



DELTA

Installation and Operation Guide

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1. SAFETY

This chapter reviews the DELTA safety concerns and includes:

- [Safety Conventions](#)
- [Safety Instructions](#)
- [Certificates](#)
- [DELTA 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 DELTA 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.
- DELTA is not intended for use by children.

Battery Safety Instructions

- BERMAD is not responsible for battery failures due to mishandling.
- Do not crush, break, or disassemble the batteries.
- Do not damage the battery label, which acts as an electrical insulation for the battery can.
- Do not install the batteries backwards, put in fire, submerge in fluids, or mix with other battery types.
- Do not weld or solder the batteries onto the battery compartment.
- Dispose of batteries in accordance with local regulations.
- Internal batteries are intended for 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 DELTA connector board.
- The power supply cables must first be connected to the DELTA power connectors before plugging into an external power source.
- The DELTA controller must first be unplugged from the external power source before disconnecting the power supply cables from the power connectors.



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

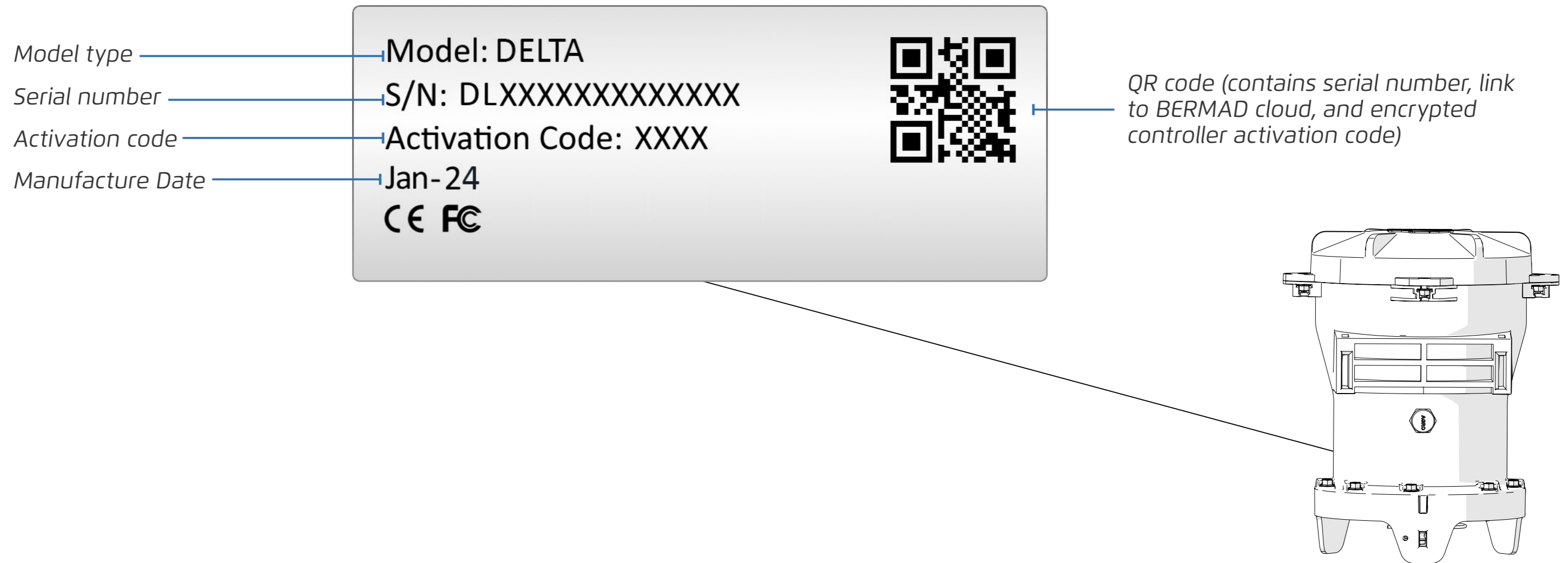
Certificates

FC CE



DELTA Controller Nameplate

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



2. INTRODUCTION

This chapter reviews the DELTA controller and includes:

- Overview
- Typical System Layout
- DELTA Controller
- Cloud Management System
- Technician App
- Installation Kit
- Cables Index
- Modes of Operation

Overview

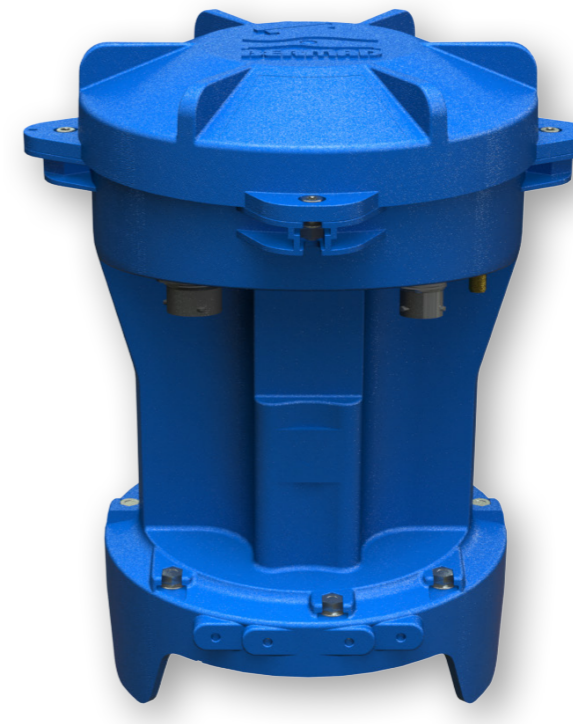
The DELTA is a stand-out pressure management controller that optimizes system performance. It ensures a stable network, enhances efficiency and minimizes leakage and bursts. As a result, it delivers a reliable water supply and improved client service.

Controller Features

- Up to 16 flow or time windows
- Highly accurate and stable regulation
- Latch override to fully open the valve at insufficient pressure supply, or fully close in event of pipe burst
- 5 years internal battery operated or external power
- Large capacity data logging
- Full communication via cloud for monitoring and remote setting
- Intuitive and user friendly platform
- Advanced modern graphs and reports
- Alert and notifications via E-mail

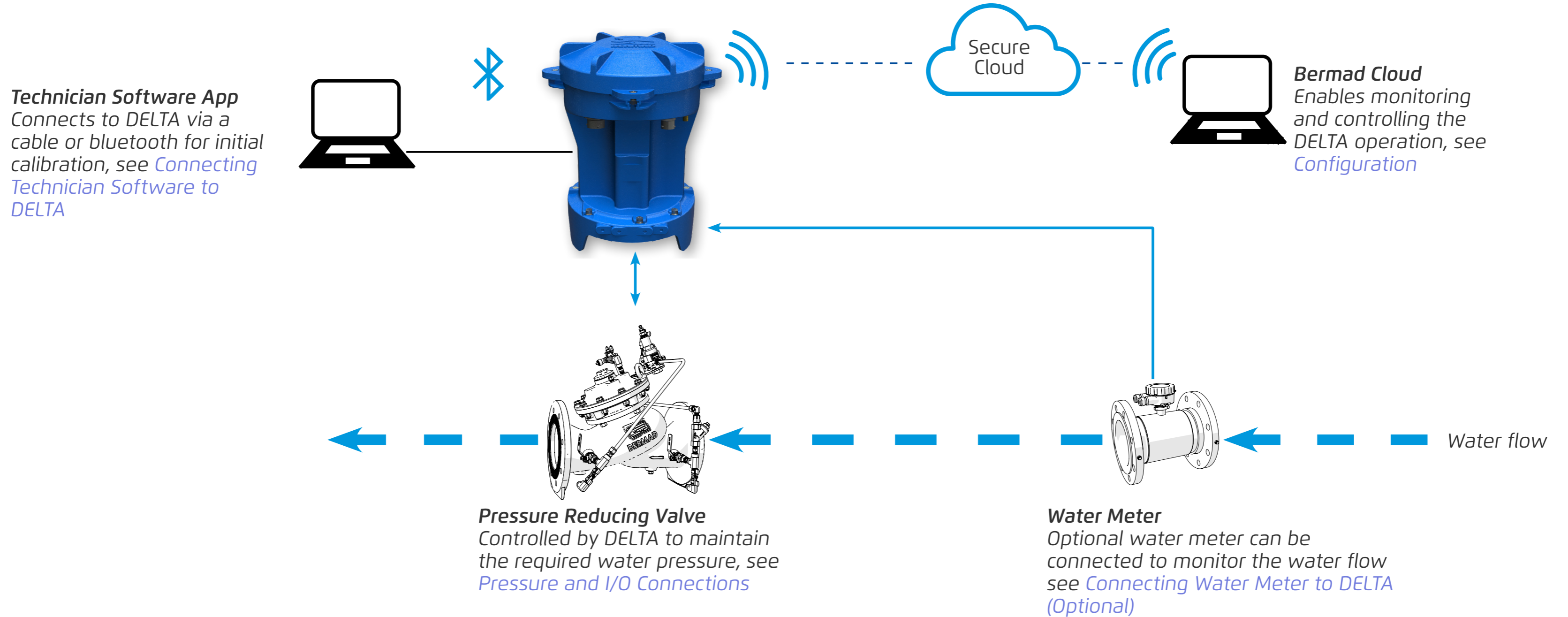
Application Features

- Full modulation pressure reducing with the DELTA internal solenoids and a bias chamber according to flow rate or time windows
- Two pressure regimes by switching between "Low" and "High" setpoints according to flow rate or time window (Day/Night)



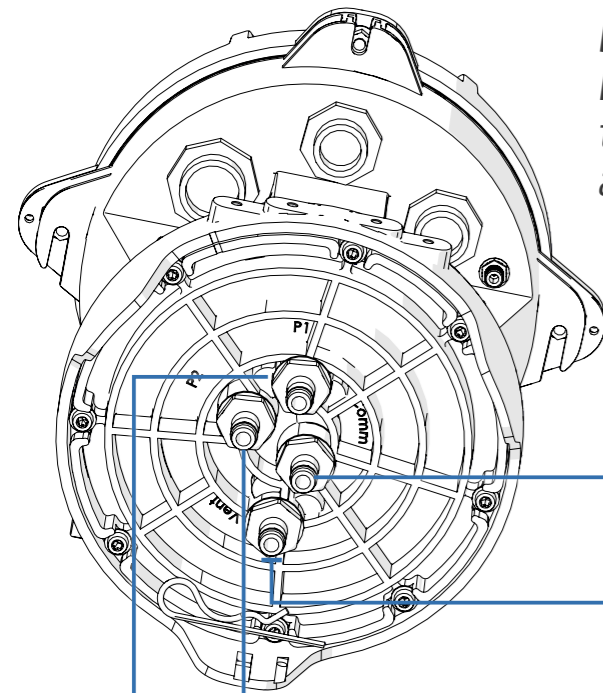
Typical System Layout

The chart below illustrates a typical system layout:



DELTA Controller

The DELTA controller includes the following:



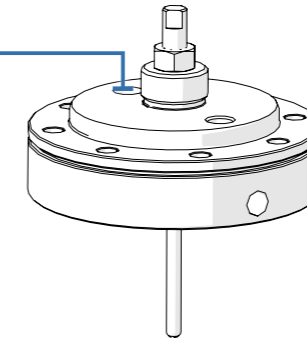
DELTA Controller
Includes analog sensors that measure the upstream and downstream pressures

Comm
Enables connection of the command tube to the PCBU

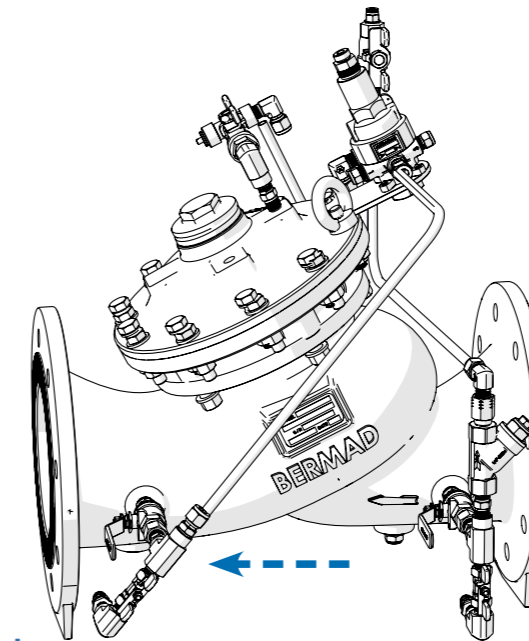
Vent Outlet
Drains the water from the PCBU

P1
Enables connection of the upstream water tube and pushes the water in pulses via the internal solenoid

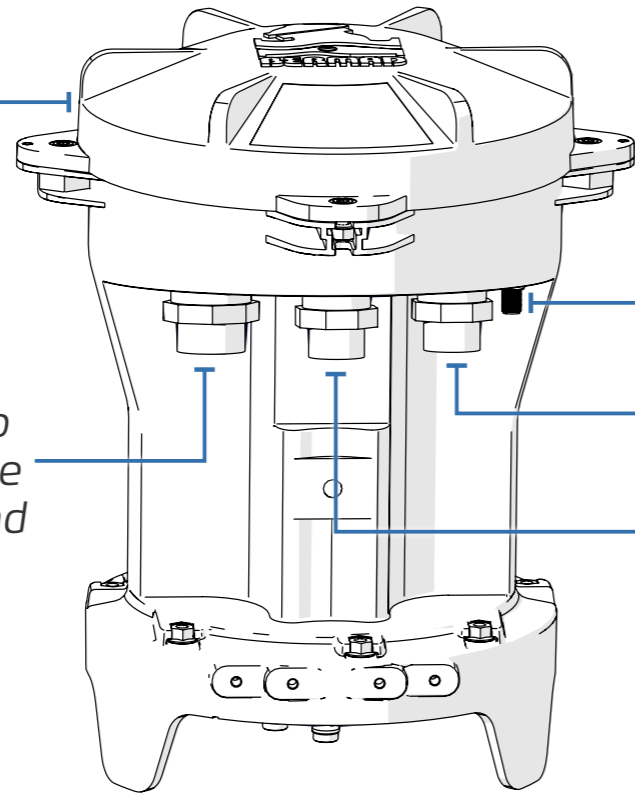
P2
Enables connection of the downstream water tube and pushes the water out in pulses via the internal solenoid



PCBU
The PCBU is installed on the pilot. Allows the DELTA to control the pressure see [Installing the Bias Chamber](#)



Lid
Removable lid

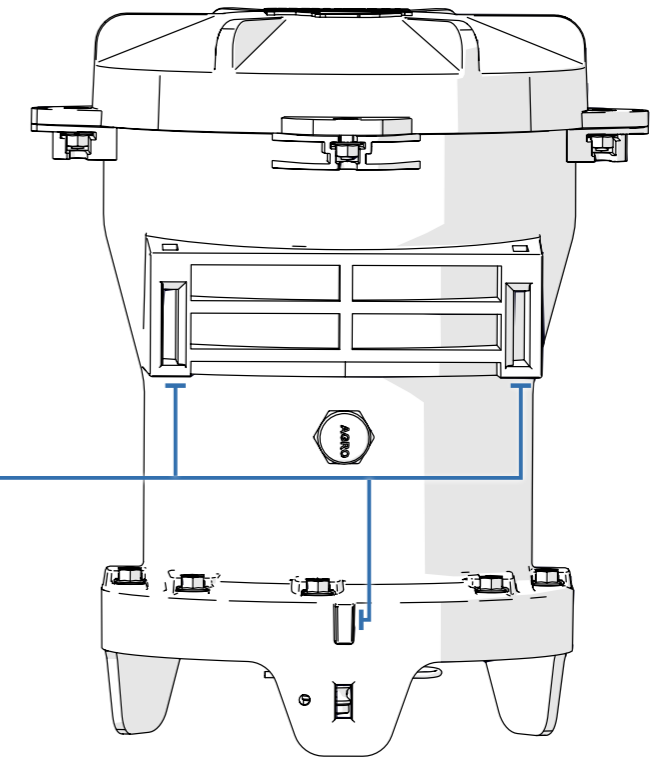


USB Connection Port
Enables connecting a laptop with the technician software app for initial installation and connecting to an external power source

