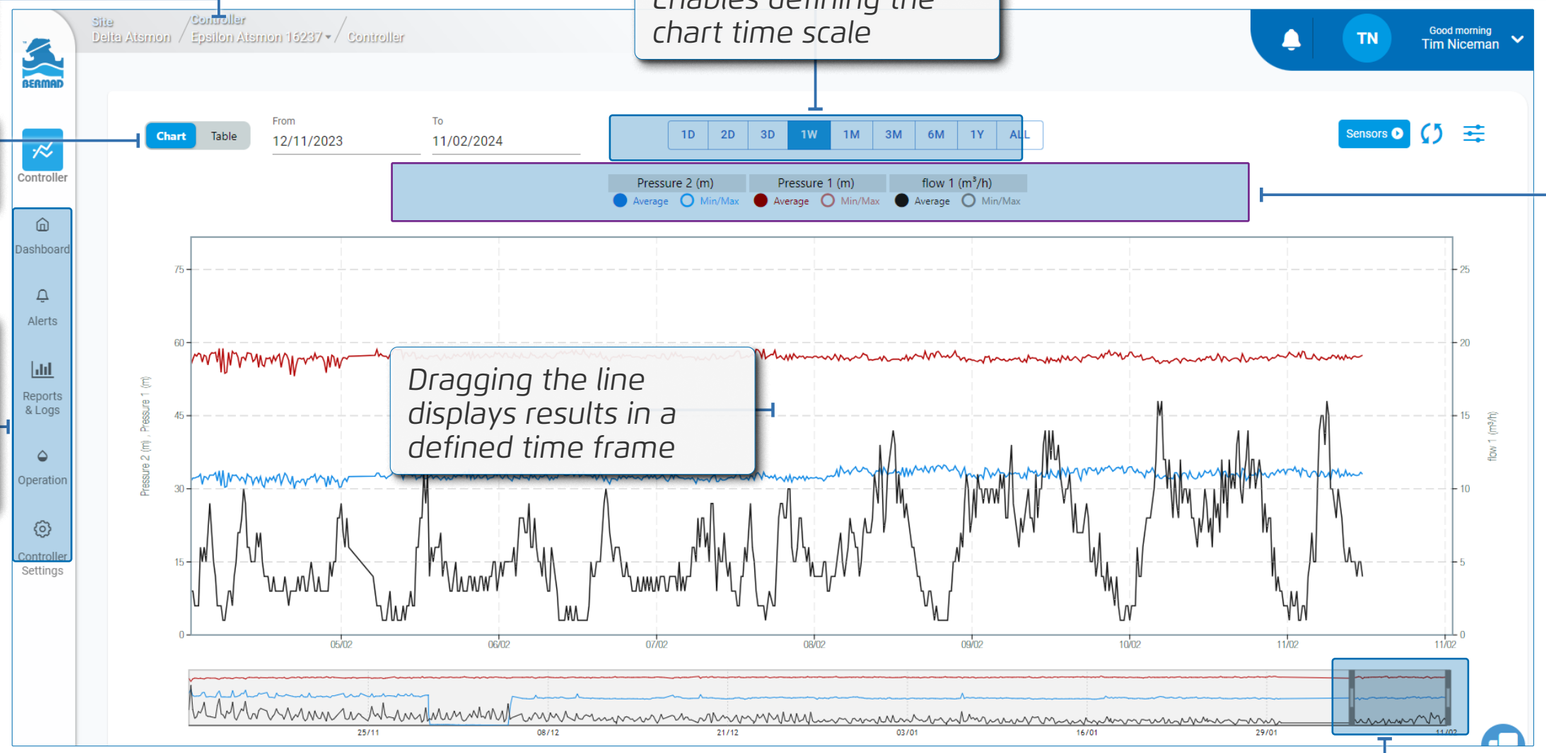
NOTE: The units of measurement displayed are based on the user selection after signing in. The units can be changed iin the account settings.

Selected device identification

Option to view data in a chart or table format

Device Main Toolbar - displays the navigation options for the device see Controller Main Toolbar

Enables defining the chart time scale



Dragging the line displays results in a defined time frame

Chart Displays:

- P1 Upstream pressure
- P2 Downstream pressure
- Water Flow rate
- Displays the curve
- Does not display the curve

Moving the brackets displays results in a defined time frame

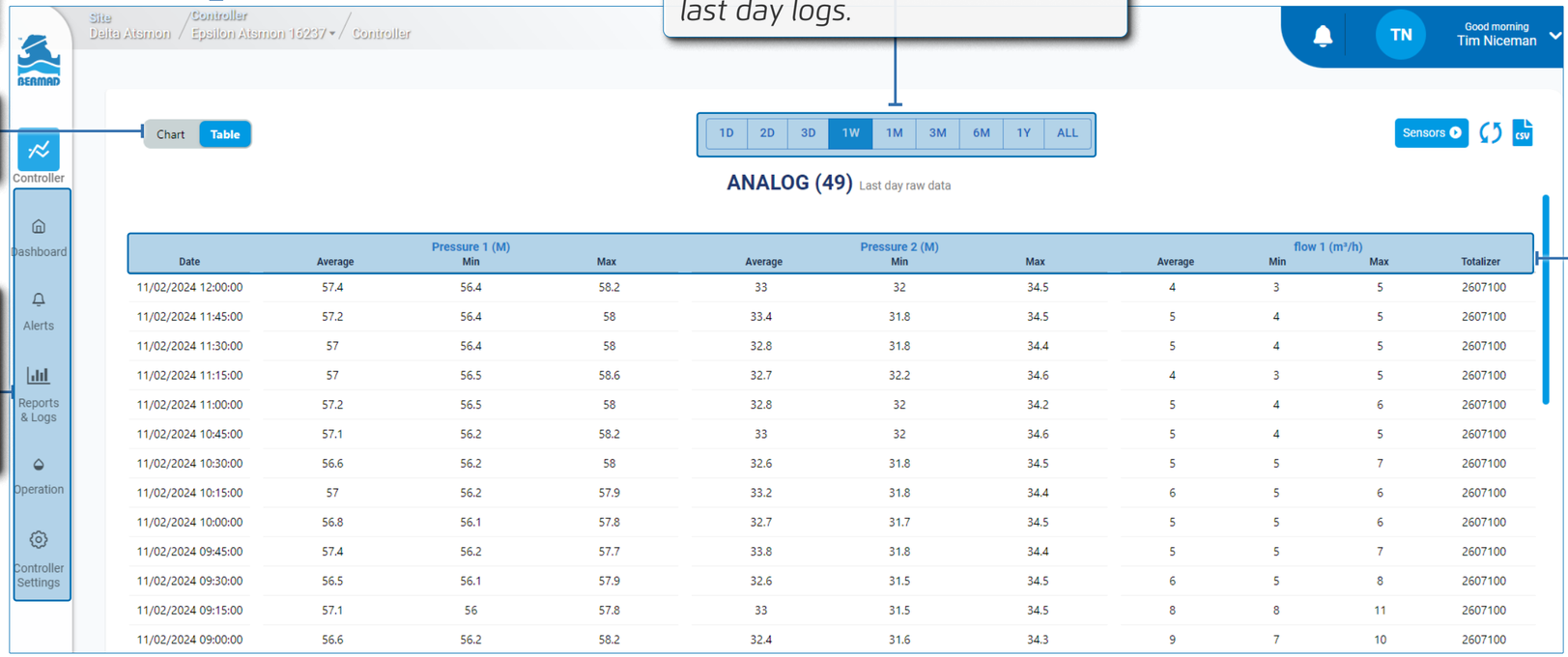
Table Display

Selected device identification

Option to view data in a chart or table format

Device Main Toolbar - displays the navigation options for the device see Controller Main Toolbar

*Enables defining the chart scale *The time scale refers to the CSV file export. In the web page the chart will display only the last day logs.*