SMA
SMA connector for the antenna

I/O connector

Water Meter Connector

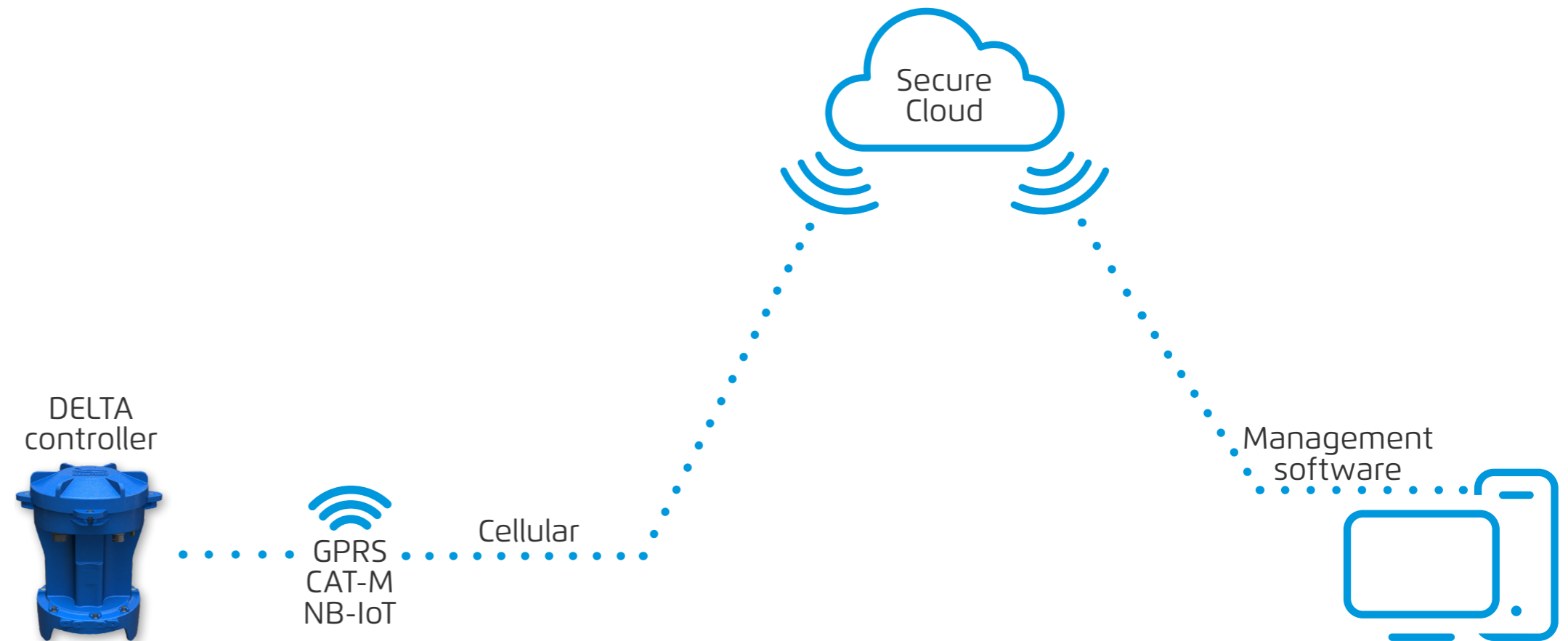


Mounting Grooves
Enables mounting on a wall mount bracket

Cloud Management System

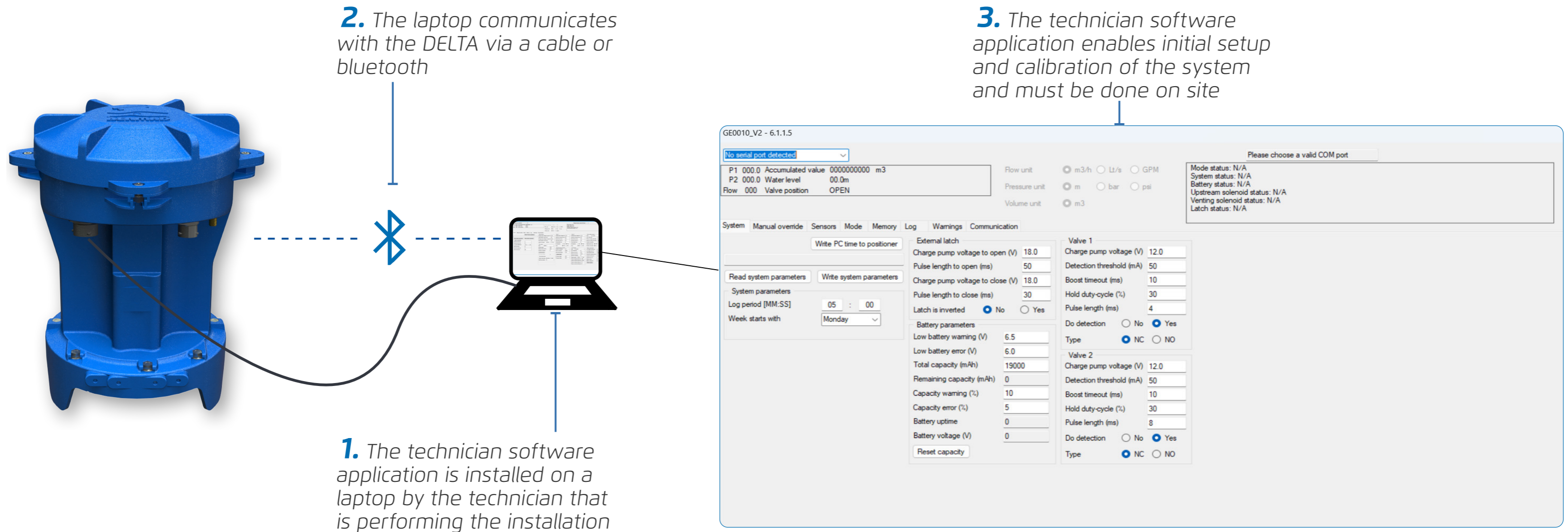
BERMAD Cloud offers web-based internet access to the DELTA controller and includes the following features:

- Global management of all your DELTA controllers
- User friendly and intuitive control features
- Real time status and monitoring




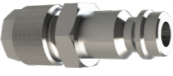
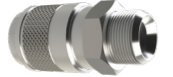

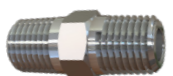
Technician Software Overview





The technician software app enables defining the controllers initial parameters.



Installation Kit

This section reviews the installation kit.

Serial Number	Component	Description	QTY	Comments
06600N361		Nickel Plated Brass Quick Coupling DN5(F)X6mm Tube	4	
06600N360		Nickel Plated Brass Quick Coupling DN5(M)X6mm Tube	2	
060400N908		Nickel Plated Brass Quick Coupling DN5(F)X1/4\"BSP(M)	2	
9901260055		1/4\" S.S 316 2W 1PC BALL VALVE, H10 NPT 800PSI T HANDLE FEMALE-FEMALE (FP) type S20	2	
060404C122		S.S 316 HEX NIPPLE 1/4NPT(M) x 1/4NPT(M) - 122B	2	

Serial Number	Component	Description	QTY	Comments
060404C116		S.S 316 STREET ELBOW 1/4NPT(M) x 1/4NPT(F) - 116B	2	
500401CU90		BRASS PCBU 2X1 ASSY.	1	 The PCBU as standard assembled with this angle fitting: 066008N934 - NICKEL PLATED BRASS PUSH IN FITTING ELBOW 6mmX1/8"BSPT(M)
070400P010		LLDPE John Guest tube, 6mm, BLACK - 10 meter	10m	




NOTE: 2 Wires flow meter cable, USB Technician cable and 5 or 14 wires I/O, external power cable are NOT part of the kit and need to be ordered separately.
Bracket for mounting the DELTA on 700 SIGMA actuator can be ordered separately, code: 25300SD320_U

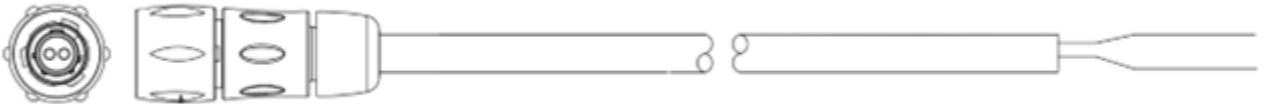
Cables Index

This section reviews the various cables.

BDD0000038 - DELTA 3 Wire Cable with SOURIAU Connector UTS6JC12E8S and USB, L=2.5M for Technician Software		
Label	Function	Color
-	USB Plug	Black



BDD0000034 - DELTA 2 Wire cable With SOURIAU Connector UTS6JC8E2S L=2.5M for Flow Meter		
Label	Function	Color
A	Digital Input 1	Red
B	Digital Input 1 - COM	Black



**BDD0000037 - DELTA 5 Wire Cable with SOURIAU Connector
UTS6JC12E8S L=2.5M for External Power & MODBUS**

Label	Function	Color
D	COM	Gray
E	RS485 -	Orange
F	RS485 +	Green
G	External Power (-)	Black
H	External Power (+)	Red



**BDE0000010 - DELTA & EPSILON 14 Wire Cable with SOURIAU Connector
UTS6JC12E14S L=2.5M for External Latch, Digital & Analog Inputs**

Label	Function	Color
A	Latch Solenoid Output (+)	Black
B	Latch Solenoid Output (-)	Red
C	Digital Input 1	Orange
D	Digital Input 1 - COM	Green
E	Digital Input 2	Blue
F	Digital Input 2 - COM	Gray
R	Digital Input 3	White
H	Digital Input 3 - COM	Brown
J	Analog Input 1	Purple
K	Analog Input 1 - COM	Light Purple
L	Analog Input 1 Power	Navy Blue
M	Analog Input 2	Light Green
N	Analog Input 2 - COM	Yellow
P	Analog Input 2 Power	Pink

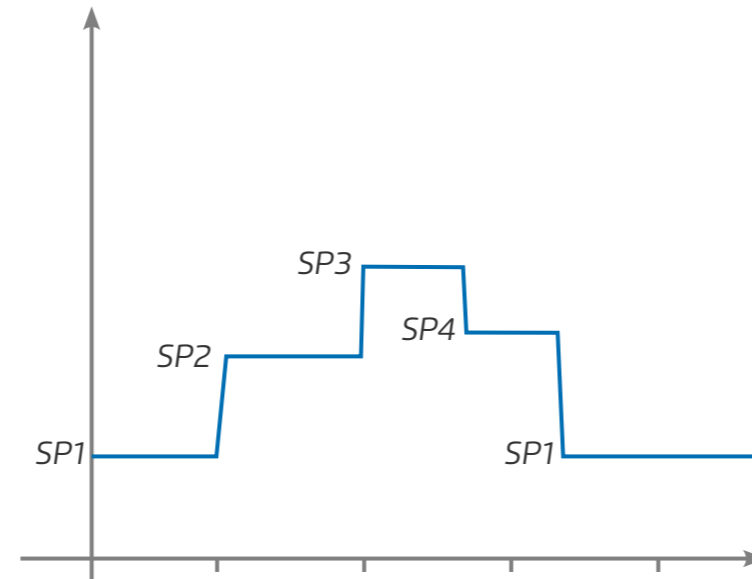


Modes of Operation

The DELTA consists of two modes of operation:

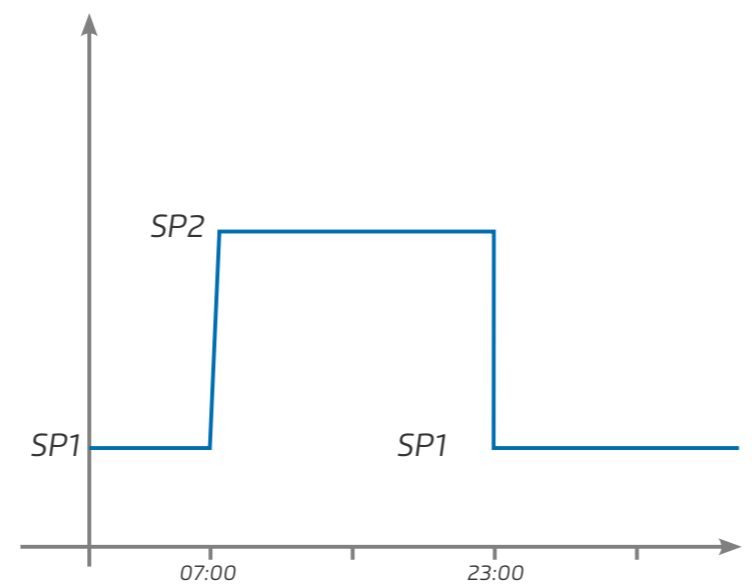
Full Modulation Mode

Enables setting multiple water pressure set points. (see [Full Modulation by Time](#) and [Full Modulation by Flow](#))



Two Pressures Settings

Enables setting two water pressure set points (see [Two Pressures \(High / Low\)](#))

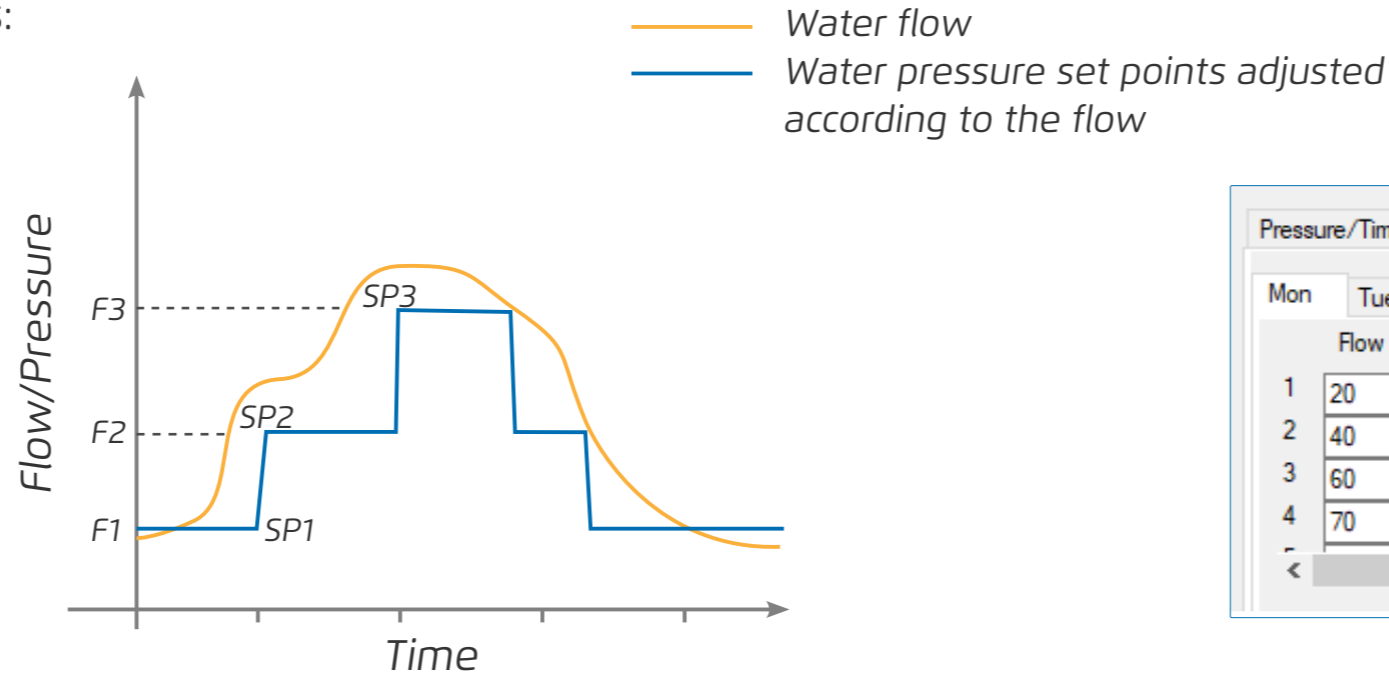


Modes of Pressure Control

The pressure can be controlled by two modes:

Controlled by FLOW

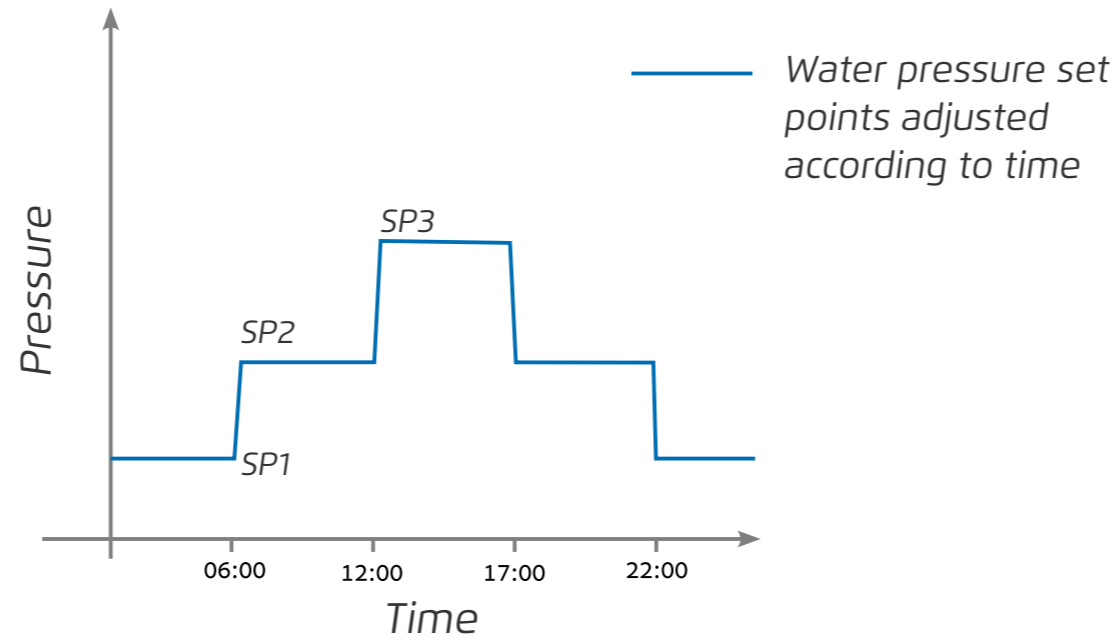
The water pressure is adjusted according to the water demand (see [Full Modulation by Flow](#))



	Mon	Tue	Wed	Thu	Fri	Sat	Sun
	Flow (m3/h)		Pressure (m)				
1	20	25					
2	40	30					
3	60	35					
4	70	38					

Controlled by TIME

The water pressure is adjusted according to a predefined schedule (see [Full Modulation by Time](#))



	Mon	Tue	Wed	Thu	Fri	Sat
	Time [HH:MM]		Pressure (m)			
1	05	00	35			
2	08	00	40			
3	18	00	35			
4	23	00	40			
5	00	00	0.0			

3. INSTALLATION

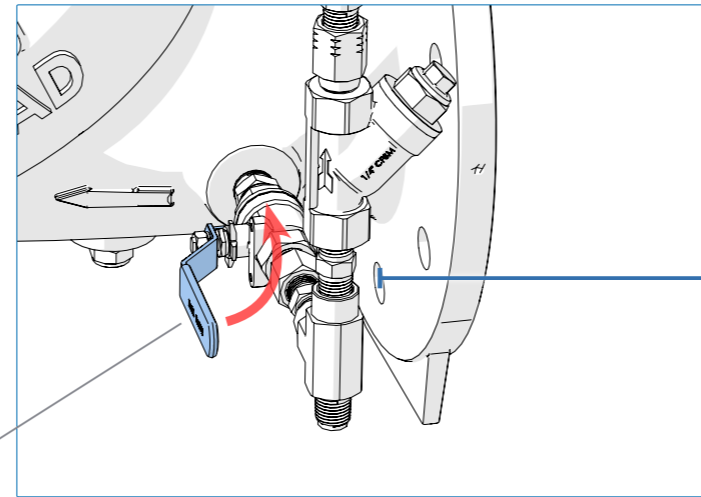
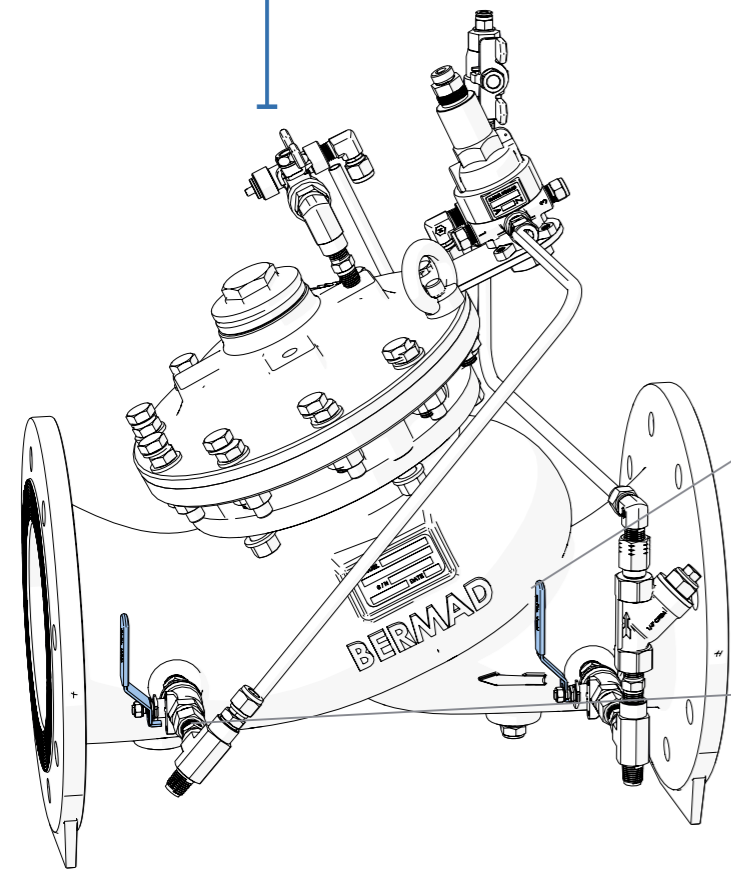
This chapter reviews DELTA installation and includes:

- [Adding Fittings to Valve](#)
- [Mounting DELTA to Bracket](#)
- [Connecting Technician Software to DELTA](#)
- [Pressure and I/O Connections](#)
- [Installing the Bias Chamber](#)
- [Setup and Calibration](#)

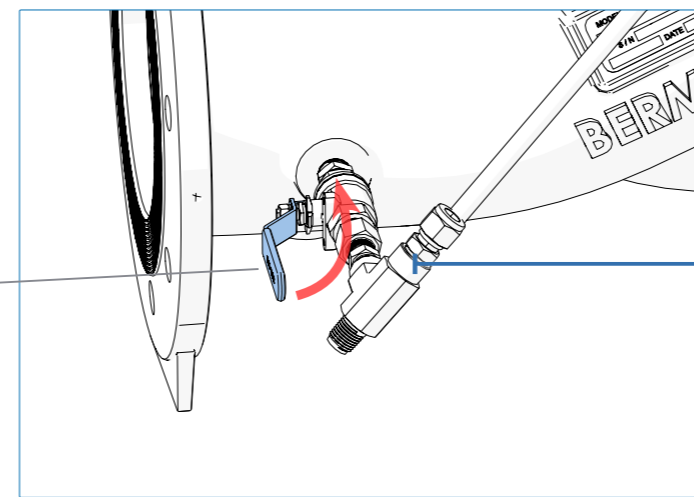
Adding Fittings to Valve

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

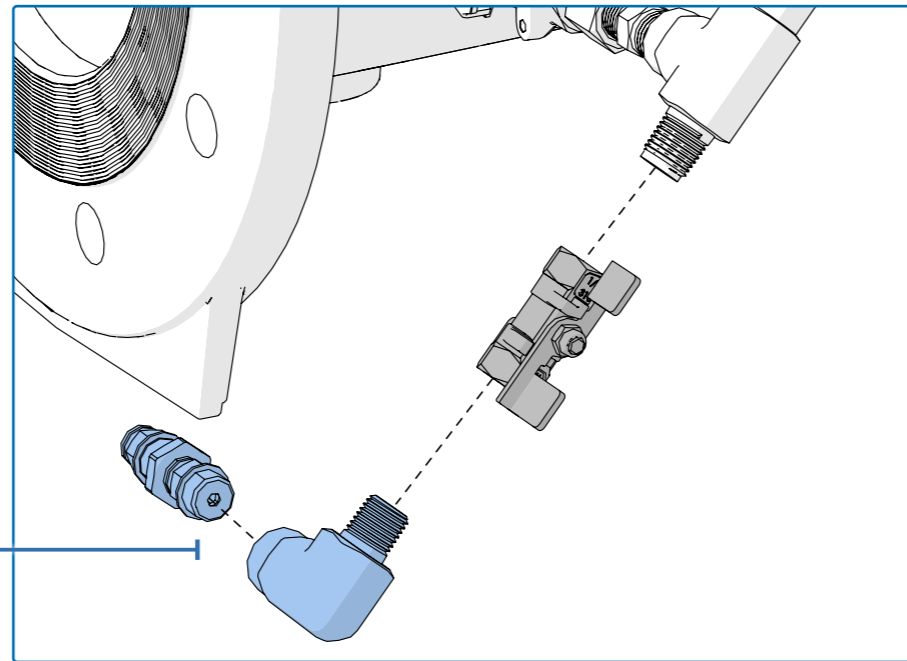


2. Shut off the Upstream cock valve

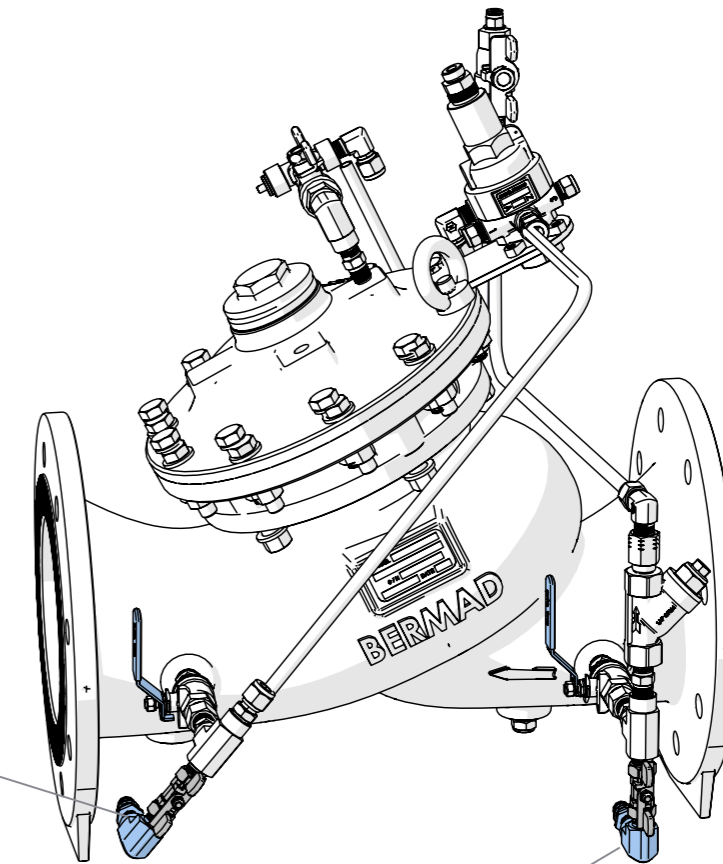
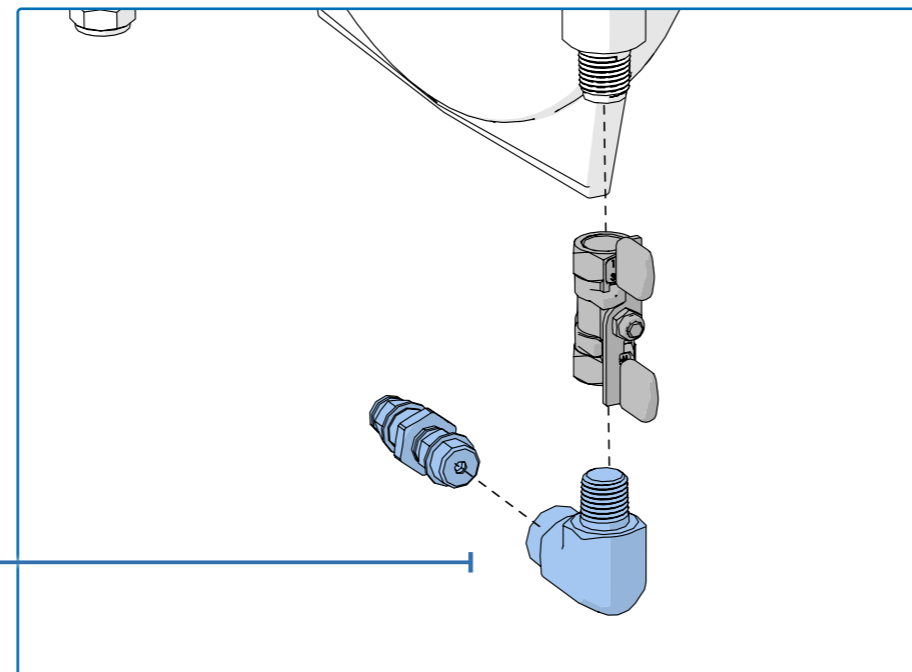


3. Shut off the Downstream cock valve

4. Connect fittings to the downstream outlet



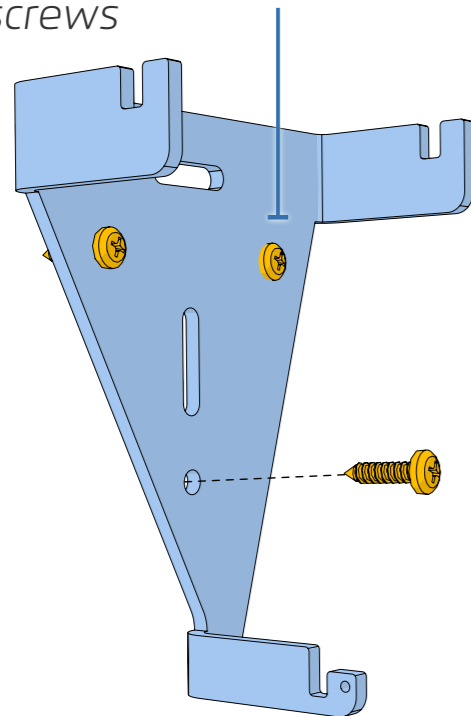
5. Connect fittings to the upstream outlet