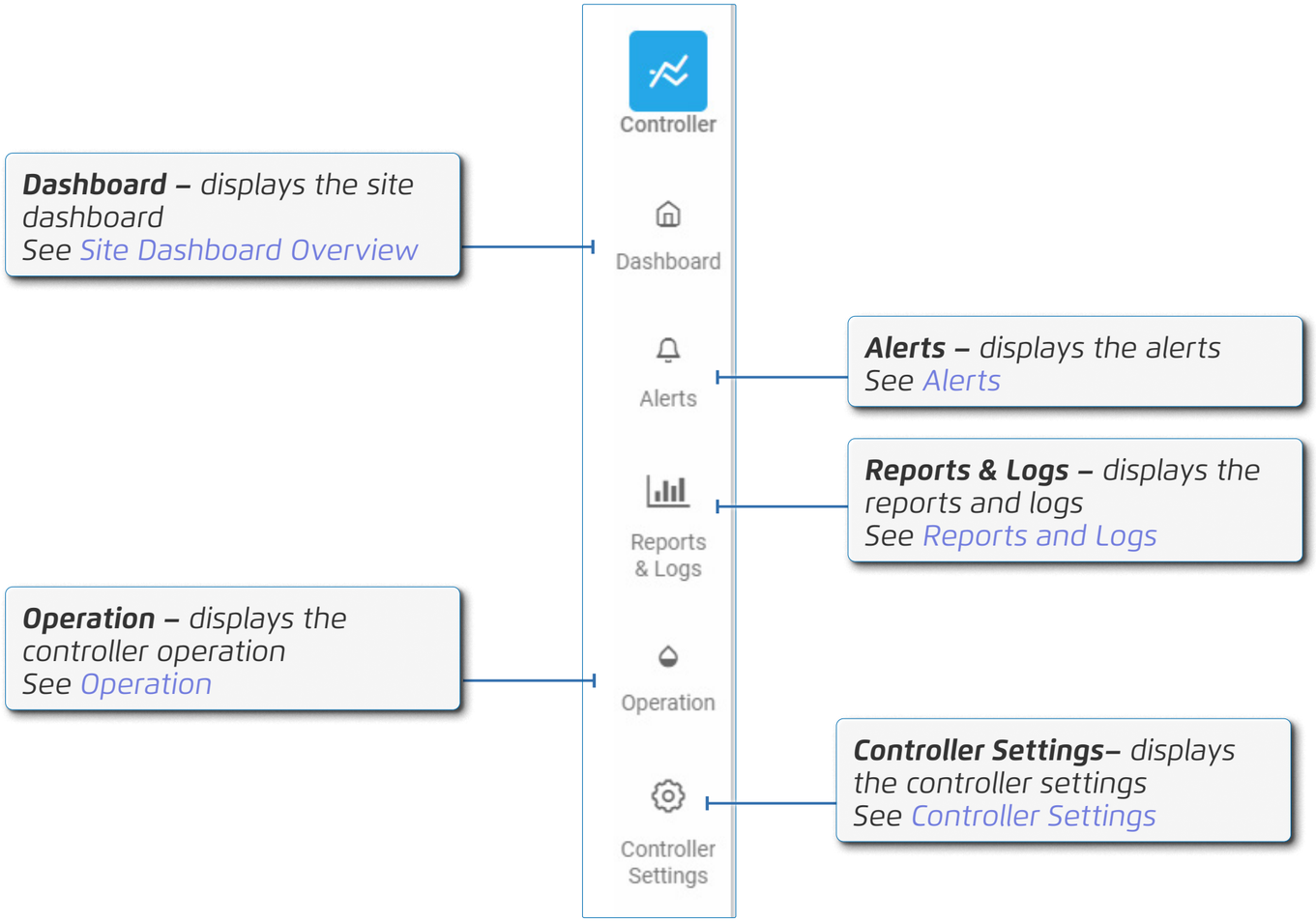


Date	Pressure 1 (M) Average	Pressure 1 (M) Min	Pressure 1 (M) Max	Pressure 2 (M) Average	Pressure 2 (M) Min	Pressure 2 (M) Max	flow 1 (m³/h) Average	flow 1 (m³/h) Min	flow 1 (m³/h) Max	Totalizer
11/02/2024 12:00:00	57.4	56.4	58.2	33	32	34.5	4	3	5	2607100
11/02/2024 11:45:00	57.2	56.4	58	33.4	31.8	34.5	5	4	5	2607100
11/02/2024 11:30:00	57	56.4	58	32.8	31.8	34.4	5	4	5	2607100
11/02/2024 11:15:00	57	56.5	58.6	32.7	32.2	34.6	4	3	5	2607100
11/02/2024 11:00:00	57.2	56.5	58	32.8	32	34.2	5	4	6	2607100
11/02/2024 10:45:00	57.1	56.2	58.2	33	32	34.6	5	4	5	2607100
11/02/2024 10:30:00	56.6	56.2	58	32.6	31.8	34.5	5	5	7	2607100
11/02/2024 10:15:00	57	56.2	57.9	33.2	31.8	34.4	6	5	6	2607100
11/02/2024 10:00:00	56.8	56.1	57.8	32.7	31.7	34.5	5	5	6	2607100
11/02/2024 09:45:00	57.4	56.2	57.7	33.8	31.8	34.4	5	5	7	2607100
11/02/2024 09:30:00	56.5	56.1	57.9	32.6	31.5	34.5	6	5	8	2607100
11/02/2024 09:15:00	57.1	56	57.8	33	31.5	34.5	8	8	11	2607100
11/02/2024 09:00:00	56.6	56.2	58.2	32.4	31.6	34.3	9	7	10	2607100

Log Parameters

Controller Main Toolbar

The controller main toolbar displays the following:



Controller Settings

This section reviews basic device settings and includes:

- General Settings
- Mode Settings
- Flow Meter Settings
- Upstream Pressure Sensor Settings
- Downstream Pressure Sensor Settings
- External Latch Settings
- Communication Settings

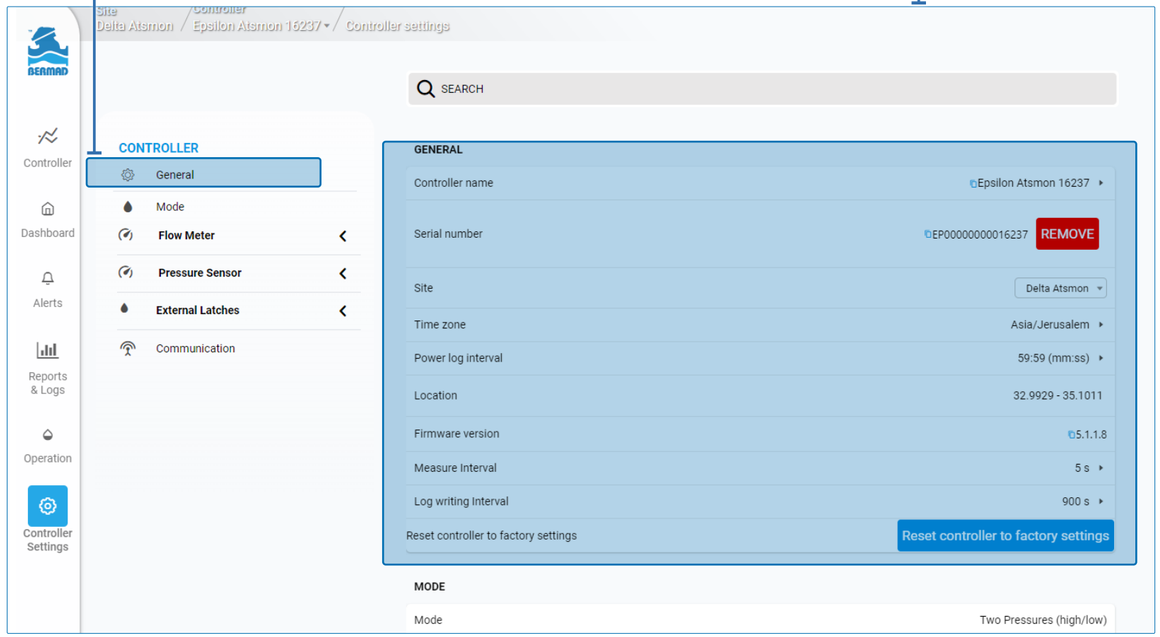
General Settings

Perform the following steps to view or edit a controller's general settings:

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

2. *The general settings of the controller are displayed*

3. *Define the following parameters*



Controller name	Enables naming of the controller
Serial number	Displays the serial number of the controller.
Site	The site to which the controller belongs. The drop-down list enables moving the controller to another site.
Time zone	Defines the time zone in which the controller is located.
Power log interval	Defines how often to log the power level (volt) into the controller memory.
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.
Firmware version	Displays the firmware version currently installed on the controller.
Measure interval	Defines the frequency of sensor measurements.
Log writing interval	Defines how often to log the measure into the controller memory.
Reset to factory settings	Enables resetting the controller to factory settings.