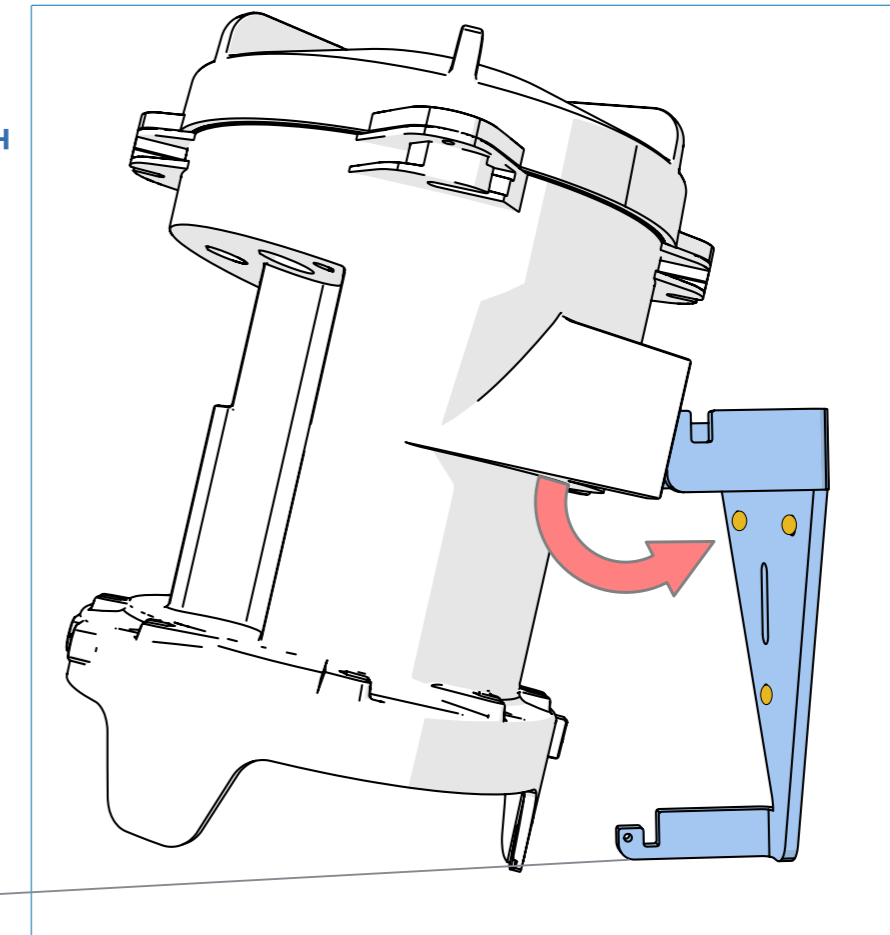
Mounting DELTA to Bracket

Perform the following steps to mount the DELTA controller to a wall or a valve chuck:

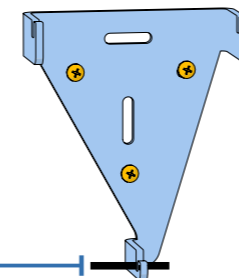
1. Attach the mounting bracket to the wall using three screws



2. Connect the DELTA Controller to the mounting bracket by snapping it into place using the three grooves and pushing it down



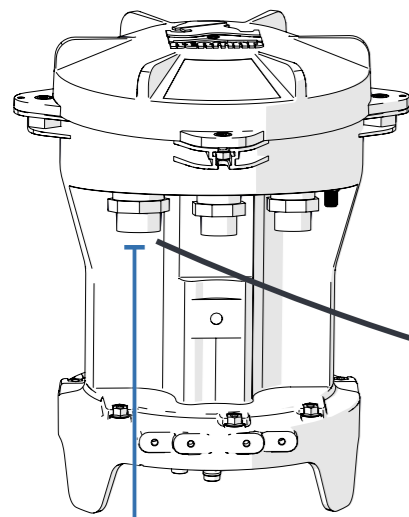
3. Insert the securing pin to secure the DELTA in place



Connecting Technician Software to DELTA

Perform the following steps to connect the technician software to the DELTA controller:

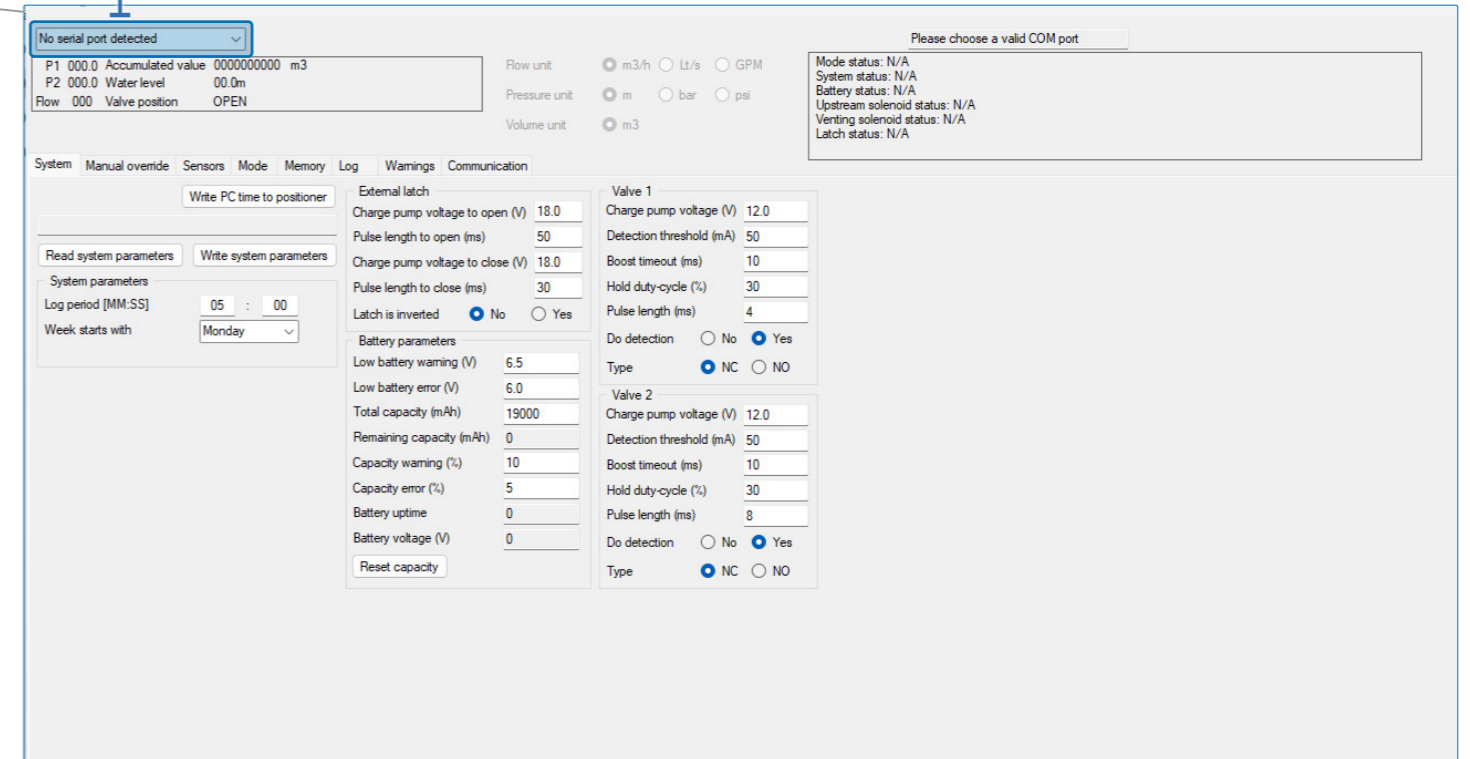
1. The technician software is sent by the clients contact person from BERMAD



2. Pair the laptop to the DELTA via bluetooth or a cable to the USB connection port



3. Select the laptop COM port



4. Displays the time the controller is set to. Click 'Write PC time to Positioner' so the DELTA will have the correct time zone.

The screenshot shows the 'System' tab of the DELTA controller software. At the top, there are status indicators: 'No serial port detected', 'P1 000.0 Accumulated value 0000000000 m3', 'P2 000.0 Water level 00.0m', and 'Flow 000 Valve position OPEN'. A 'Write PC time to positioner' button is highlighted with a blue box. Below this, there are sections for 'Read system parameters' and 'Write system parameters'. The 'System parameters' section includes 'Log period [MM:SS]' set to '05 : 00' and 'Week starts with' set to 'Monday'. The 'Write system parameters' section contains various configuration options for external latches, valves, and battery parameters. A 'Flow unit' selection box is also visible, showing radio buttons for 'm3/h', 'Lt/s', and 'GPM', with 'm3/h' selected.



NOTE: Click 'Write System Parameters' to download the software to the controller.

5. Select the measurement units for the Flow, Pressure and Volume values

This close-up shows the measurement unit selection interface. It features three rows of radio buttons: 'Flow unit' with options 'm3/h', 'Lt/s', and 'GPM'; 'Pressure unit' with options 'm', 'bar', and 'psi'; and 'Volume unit' with the option 'm3'. The 'm3/h' radio button for Flow unit is selected.

Pressure and I/O Connections

This section reviews connecting tubes and cables to the DELTA controller and includes:

- [Internal Pressure Sensors Reset](#)
- [Connecting to Upsteam Outlet](#)
- [Connecting to Downstream Outlet](#)
- [Connecting Command Tube](#)
- [Connecting Water Meter to DELTA \(Optional\)](#)

Internal Pressure Sensors Reset

Perform the following steps to update the internal pressure sensors:

1. From the app, Select the **Sensors** tab

The screenshot shows the 'Sensors' configuration screen. At the top, there are tabs for 'System', 'Manual override', 'Sensors', 'Mode', 'Memory', 'Log', 'Warnings', and 'Communication'. Below the tabs are buttons for 'Read parameters' and 'Write parameters'. The main area is divided into three columns for different sensors:

- Flow meter #1:** Input # (No Input), Input Type, Measure interval s (5), Warmup interval s (0), Number of samples (4), Idle value mV (0), Minimum flow (m3/h) (0), Maximum flow (m3/h) (1000), Hysteresis (m3/h) (0), Pulse size (lt) (100), Sensor output type (NPN selected), Is passive (NO selected).
- Pressure #1 (Upstream):** Input # (No Input), Input Type, Measure interval s (5), Warmup interval s (0), Number of samples (4), Idle value mV (0), Minimum pressure (m) (0), Maximum pressure (m) (1000), Hysteresis (m) (0), Pulse size (m) (100), Sensor output type (NPN selected), Is passive (NO selected).
- Pressure #2 (Downstream):** Input # (No Input), Input Type, Measure interval s (5), Warmup interval s (0), Number of samples (4), Idle value mV (0), Minimum pressure (m) (0), Maximum pressure (m) (1000), Hysteresis (m) (0), Pulse size (m) (100), Sensor output type (NPN selected), Is passive (NO selected).



NOTE: Click 'Write Parameters' to save any changes that are made at each screen.

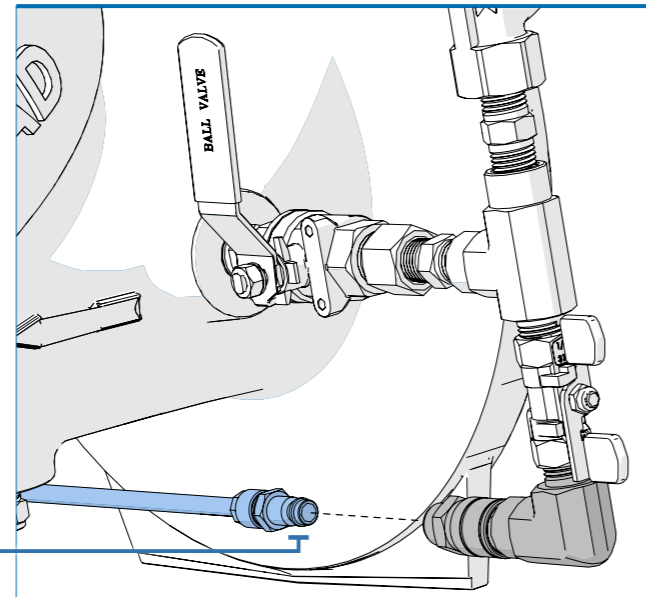
2. Select the type of input and the channel to which the pressure sensors are connected

3. Click **Update** to update sensors

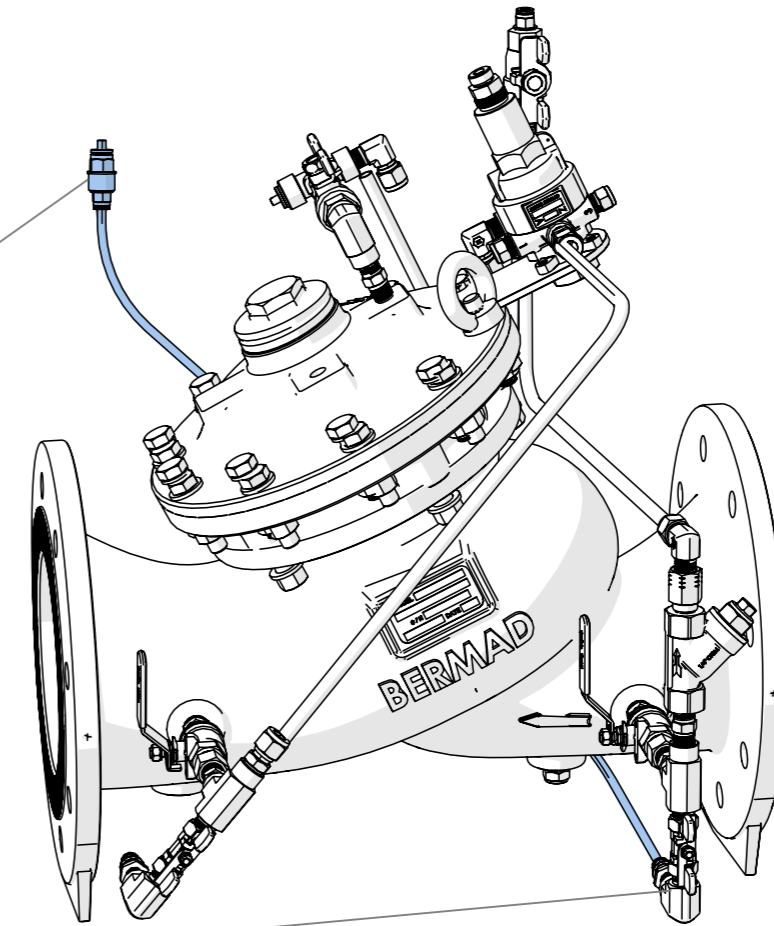
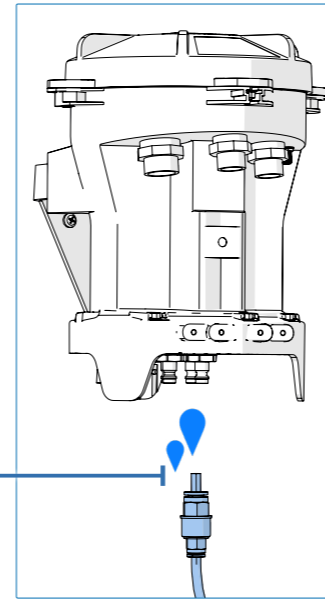
Connecting to Upstream Outlet

Perform the following steps to connect the DELTA to the upstream outlet:

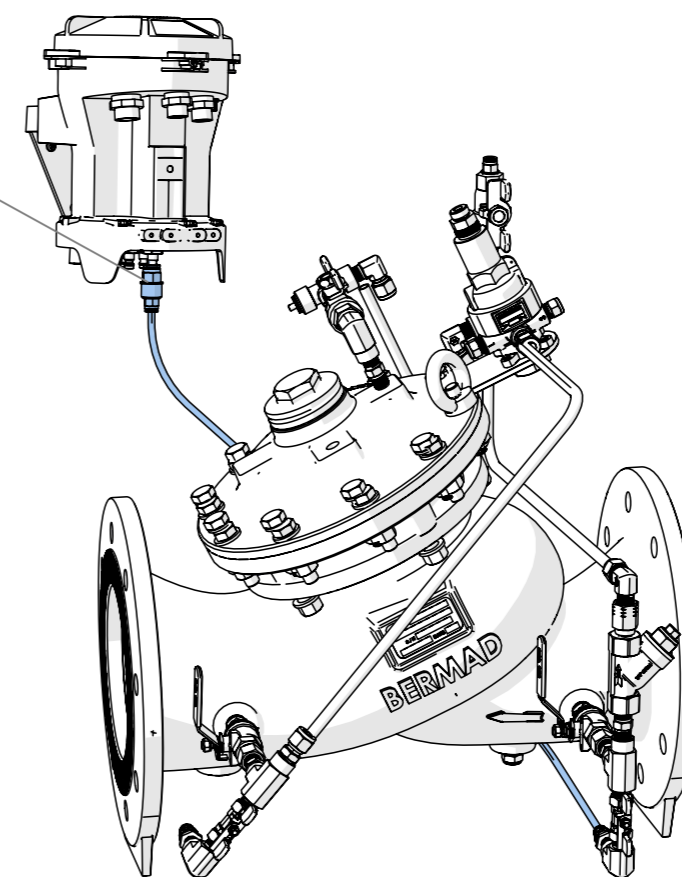
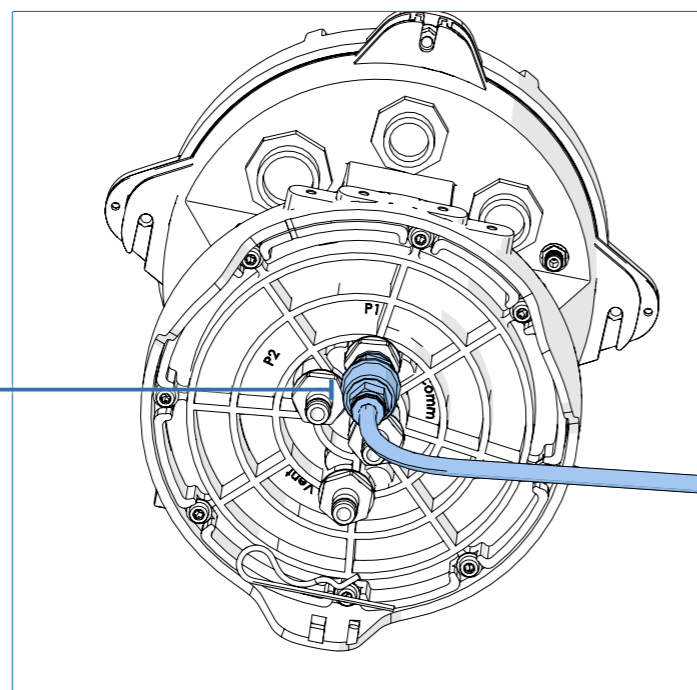
1. Connect the P1 tube to the P1 fitting on the upstream outlet



2. Open the cock valve and allow a slight flow of water to bleed the air from the P1 tube



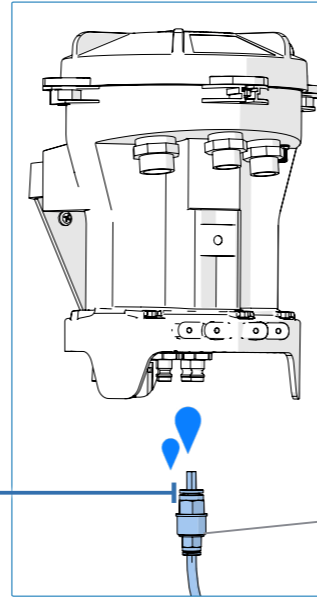
3. Connect the other end of the P1 tube to the P1 port on the controller



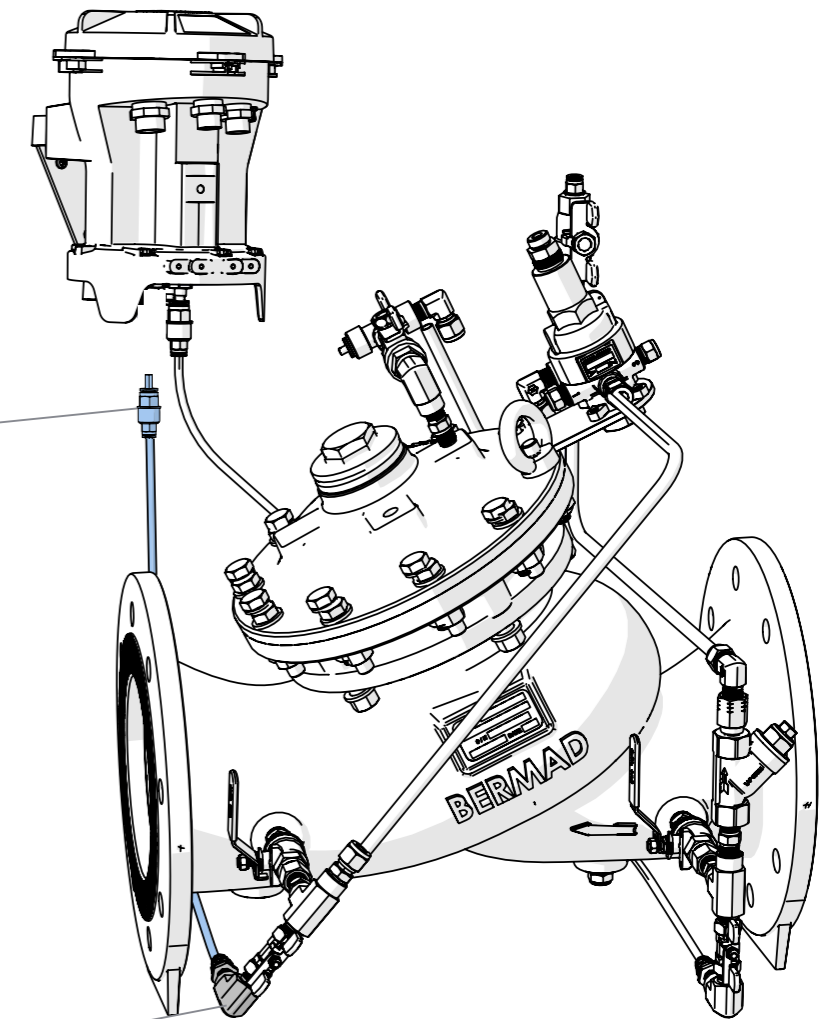
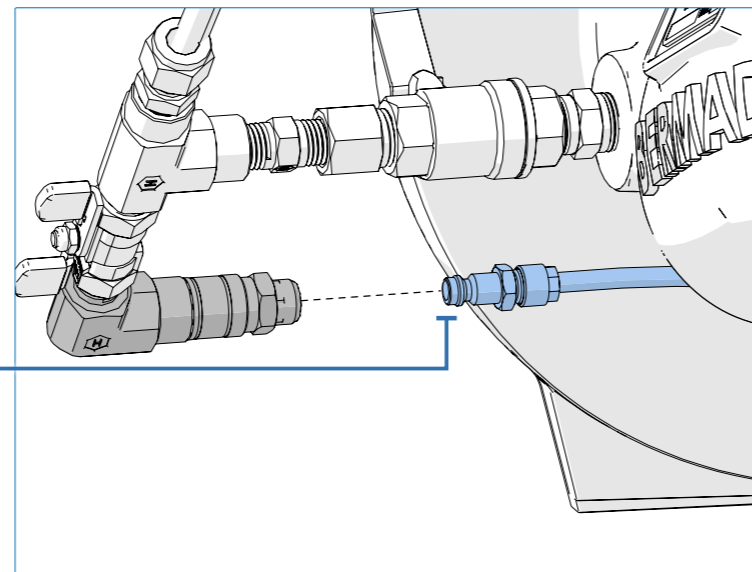
Connecting to Downstream Outlet

Perform the following steps to connect DELTA to the downstream outlet:

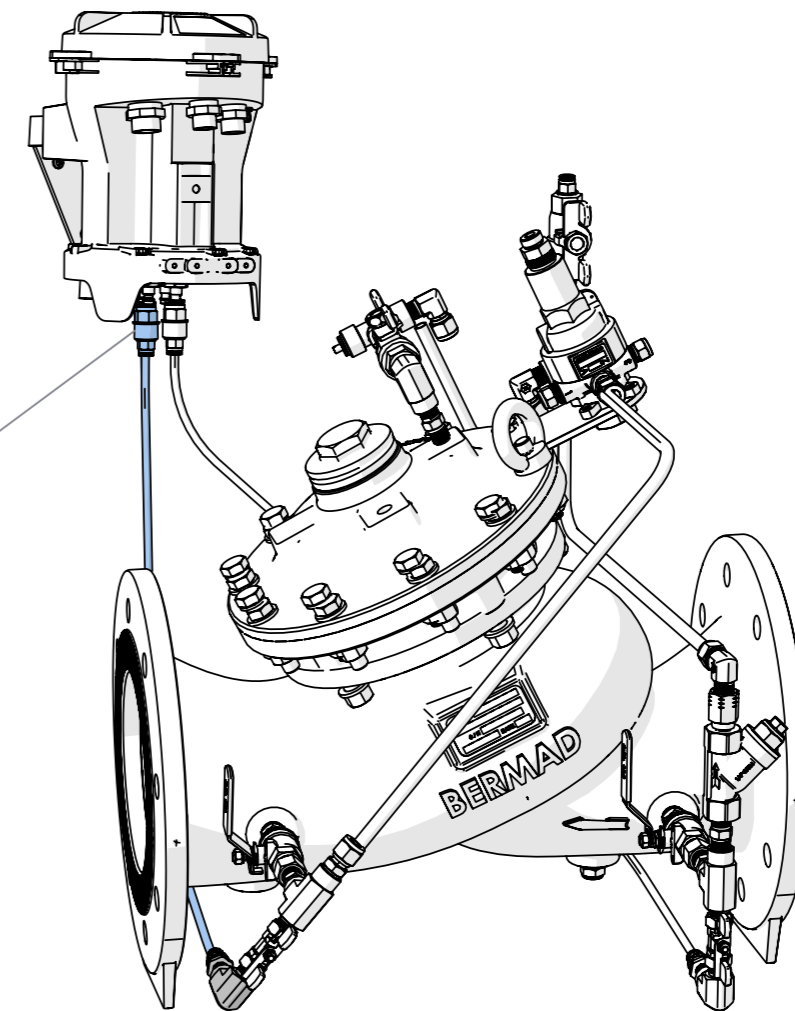
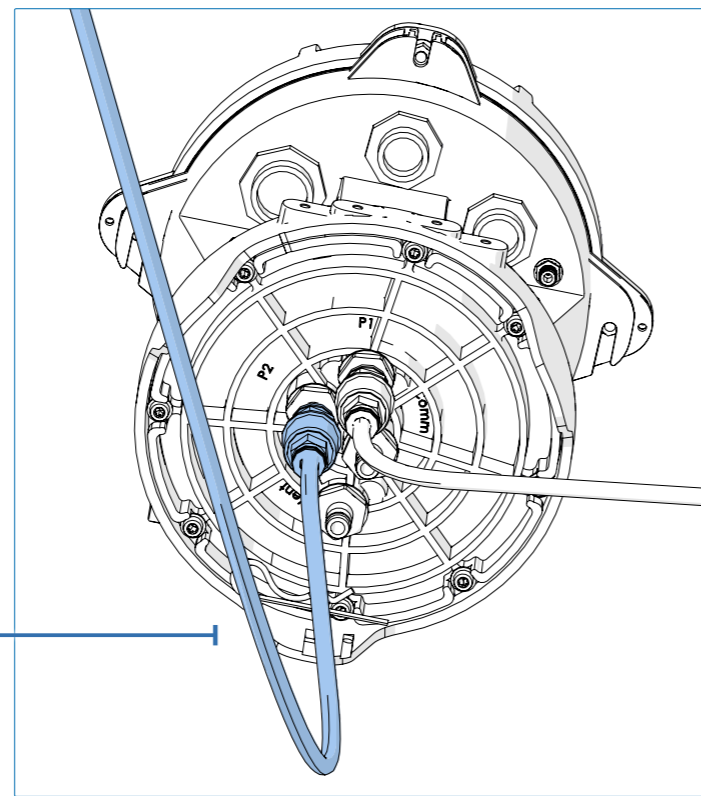
2. Open the cock valve and allow a slight flow of water to bleed the air from the P2 tube



1. Connect the P2 tube to the P2 fitting on the downstream outlet

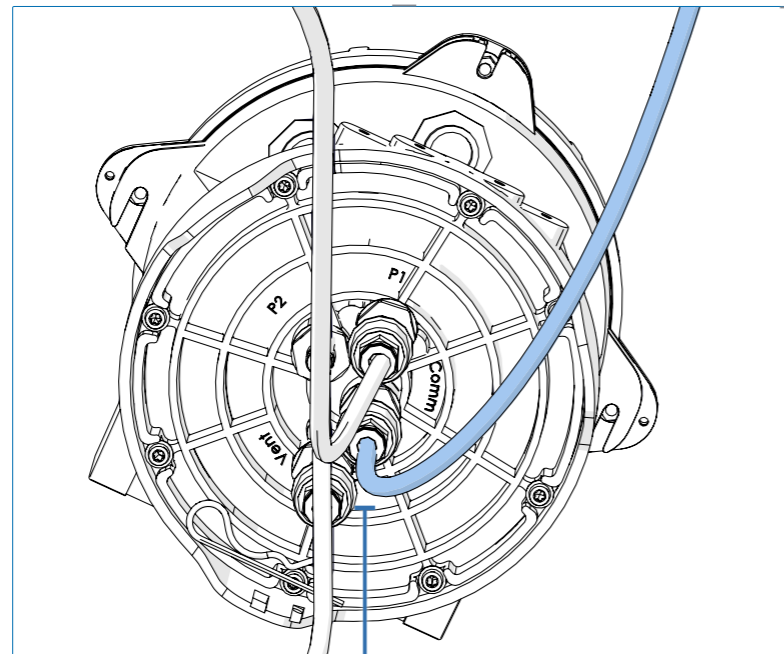


3. Connect the other end of the P2 tube to the P2 port on the controller

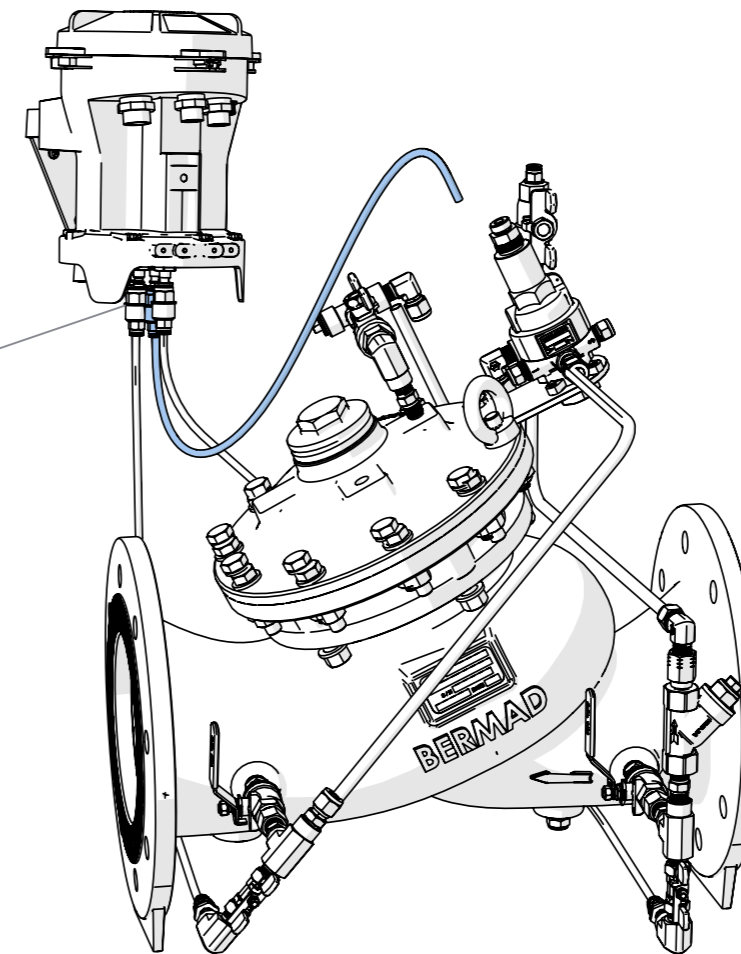


Connecting Command Tube

Perform the following to connect the command tube:



1. Connect the command tube to the Comm port on the controller

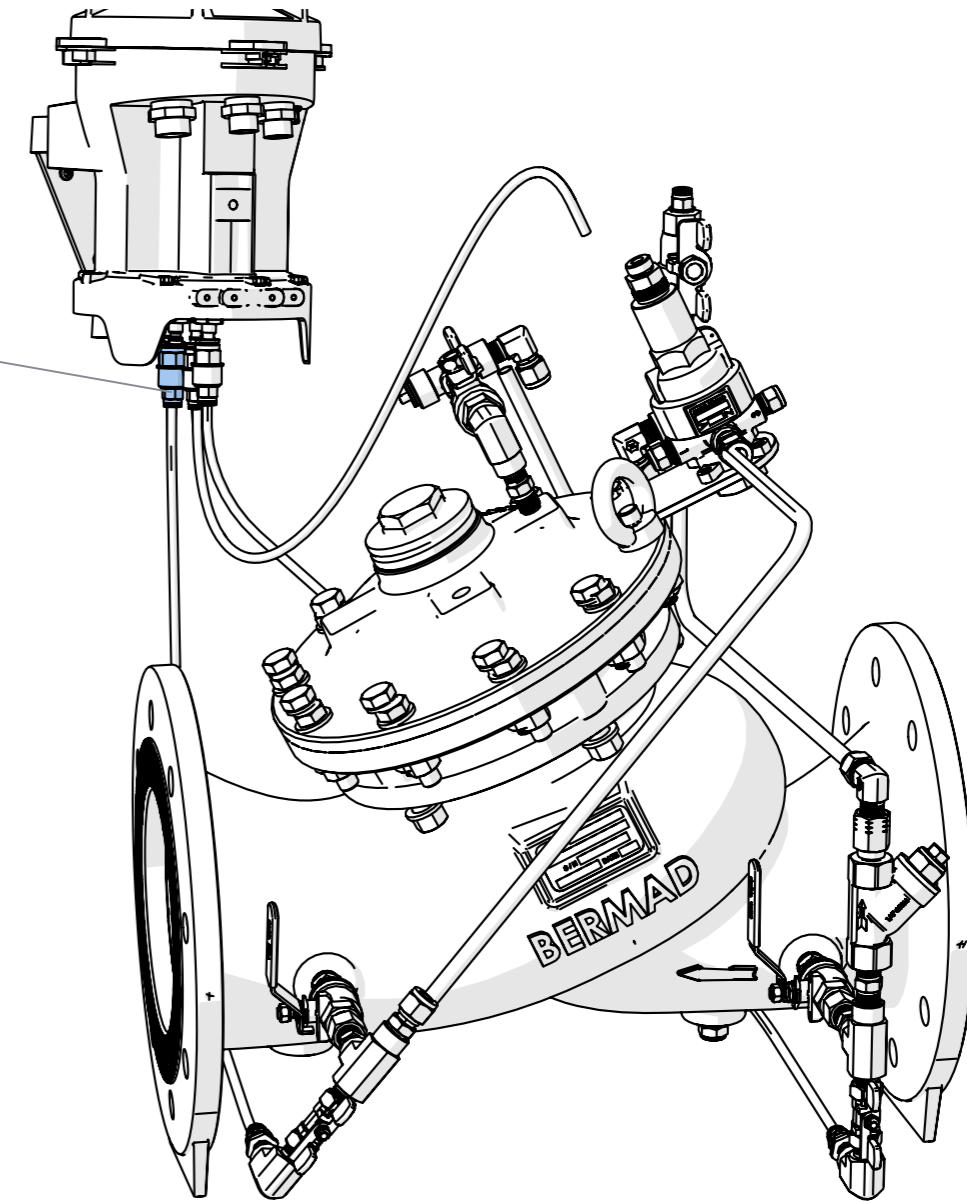
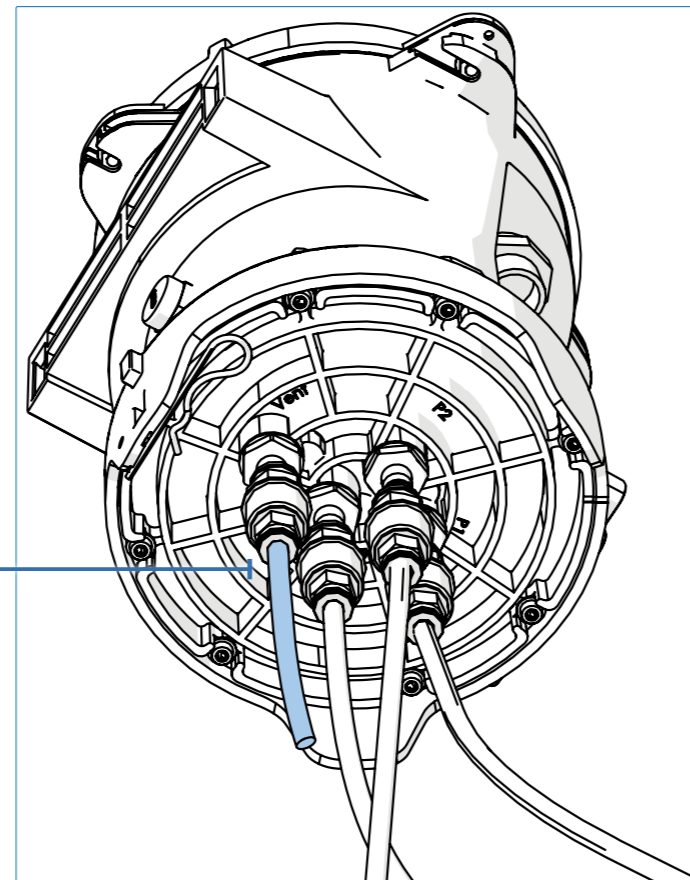


NOTE: Connect the other end of the command tube to the PCBU after bleeding the excess air see Bleeding Air from the PCBU.

Connecting Vent Tube

Perform the following to connect the vent tube:

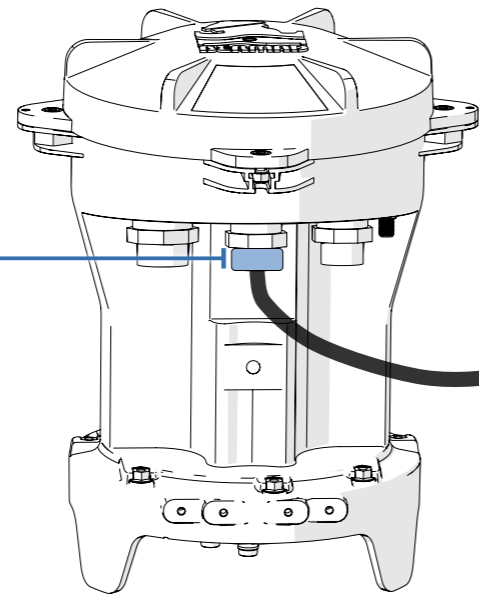
1. Connect the vent tube for directing the dripping water downwards



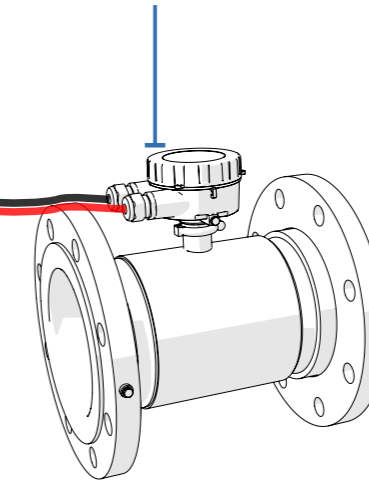
Connecting Water Meter to DELTA (Optional)

Perform the following steps to connect a water meter to DELTA:

1. Connect the two-wires cable to the water meter port on the DELTA controller



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



Installing the Bias Chamber

This section reviews installing the bias chamber and includes:

- Preparation of the PCBU
- Preparation of the Pilot Valve
- Connecting the PCBU to Pilot
- Air Release From the Control Tube
- Bleeding Air from the PCBU
- Increasing the Pressure to Maximum Level
- Decreasing the Pressure to Minimum Level

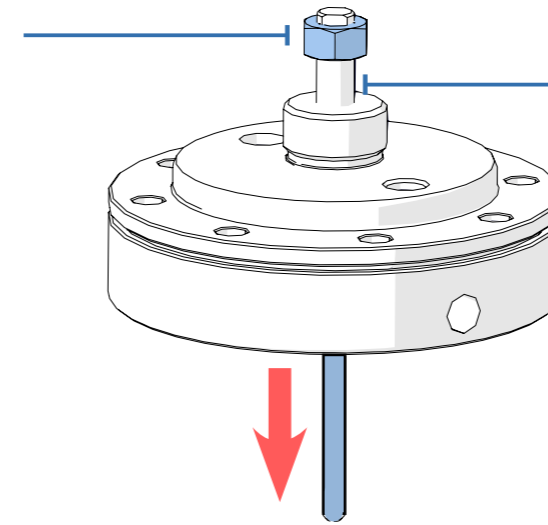
Preparation of the PCBU

Perform the following steps to prepare the PCBU:

1. Remove the cover



2. Release the lock nut of the top screw



3. Tighten the top screw of the PCBU all the way down, to its maximum depth

Preparation of the Pilot Valve

Perform the following steps to prepare the pilot valve:

1. Remove the cover



2. Release the secure nut



3. Remove the adjustment screw from the pilot valve

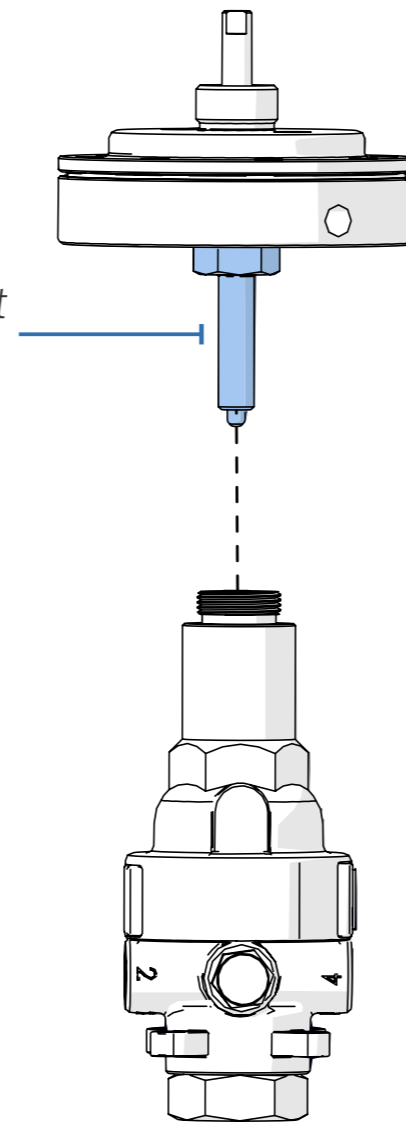
Connecting the PCBU to Pilot

Perform the following steps to connect the PCBU to the pilot valve:

Setting the Maximum Pressure

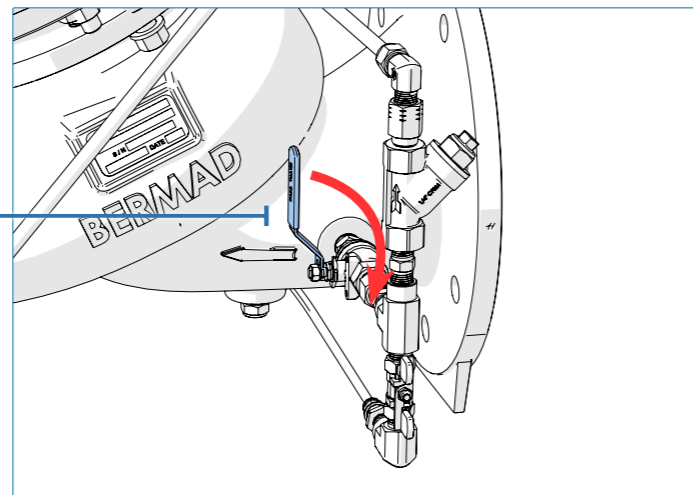
Perform the following steps to set the PCBU to the maximum level:

- 1. Very slowly tighten the PCBU onto the pilot valve and stop when the spring tension of the pilot is felt*

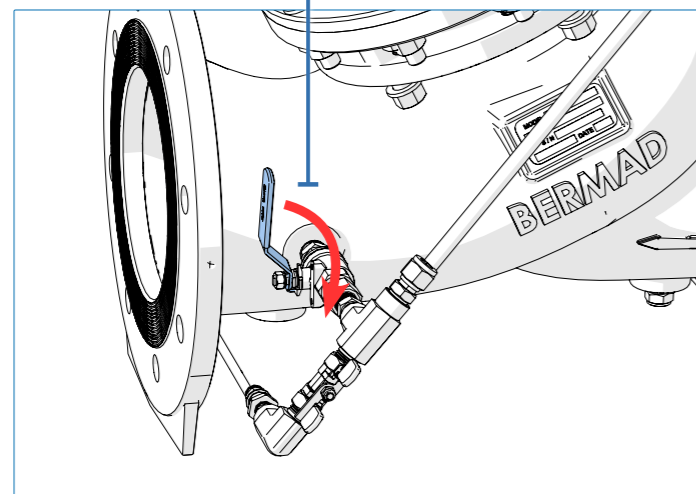


WARNING: Increase the pressure gradually. Tighten the PCBU onto the pilot valve very slowly.

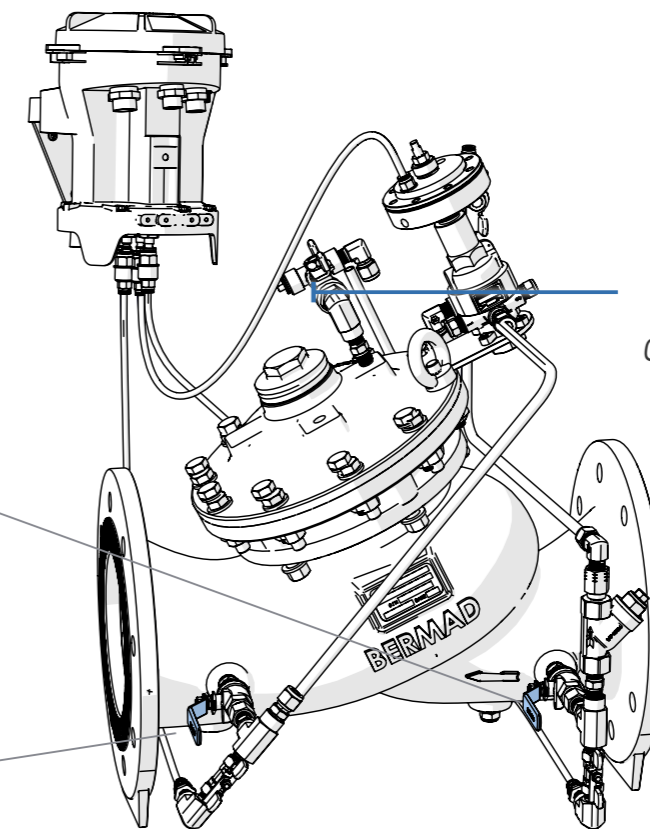
2. Open the Upstream cock valve



3. Open the Downstream cock valve

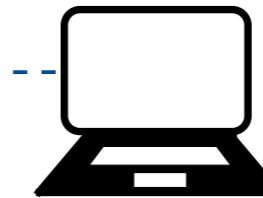


4. Open the control cock valve



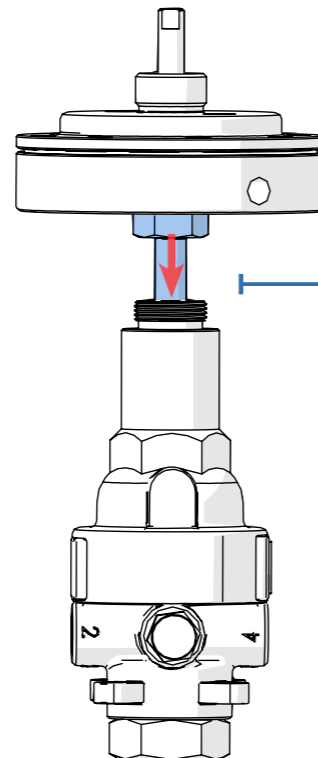
5. The pressure reading in the P2 will rise as the PCBU is tightened. The pressure is displayed in the technician software

COM6			
P1	000.0	Accumulated value	0000000000 m3
P2	000.0	Water level	00.0m
Flow	000	Valve position	OPEN



WARNING: Increase the pressure gradually. Tighten the PCBU onto the pilot valve very slowly.