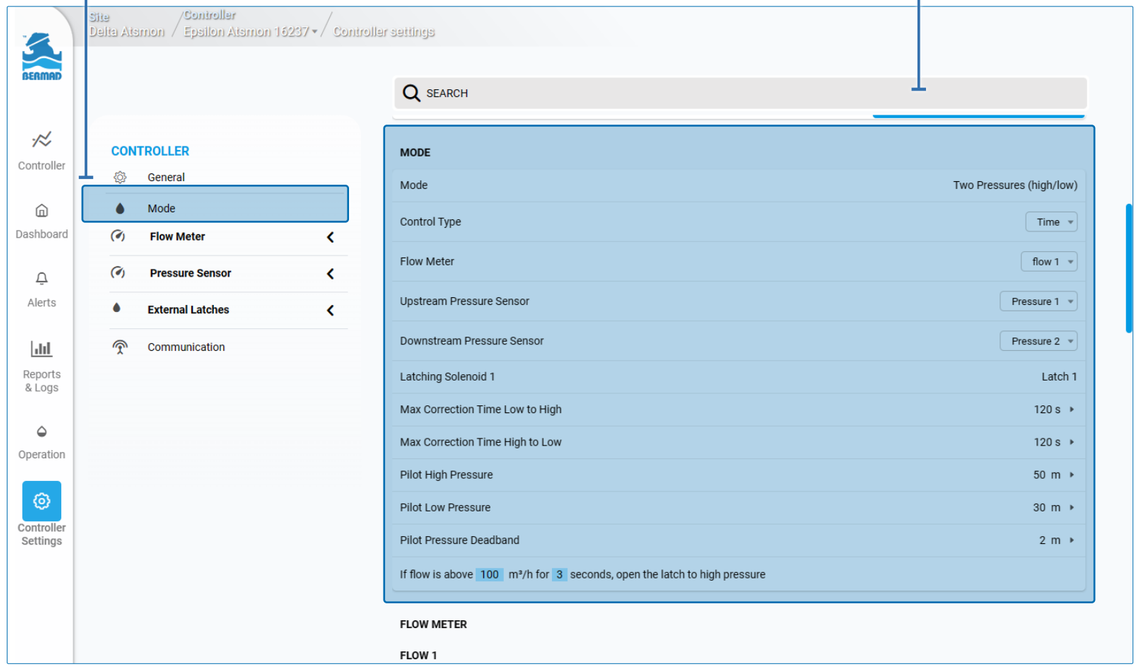
Mode Settings

Perform the following steps to navigate to the Mode settings:

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

2. *The mode settings of the controller are displayed*

3. *Define the following parameters*



Mode	Verify Two Pressures (high/low) is selected.
Control type	Select the control type: time or flow.
Flow meter	Verify flow 1 is selected.
Upstream pressure sensor	Verify pressure 1 is selected.
Downstream pressure sensor	Verify pressure 2 is selected.
Latching solenoid 1	Latch 1 (the user can't change it).
Max correction time low to high	Enables sending an alert after the defined amount of time if the setpoint did not change from low to high.
Max correction time high to low	Enables sending an alert after the defined amount of time if the setpoint did not change from high to low.
Pilot high pressure	Enter the high pilot pressure value from the manual calibration.
Pilot low pressure	Enter the low pilot pressure value from the manual calibration.
Pilot pressure deadband	Enables sending an alert after the defined deadband if the pressure was not reached.
Emergency override	Relevant only when working according to time windows, not relevant when working according to flow. When the flow is greater than the value (100m3/h) the latch will open and move to the high pressure pilot.

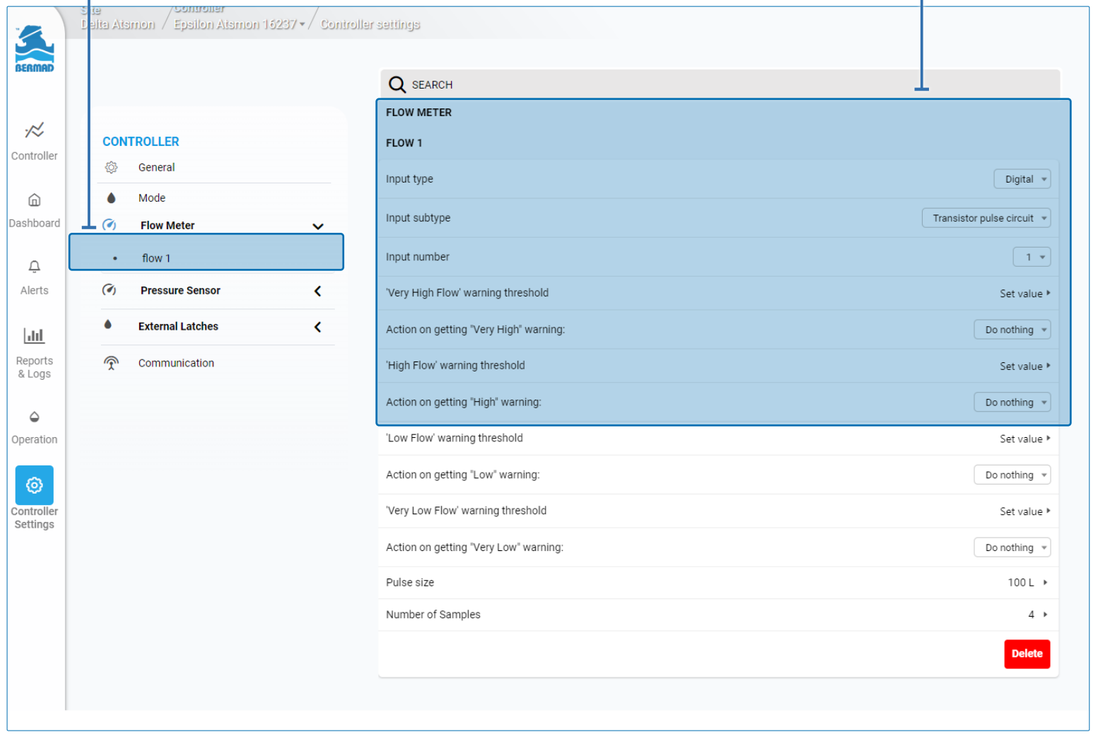
Flow Meter Settings

Perform the following steps to navigate to the Flow Meter settings:

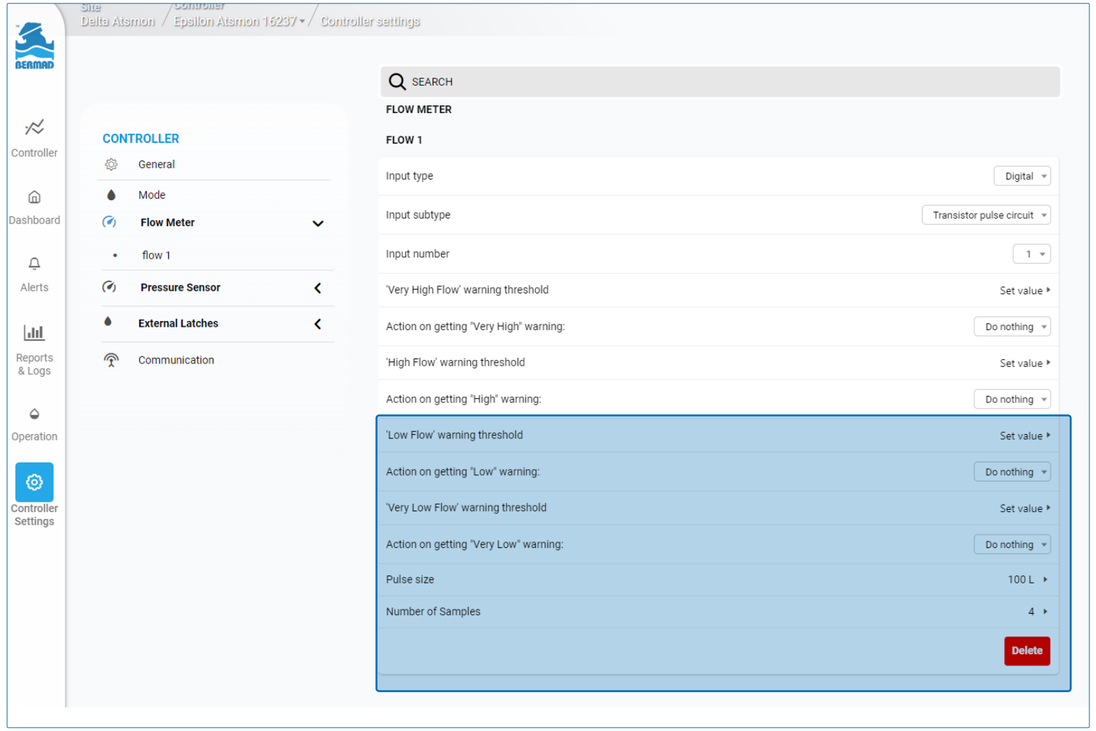
1. *From the controller settings, select* ***Flow 1***

2. *The flow meter settings of the controller are displayed*

3. *Define the following parameters*



Input type	Select from the drop down list to define the type of flow meter input (analog or digital).
Input subtype	Select from the drop down list to define the subtype of flow meter input (reed switch or transistor pulse).
Input number	Select from the drop down list to define the channel to which the flow meter is connected.
Very high flow warning threshold	Enables setting an alert for when the measurement exceeds a defined value.
Action on getting 'Very High' warning	Enables selecting the alert for when the measurement exceeds a defined value.
High flow warning threshold	Enables setting an alert for when the measurement exceeds a defined value.
Action on getting 'High' warning	Enables selecting the alert for when the measurement exceeds a defined value.



3. *Define the following parameters*

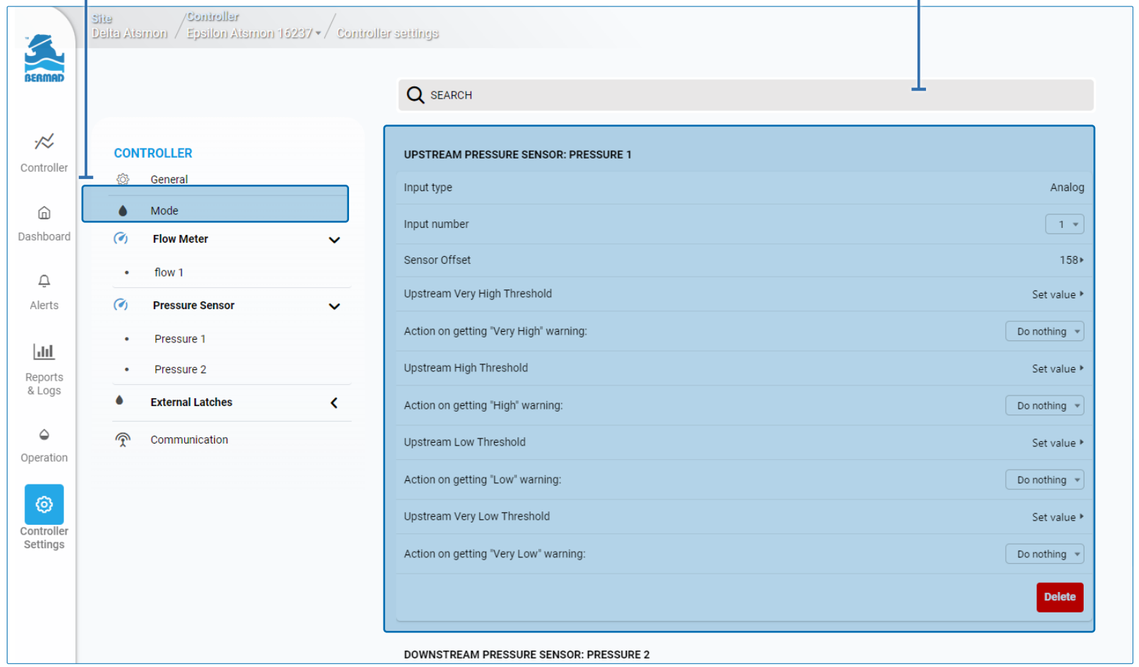
'Low Flow' warning threshold	Enables setting an alert for when the measurement drops below a defined value.
Action on getting 'Low' warning	Enables selecting the alert for when the measurement drops below a defined value.
'Very Low Flow' warning threshold	Enables setting an alert for when the measurement drops below a defined value.
Action on getting 'Very Low' warning	Enables selecting the alert for when the measurement drops below a defined value.
Pulse size	Define the pulse volume. This option is relevant for digital input only.
Number of samples	Define the amount of pulses used to calculate the average flow.
Delete	Enables deleting this water flow.

Upstream Pressure Sensor Settings

Perform the following steps to navigate to the upstream settings:

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

2. *The upstream settings of the controller are displayed*



3. *Define the following parameters*

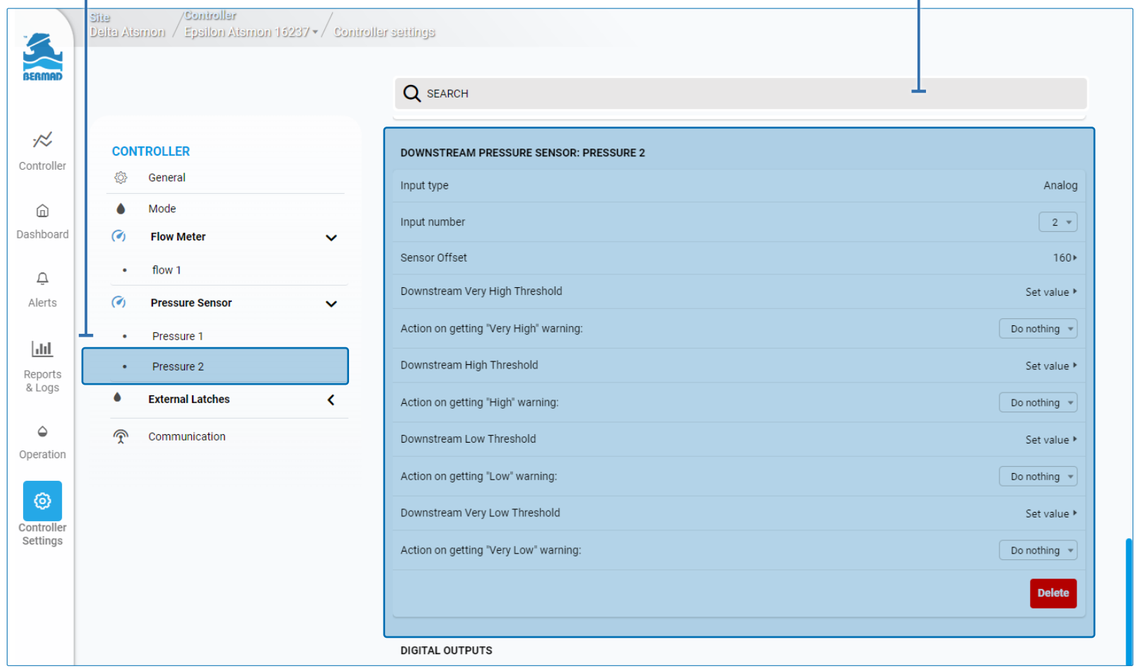
Input type	Select from the drop down list to define the type of upstream pressure sensor input (analog or digital)
Input number	Select from the drop down list to define the channel to which the upstream pressure sensor is connected.
Sensor offset	Enables adjusting the baseline measurement.
Upstream very high threshold	Enables setting an alert when the upstream measurement exceeds a defined value.
Action on getting 'very high' warning	Enables selecting the alert when the upstream measurement exceeds a defined value.
Upstream high threshold	Enables setting an alert when the upstream measurement exceeds a defined value.
Action on getting 'high' warning	Enables selecting the alert when the upstream measurement exceeds a defined value.
Upstream low threshold	Enables setting an alert when the upstream measurement drops below a defined value.
Action on getting 'low' warning	Enables selecting the alert when the upstream measurement drops below a defined value.
Upstream very low threshold	Enables setting an alert when the upstream measurement drops below a defined value.
Action on getting 'very low' warning	Enables selecting the alert when the upstream measurement drops below a defined value.
Delete	Enables deleting this pressure sensor.