6. Stop tightening when the maximum pressure is 4-5 metres above the highest setpoint that will be defined



7. Lock the lower nut until it reaches the top of the pilot valve

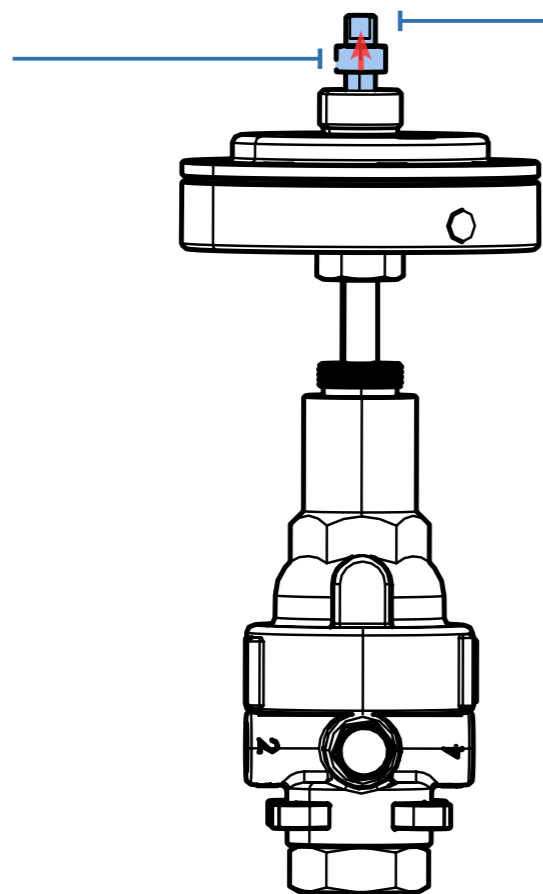
Setting the Minimum Pressure

Perform the following steps to set the PCBU to the minimum pressure:



WARNING: Reduce the pressure gradually. Loosen the PCBU screw very slowly.

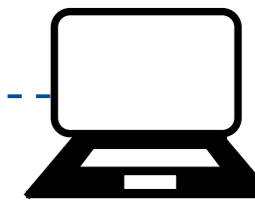
1. Loosen the upper lock nut



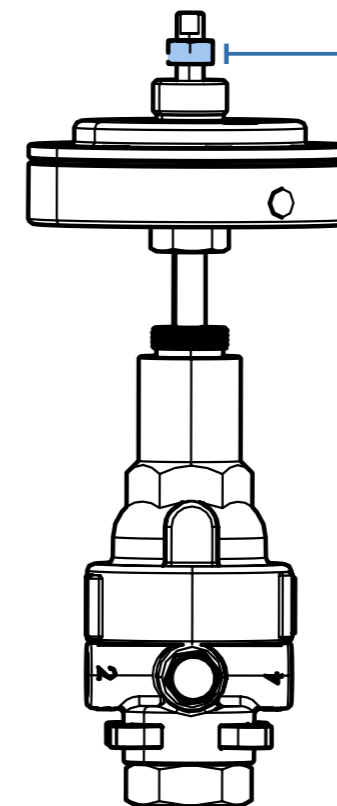
2. Very slowly loosen the upper screw of the PCBU

3. The pressure reading in the P2 will decrease as the upper screw is loosened. The pressure is displayed in the technician software

COM6			
P1	000.0	Accumulated value	0000000000 m3
P2	000.0	Water level	00.0m
Flow	000	Valve position	OPEN



4. Stop loosening when the minimum pressure is 4-5 metres lower than the minimal setpoint that will be defined

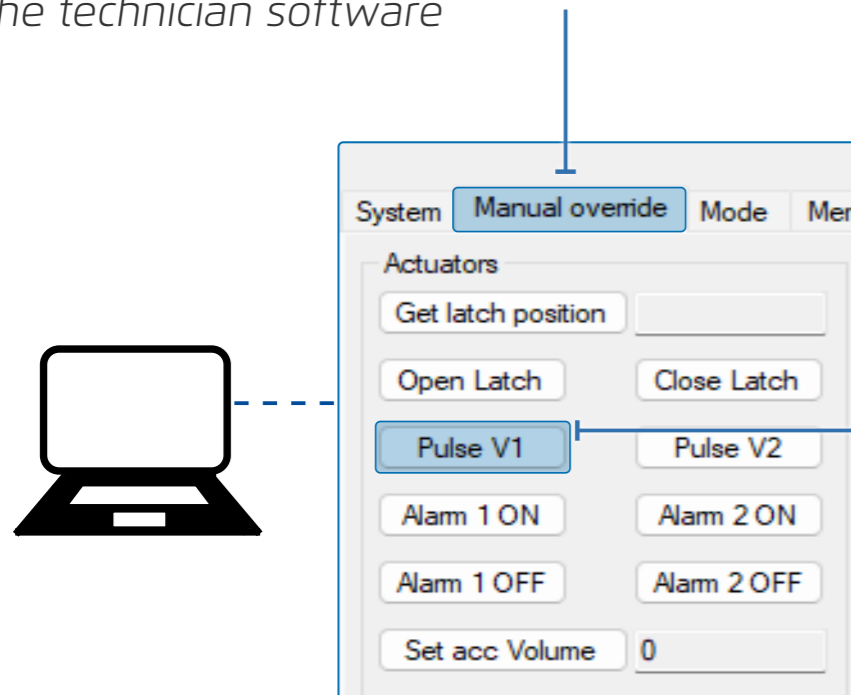


5. Tighten the upper lock nut

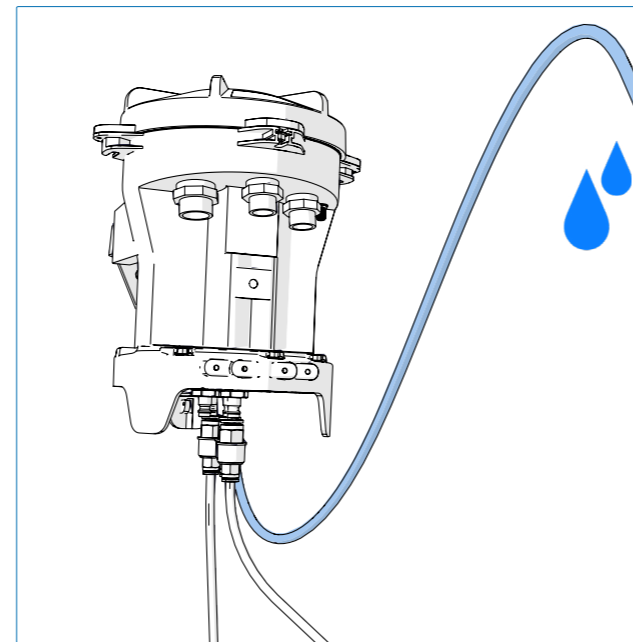
Air Release From the Control Tube

Perform the following steps to release the air from the control tube:

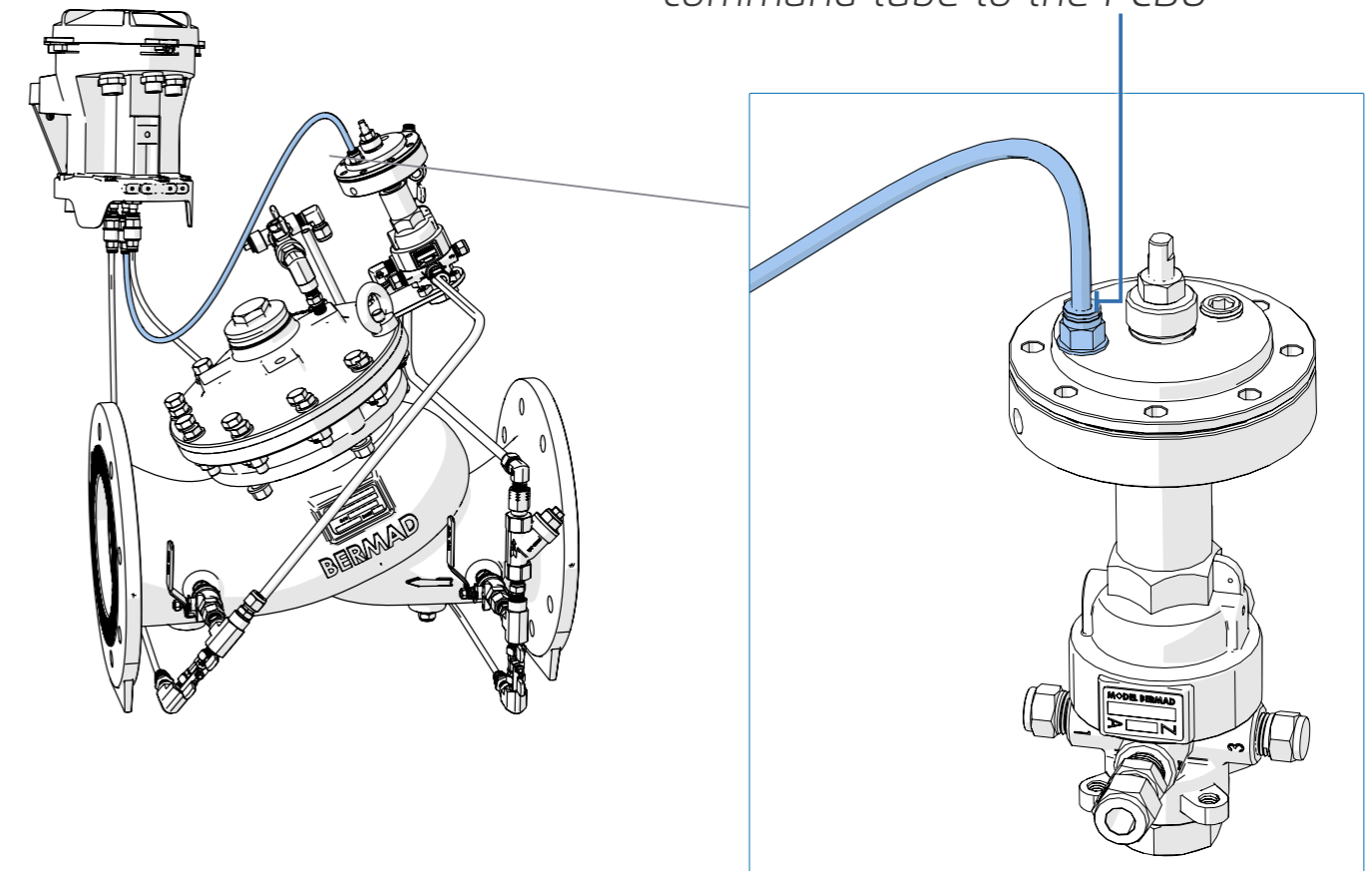
1. Select the **Manual Override** tab in the technician software



2. Click **Pulse V1** repeatedly until water is released from the command tube and the tube is completely filled with water



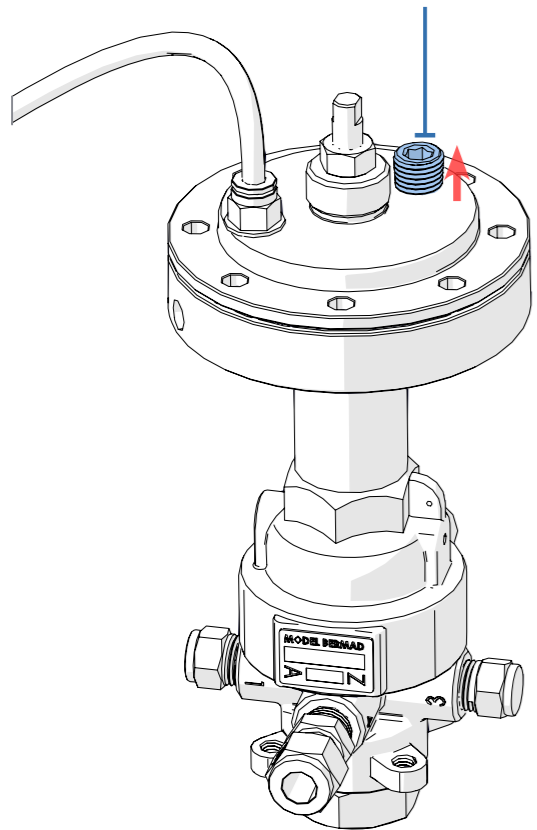
3. Connect the other end of the command tube to the PCBU



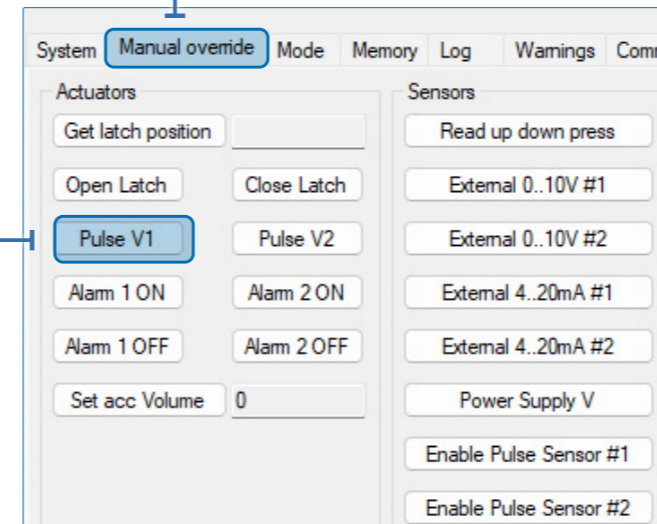
Bleeding Air from the PCBU

Perform the following steps to bleed the air from the PCBU:

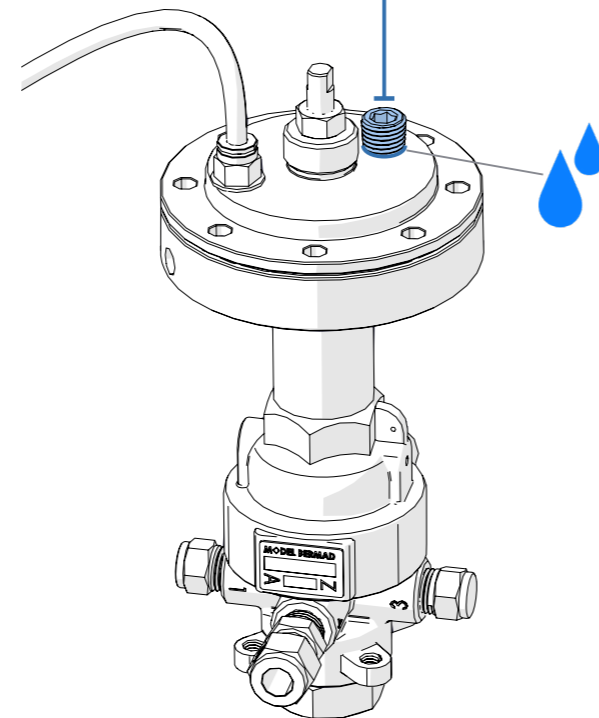
1. Loosen the air release screw



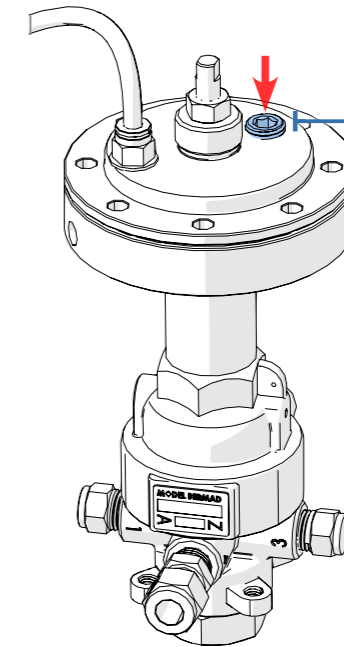
2. Select the **Manual Override** tab



3. Click **Pulse V1** repeatedly to bleed the air from the PCBU until water is released.



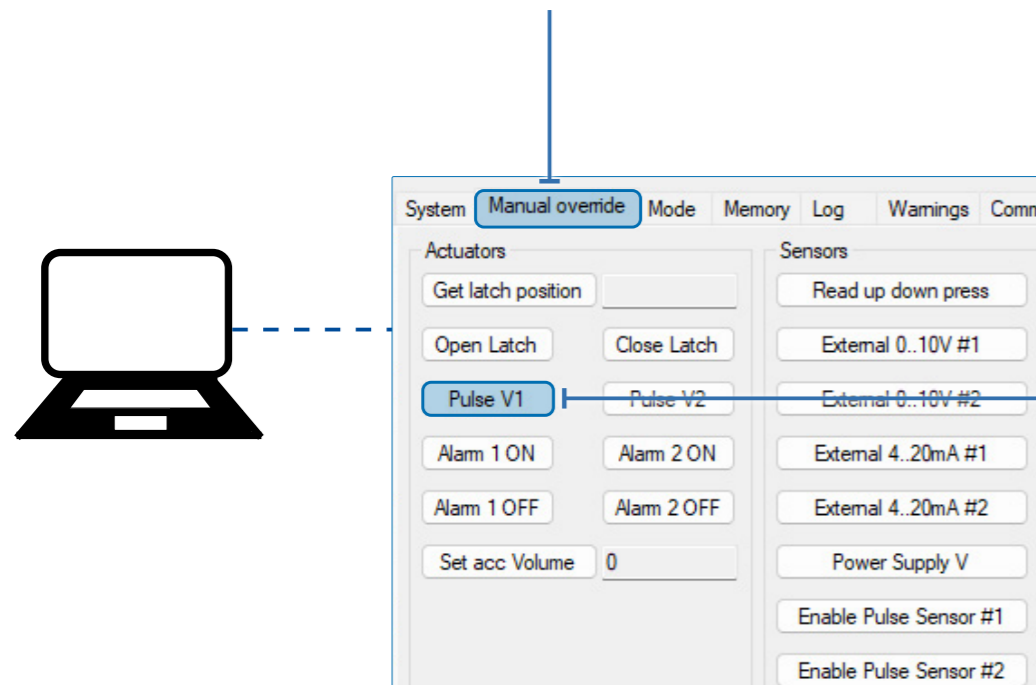
4. Tighten the air release screw once all excess air has been released.