Downstream Pressure Sensor Settings

Perform the following steps to navigate to the downstream pressure settings:

1. *From the controller settings, select* ***Pressure 2***

2. *The downstream pressure settings of the controller are displayed*



3. *Define the following parameters*

Input type	Select from the drop down list to define the type of downstream pressure sensor input (analog or digital).
Input number	Select from the drop down list to define the channel to which the downstream pressure sensor is connected.
Sensor offset	Enables adjusting the baseline measurement.
Downstream very high threshold	Enables setting an alert when the downstream measurement exceeds a defined value.
Action on getting 'very high' warning	Enables selecting the alert when the downstream measurement exceeds a defined value.
Downstream high threshold	Enables setting an alert when the downstream measurement exceeds a defined value.
Action on getting 'high' warning	Enables selecting the alert when the downstream measurement exceeds a defined value.
Downstream low threshold	Enables setting an alert when the downstream measurement drops below a defined value.
Action on getting 'low' warning	Enables selecting the alert when the downstream measurement drops below a defined value.
Downstream very low threshold	Enables setting an alert when the downstream measurement drops below a defined value.
Action on getting 'very low' warning	Enables selecting the alert when the downstream measurement drops below a defined value.
Delete	Enables deleting this pressure sensor.

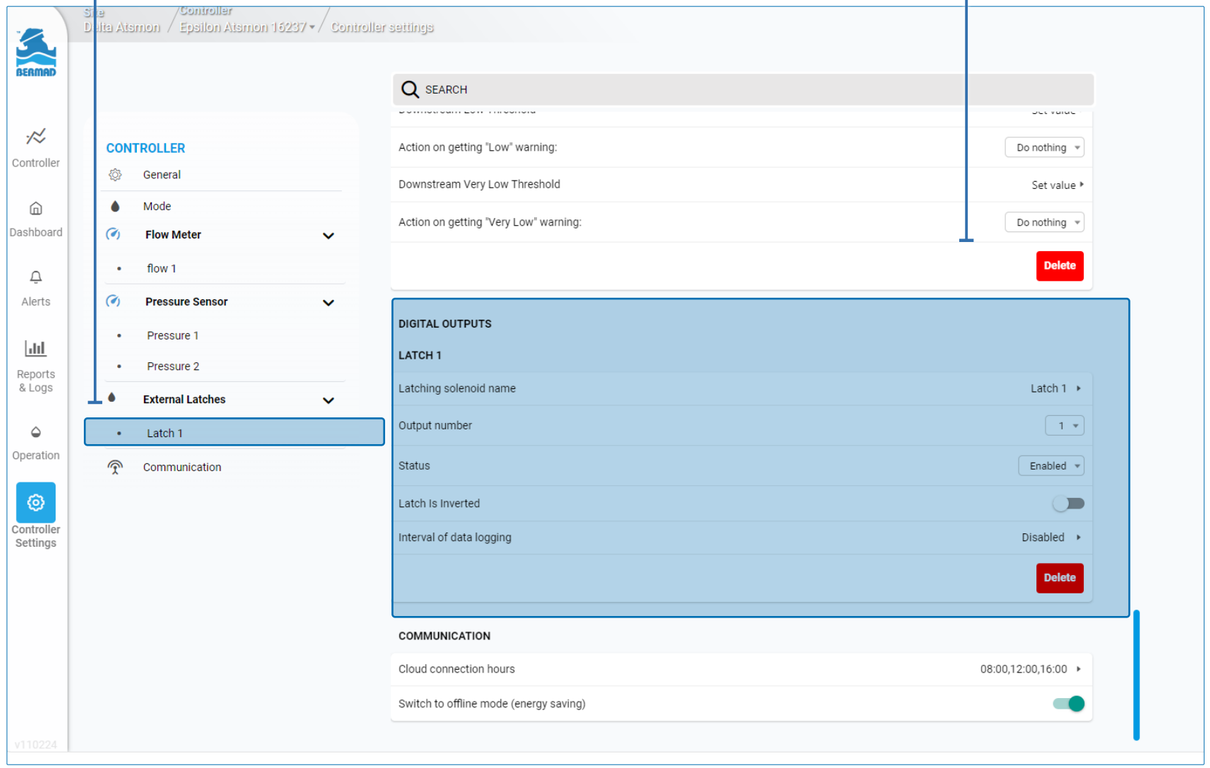
External Latch Settings

Perform the following steps to navigate to the external latch settings:

1. *Select **External Latch** in the Controller Settings*

2. *The external latch settings of the controller are displayed*

3. *Define the following parameters*



Latching solenoid name	Enables naming of the latch solenoid.
Output number	The physical output connector to which the latch solenoid is connected.
Latch is inverted	Defines if the latch is inverted or not.
Interval of data logging	Defines the amount of time between the logging of measurements.
Delete	Enables deleting the solenoid latch.

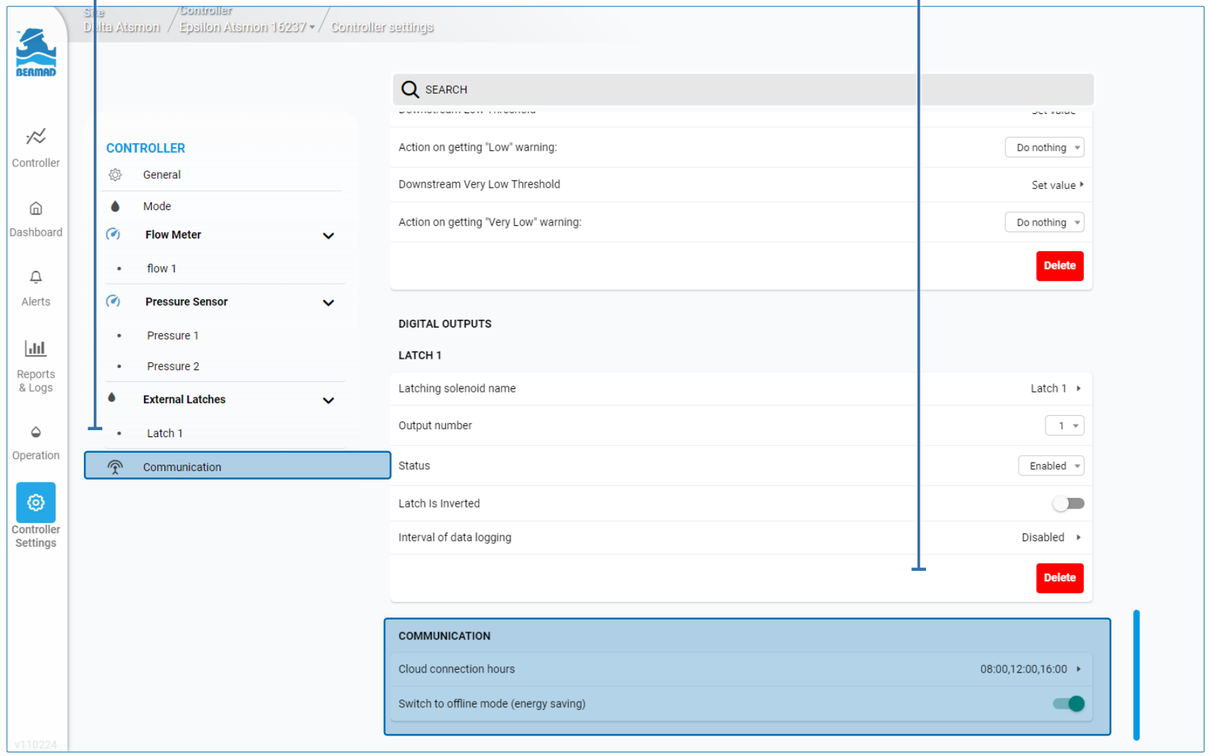
Communication Settings

Perform the following steps to navigate to the communication settings:

1. *Select* ***Communication*** *in the Controller Settings*

2. *The communication settings of the controller are displayed*

3. *Define the following parameters*



Cloud connection hours	Defines the hours the controller goes online and connects to the cloud.
Switch to offline mode (energy saving)	Enables using the offline mode.

5. OPERATION

This chapter reviews operating EPSILON and includes:

- Operating by Set points
- Alerts
- Managing Users
- Reports and Logs

Operating by Set points

To operate in two pressures mode perform the following steps:

1. *Verify the relevant controller is selected*

2. *Click the **Operation** button*

3. *Enter the start times of the high pressure set point*

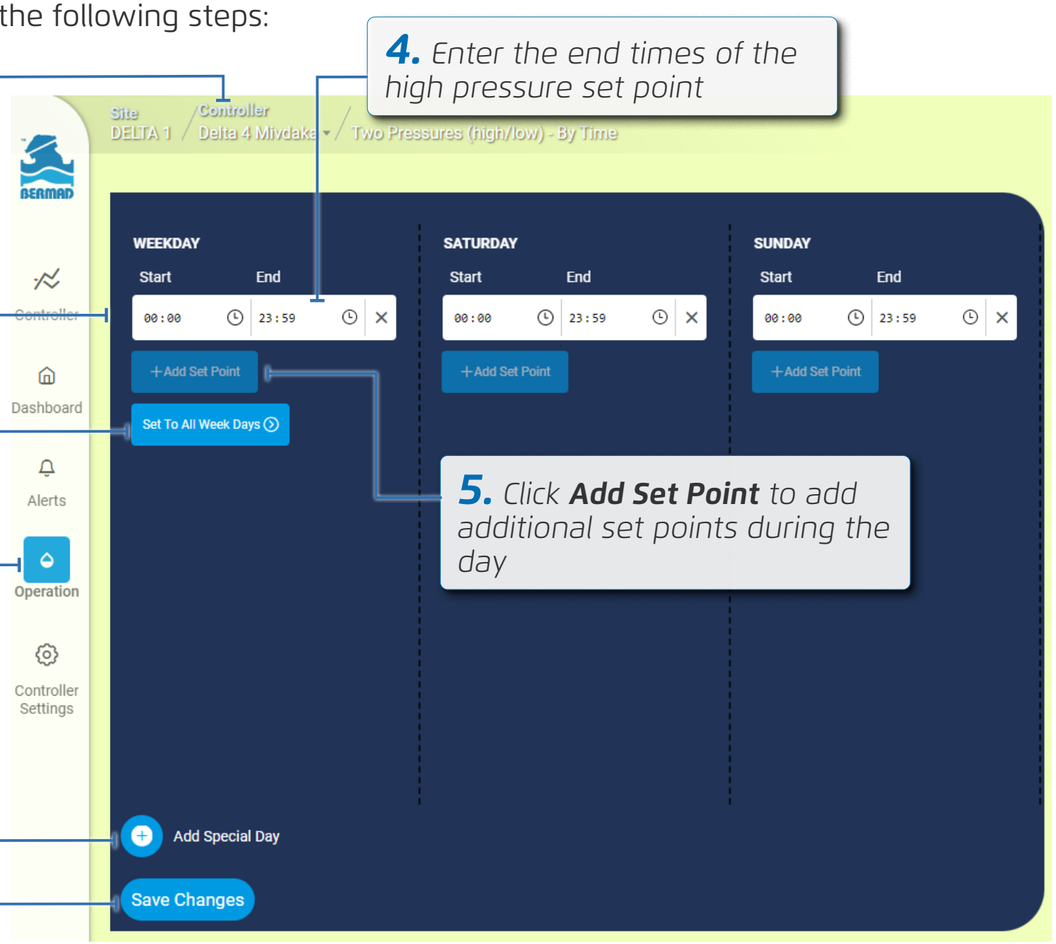
4. *Enter the end times of the high pressure set point*

5. *Click **Add Set Point** to add additional set points during the day*

6. *Click **Set to All Week Days** to set the defined set points to all the days of the week*

7. *If needed, click **Add Special Day** to define special days during the year (up to 4 days a year) where there will be a different definition*

9. *Click **Save Changes***



Tip: Click the **x** icon to remove a set point.

Alerts

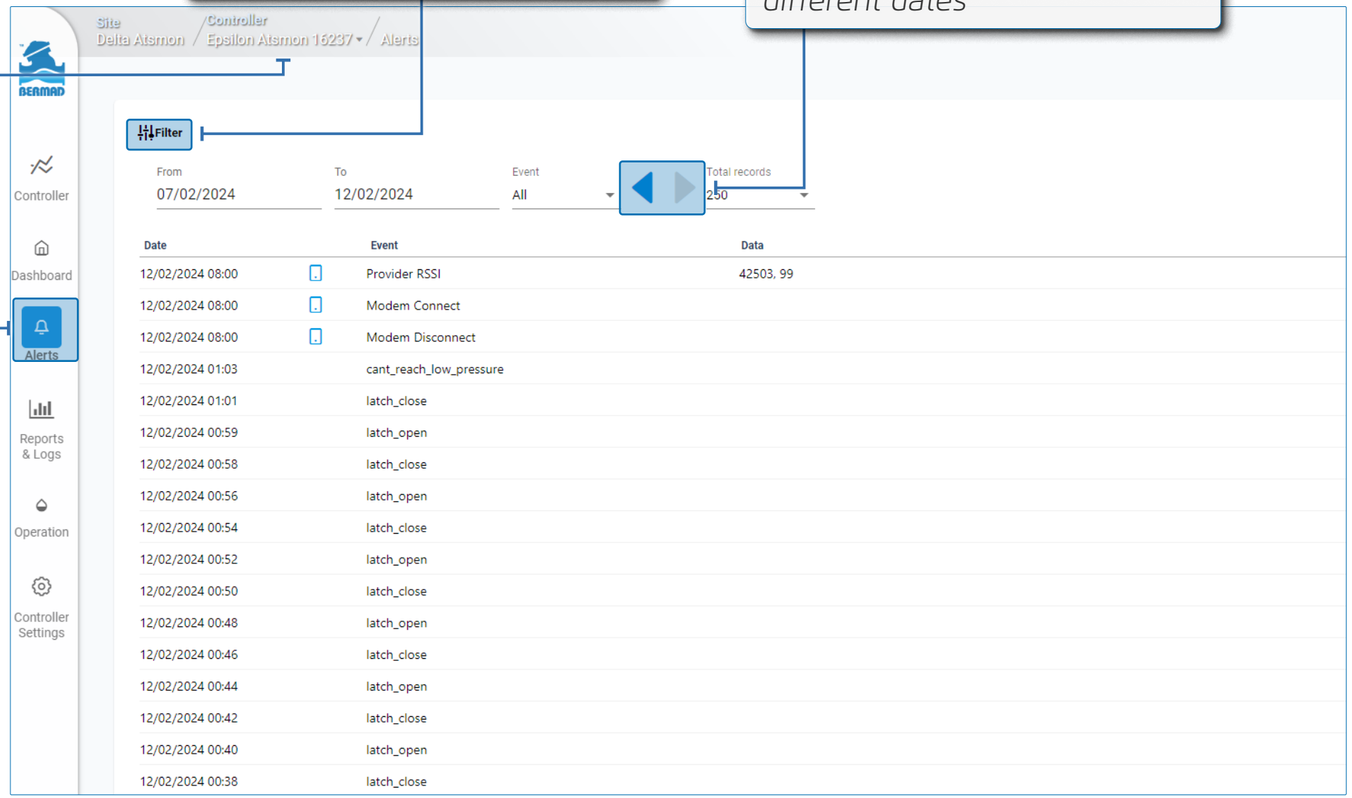
To view alerts, perform the following steps:

1. *Verify that the relevant controller is selected*

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

3. *Click **filter** to enable filtering the alerts by date.*

4. *Click the **arrows** to enable displaying the alerts by different dates*



Managing Users

This section reviews managing users and includes:

- Inviting a User
- Defining User Alerts
- Removing a User

Inviting a User

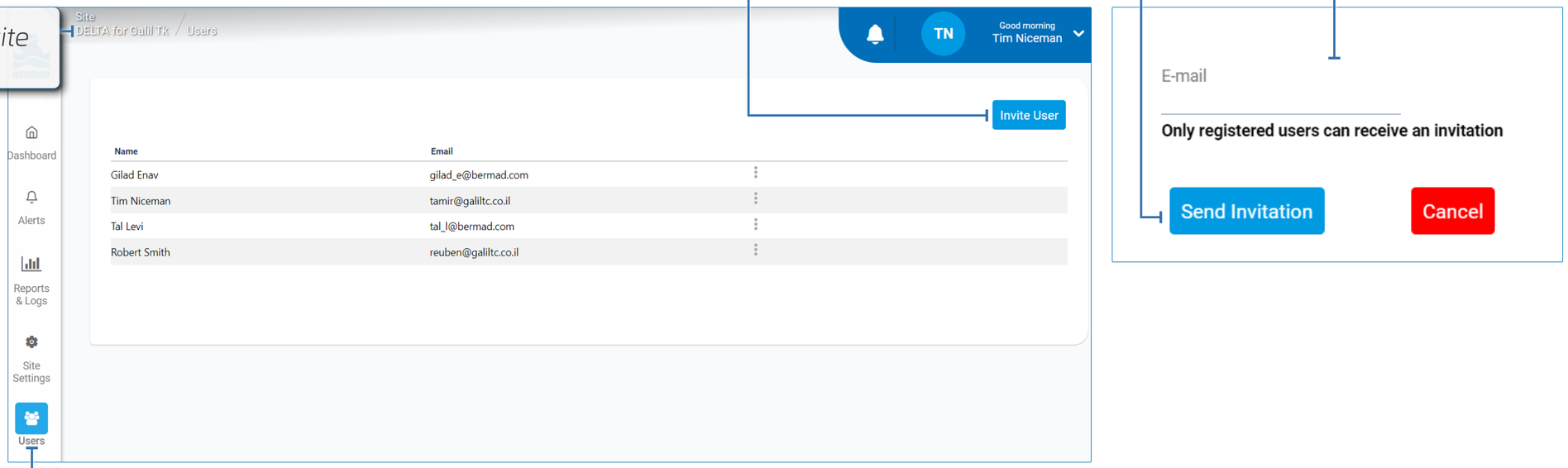
To invite someone to be part of a site, perform the following steps:

1. *Verify that the relevant site is selected*

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

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

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

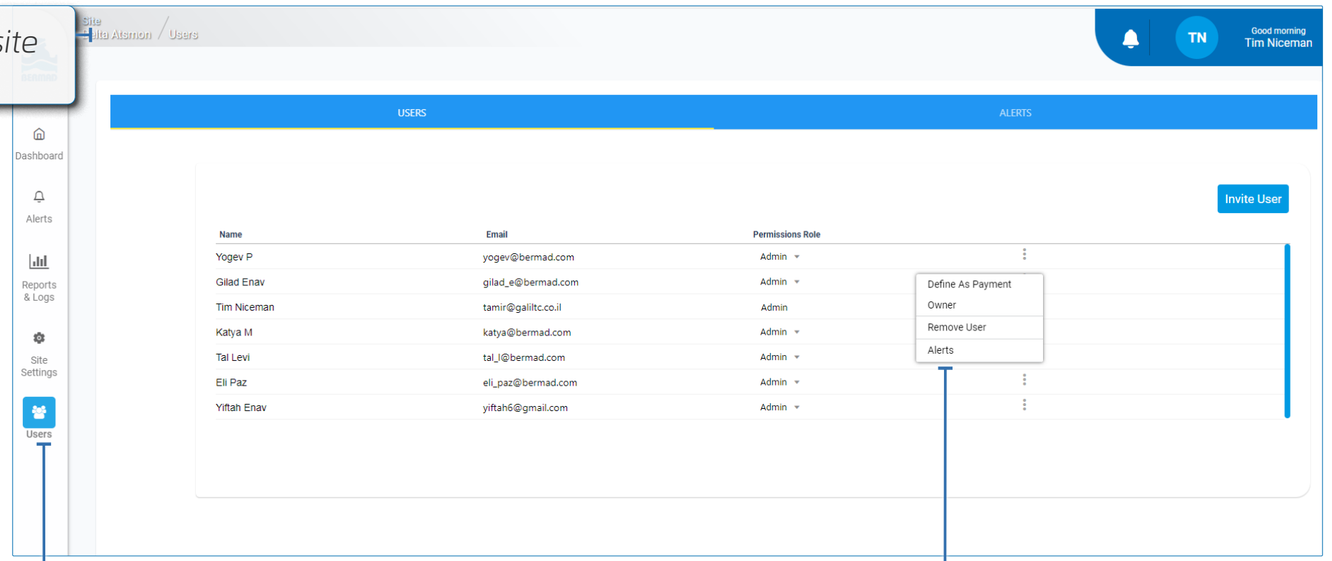


NOTE: Only registered users can be invited see Registering.

Defining User Alerts

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

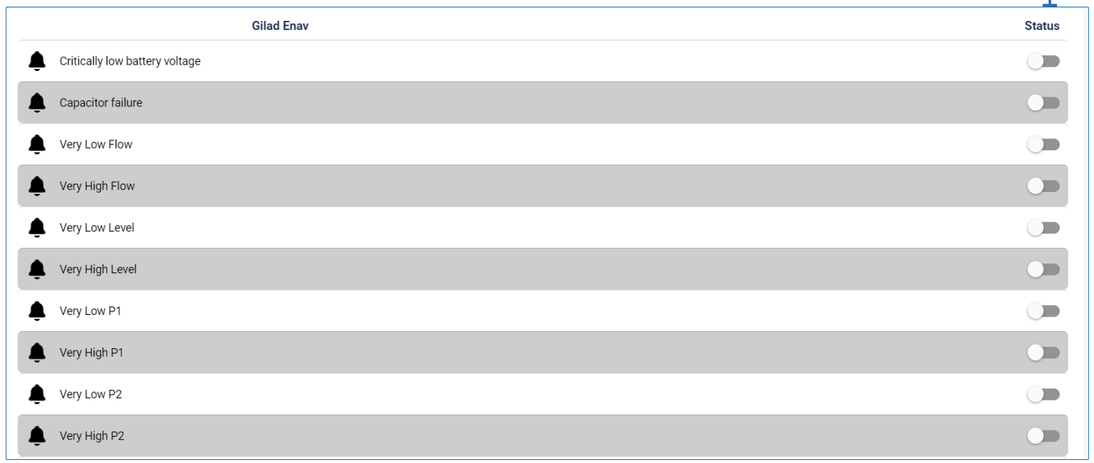
1. *Verify that the relevant site is selected*

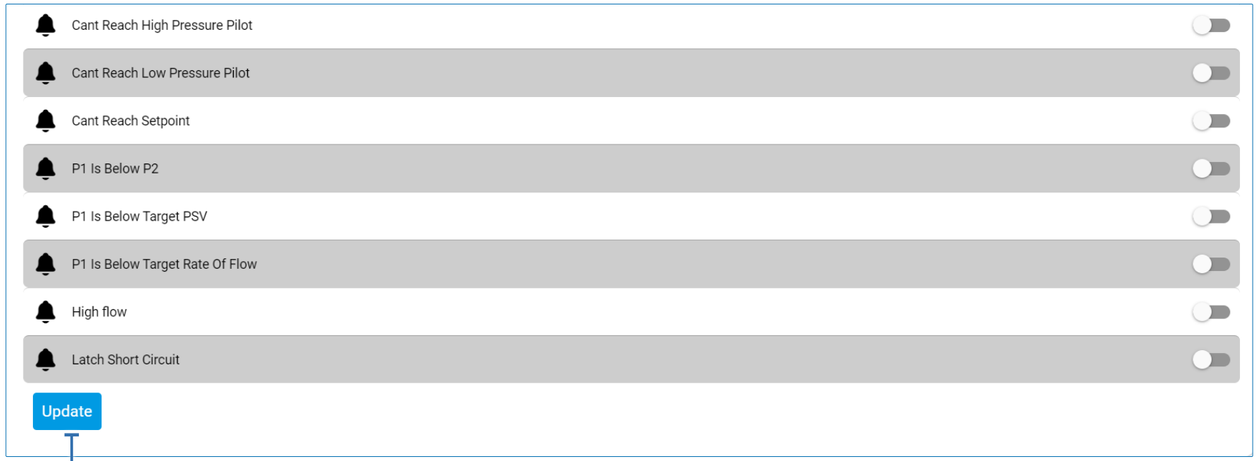


2. *Click the **Users** icon*

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

4. *Select the relevant alerts*





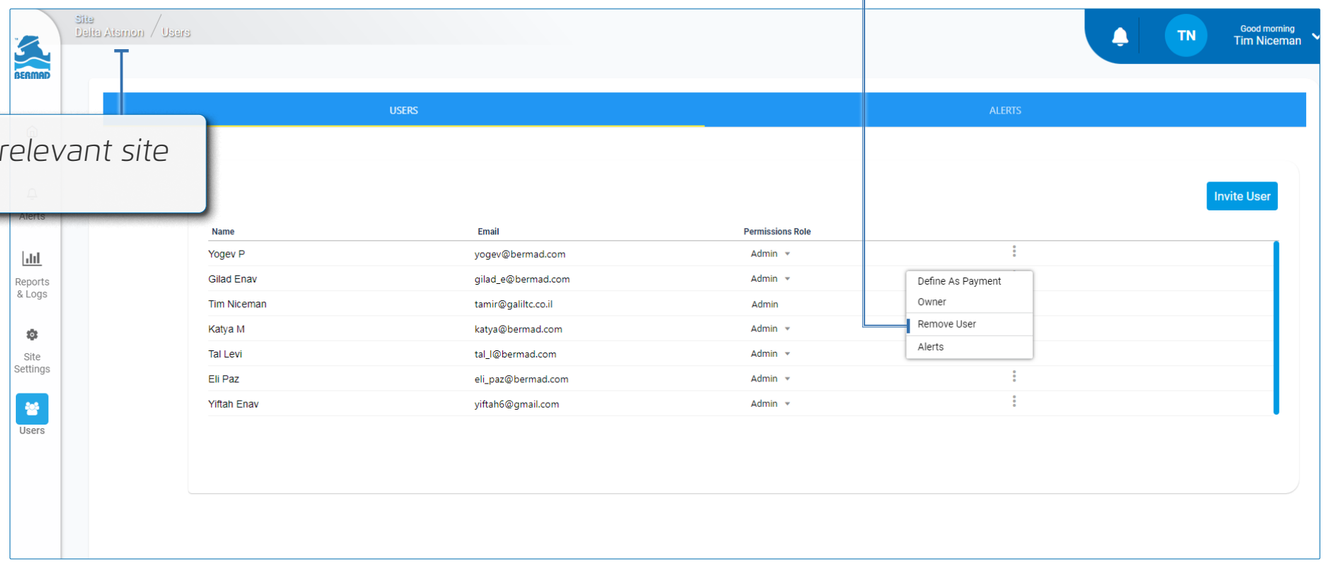
5. *Click* ***Update***

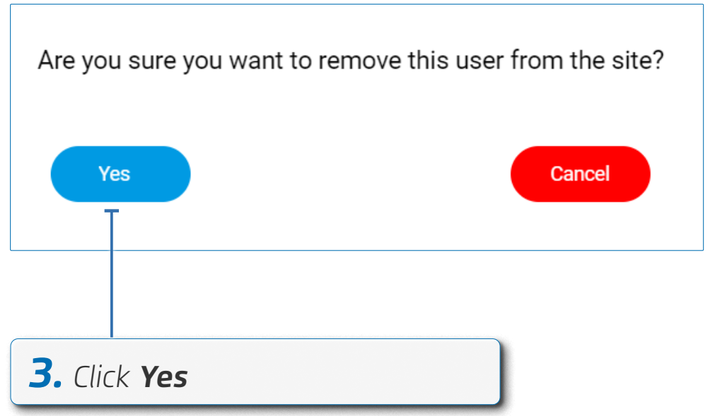
Removing a User

To remove a user, perform the following steps:

1. *Verify that the relevant site is selected*

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





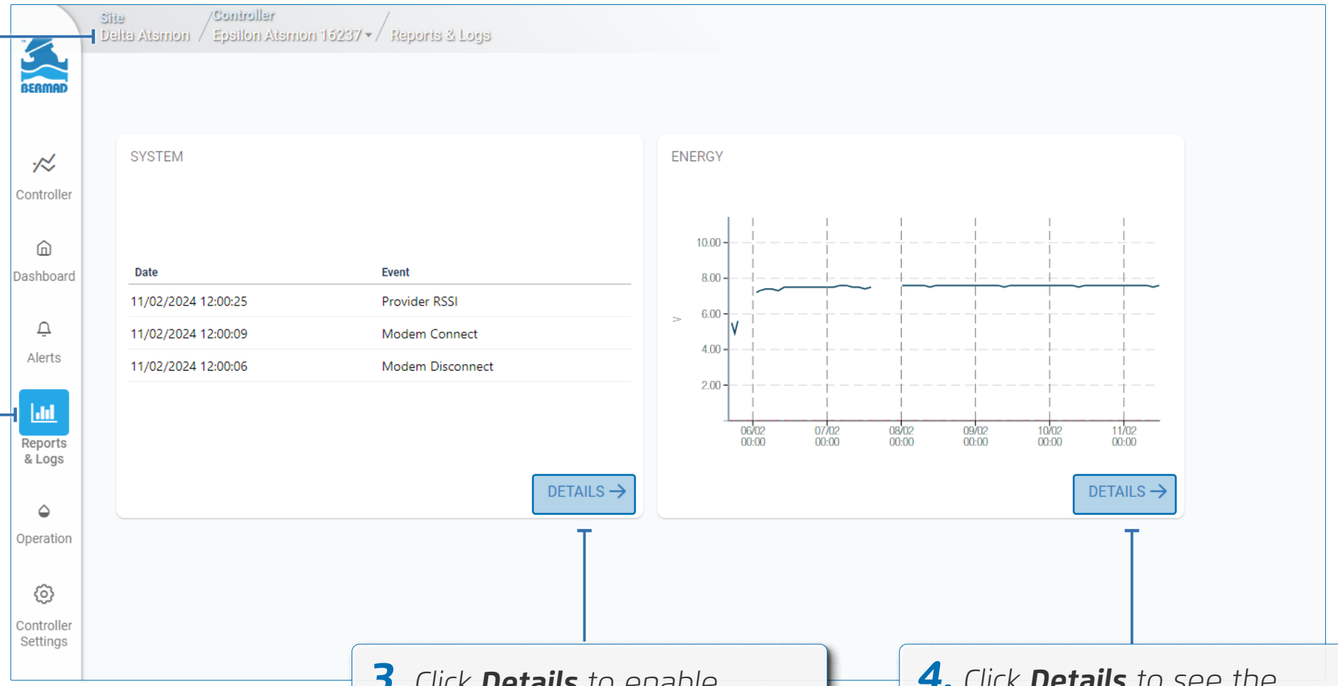
3. *Click* ***Yes***

Reports and Logs

To view reports and logs, perform the following steps:

1. *Verify that the relevant site is selected*

2. *Click the **Reports & Logs** icon*



3. *Click **Details** to enable filtering the alerts by date*

4. *Click **Details** to see the power level chart in detail. Enables defining the chart time scale.*

6. SPECIFICATIONS

Main Features

- Local Inputs/Outputs
  - Four digital inputs for metering and discrete sensors
  - Two latch outputs (16, 100mS pulse) for Day/Night control, and to fully open the valve by venting the valve chamber.
- Sensor calibration for physical units
- Two internal accurate internal pressure sensors +/-0.5 %

Connectivity

- Built in 4G Modem with 2G fallback
  - Global data SIM for Internet connectivity
  - Supports GPRS, MODBUS (RS-485), NB-Io2 and CAT-M communication Protocol
- Bluetooth Communication for Technician Mode tasks

Operation Modes

- Online Mode: 24/7 connection between Controller and Cloud (requires external power source)
- Offline Mode: autonomous control, predefined Cloud communication, real-time alerts.

Power Source

- Lithium battery for Offline Mode operation
- 9-16VDC External Power input for Online Mode operation (solar panel, grid power, etc

Integral data logger - Includes more that 150k records, enables comprehensive log registry that can cover long periods of offline operation.

Periodic Firmware Over the Air Upgrades (FOTA)

Outdoor installation - IP68 rated with UV protection

Standard Compliance - CE, FCC Approved

Industrial Grade Electronic Components - –35°C to 75°C

Push Type Connectors - For quick and easy wiring without need for special tools

EPSILON

7. WARRANTY

BERMAD Standard International Limited Warranty

Product Details: EPSILON 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.

www.bermad.com

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