Increasing the Pressure to Maximum Level

Perform the following steps to increase the pressure to the maximum level to verify calibration:

1. Select the **Manual Override** tab



2. Click **Pulse V1** repeatedly to increase the pressure until the mechanical limitation is reached and the P2 stops rising

COM6			
P1	000.0	Accumulated value	00000000000 m3
P2	000.0	Water level	00.0m
Flow	000	Valve position	OPEN

3. Click **Pulse V1** and verify that the P2 reading does not exceed the maximum pressure limit



CAUTION: This process should be carried out very slowly in order to avoid water shock and burst in the pipeline.

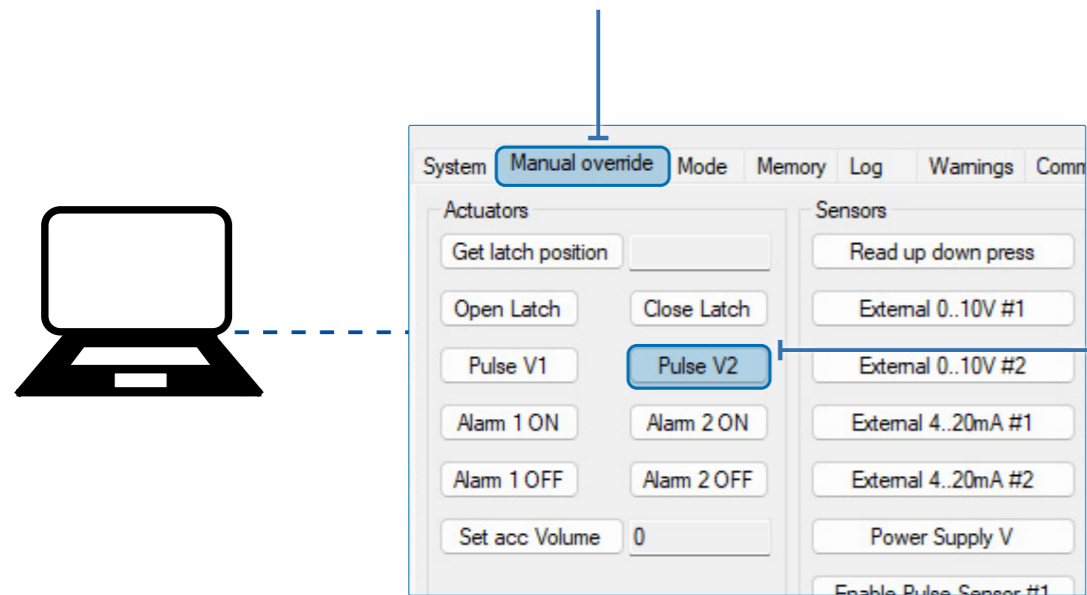


NOTE: If the pressure exceeds the defined limit, restart the calibration process see Connecting the PCBU to Pilot.

Decreasing the Pressure to Minimum Level


Perform the following steps to decrease the pressure to the minimum level to verify calibration:

1. Select the **Manual Override** tab



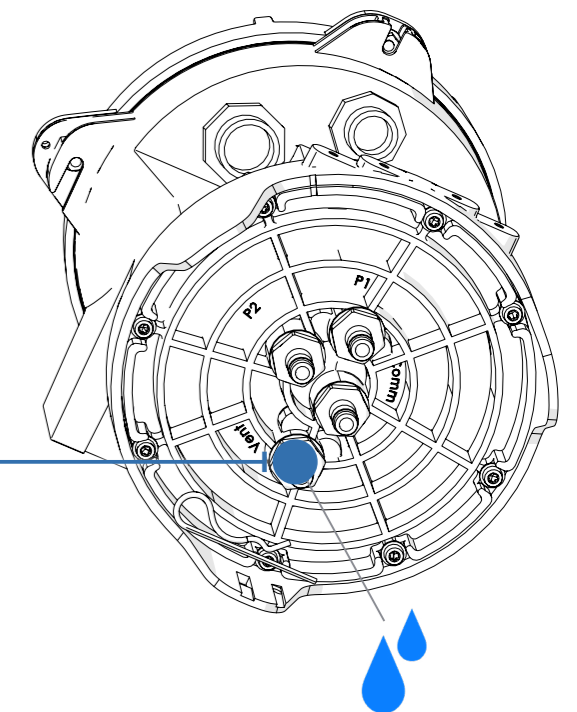
2. Click **Pulse V2** repeatedly to decrease the pressure until the mechanical limitation is reached and the P2 value stops dropping


No serial port detected			
P1	000.0	Accumulated value	0000000000 m3
P2	000.0	Water level	00.0m
Flow	000	Valve position	OPEN

 **CAUTION:** This process should be carried out very slowly in order to avoid water shock and burst in the pipeline.

3. Click **Pulse V2** and verify that the P2 reading does not drop below the minimum pressure limit

4. The water from the PCBU is released from the vent output on the DELTA controller



 **NOTE:** If the pressure drops below the defined limit, restart the calibration process see Connecting the PCBU to Pilot.

Setup and Calibration

This section reviews setup and calibration and includes:

- [Setting Pressure Management Parameters](#)
- [Setting Operational Mode Parameters](#)
- [Verifying DELTA Reaches the Setpoint Automatically](#)
- [Verifying DELTA Connects to Bermad Cloud](#)

Setting Pressure Management Parameters

Perform the following to define the pressure management parameters:

System Parameters

Define the following parameters in the system tab:



NOTE: Click 'Write Parameters' to save any changes that are made at each screen.

1. From the app, select **System**

2. Click **Write PC time to positioner** to set the local time

3. Define how often to log the measure into the controller chart

The screenshot shows the 'System' tab selected in the app. The 'System parameters' section is expanded, showing the 'Log period [MM:SS]' field set to 05:00. A callout box points to the 'Write PC time to positioner' button. Another callout box points to the 'Log period [MM:SS]' field. The screen also displays various other parameters such as 'External latch', 'Charge pump voltage to open (V)', 'Pulse length to open (ms)', 'Charge pump voltage to close (V)', 'Pulse length to close (ms)', 'Latch is inverted', and 'Battery parameters'.

Defining Sensors Parameters

Perform the following to set the flow meter parameters:

1. Select the **Sensors** tab

2. Select the type of flow meter input (analog or digital) and the channel to which the flow meter is connected

4. Define the maximum water flow (m³/h) (This option is relevant for analog input only)

5. Define the pulse size in liters (This option is relevant for digital input only)

System Manual override **Sensors** Mode M

Read parameters Write parameters

Flow meter #1

Input # Digital 1

Input Type Digital WM

Measure interval s 5

Warmup interval s 0

Number of samples 4

Idle value mV Update 0

Minimum flow (m³/h) 0

Maximum flow (m³/h) 1000

Hysteresis (m³/h) 0

Pulse size (lt) 100

Sensor output type NPN PNP

Is passive NO YES

3. Define the amount of pulses used to calculate the average flow.

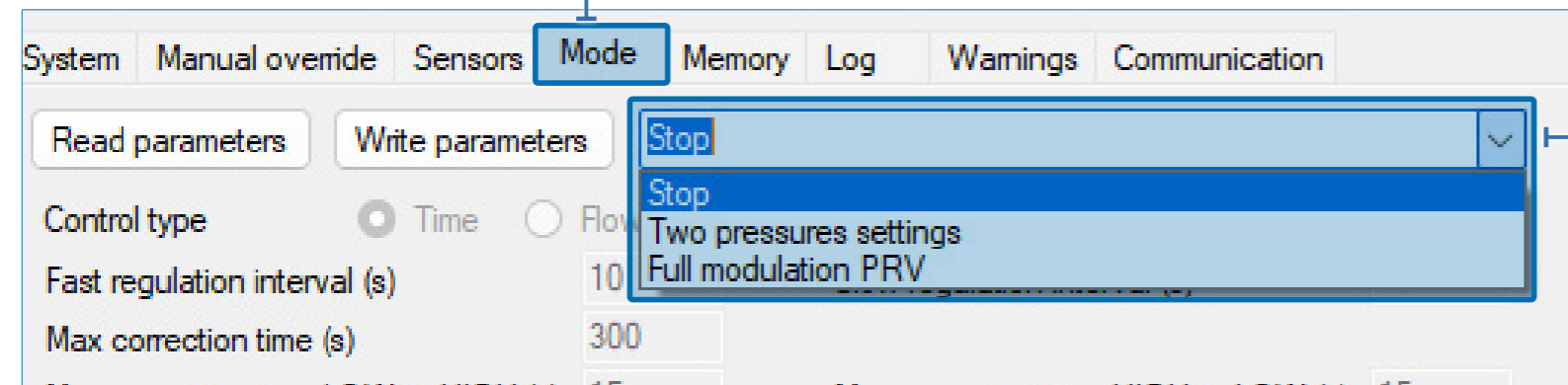


NOTE: Click 'Write Parameters' to save any changes that are made at each screen.

Setting Operational Mode Parameters

Select the desired operation mode and define its parameters:

1. Select the **Mode** tab



The screenshot shows a software interface with several tabs: System, Manual override, Sensors, Mode, Memory, Log, Warnings, and Communication. The 'Mode' tab is selected and highlighted. Below the tabs are two buttons: 'Read parameters' and 'Write parameters'. Underneath these buttons, there are radio buttons for 'Control type' with options 'Time' (selected) and 'Flow'. Below the radio buttons are input fields for 'Fast regulation interval (s)' with a value of 10, and 'Max correction time (s)' with a value of 300. A dropdown menu is open, showing three options: 'Stop', 'Two pressures settings', and 'Full modulation PRV'. The 'Stop' option is currently selected in the dropdown.

2. From the dropdown list select *Mode 1: Full Modulation* or *Mode 2: Two Pressures Settings (Day/Night)*

Mode 1: Full Modulation

Define the following parameters in the mode tab:

1. After selecting **Full Modulation PRV**, the controller's mode settings are displayed

The screenshot shows the 'Full modulation PRV' control interface. The 'Control type' is set to 'Time'. The 'Fast regulation interval (s)' is 10, and the 'Slow regulation interval (s)' is 30. The 'Max correction time (s)' is 300. The 'Flow setpoint (m3/h)' is 0. The 'Flow dead-band plus (m3/h)' is 2, and the 'Flow dead-band minus (m3/h)' is 2. The 'Minimal differential flow (m3/h)' is 8. The 'Dead-band above pressure SP (m)' is 2.0, and the 'Dead-band below pressure SP (m)' is 2.0. The 'Min diff pressure P1 to P2 (m)' is 8.0. The 'Fast regulation diff pressure (m)' is 10.0. The 'Latch open level setpoint (m)' is 20.0, and the 'Latch close level setpoint (m)' is 2.0. The 'Latch override enable' checkbox is checked. The 'Latch override type' is set to 'Open'. The 'Latch override pressure P1 (m)' is 0.0, and the 'Latch regain delta above P1 (m)' is 0.0. The 'Latch override delay (s)' is 30, and the 'Latch regain delay (s)' is 30. The 'Latch alarm delay (s)' is 30. The 'Multiple parallel PRVs' are set to 'No'. The 'Minimal flow' is 0, and the 'Low flow failure delay (s)' is 400. The 'Pilot low pressure (m)' is 30.0, and the 'Pilot high pressure (m)' is 50.0. The 'Pilot pressure dead-band (m)' is 5.0. The 'Flow above the flow set delay (s)' is 1, and the 'Flow below the flow set delay (s)' is 1. The 'PCBU type' is set to 'NL'.

2. Define the following parameters:

Fast regulation interval (s)	The time between each internal solenoid pulse when the pressure setpoint is changed. This interval is used only while the pressure setpoint has changed and until the pressure reached the new setpoint.
Slow regulation interval (s)	The time between internal solenoid pulses that is used during normal operation while the system maintains the pressure around the defined setpoint.
Max correction time (s)	Enables sending an alert after the defined amount of time if the setpoint did not change, and suspends further attempts to reach the set point until the next time/flow window.
Dead-band above pressure SP (m)	Enables setting a deadband value above the setpoint due to the operation of the hydraulic pilot installed on the valve control loop.
Dead-band below pressure SP (m)	Enables setting a deadband value below the setpoint due to the operation of the hydraulic pilot installed on the valve control loop.
Min diff pressure P1 to P2 (m)	If the pressure differential (upstream-downstream) drops to below this value, the system suspends its pressure regulation and sends an alert.



NOTE: Click 'Write Parameters' to save any changes that are made at each screen.

3. Select the Control type (Control type: Time/Control type: Flow)

Control type Time Flow

System		Manual override		Sensors		Mode		Memory		Log		Warnings		Communication	
Read parameters		Write parameters		Full modulation PRV											
Control type		<input checked="" type="radio"/> Time		<input type="radio"/> Flow		<input type="radio"/> Level		<input type="radio"/> Latch							
Fast regulation interval (s)	10	Slow regulation interval (s)	30												
Max correction time (s)	300	Max correction time LOW to HIGH (s)	15	Max correction time HIGH to LOW (s)	15										
Flow setpoint (m3/h)	0	Flow dead-band plus (m3/h)	2	Flow dead-band minus (m3/h)	2										
Flow dead-band plus (m3/h)	2	Minimal differential flow (m3/h)	8	Dead-band above pressure SP (m)	2.0	Dead-band below pressure SP (m)	2.0								
Minimal differential flow (m3/h)	8	Min diff pressure P1 to P2 (m)	8.0	Fast regulation diff pressure (m)	10.0	Latch open level setpoint (m)	20.0	Latch close level setpoint (m)	2.0						
Dead-band above pressure SP (m)	2.0	Fast regulation diff pressure (m)	10.0	Latch open level setpoint (m)	20.0	Latch close level setpoint (m)	2.0	Latch override type	<input checked="" type="radio"/> Open	<input type="radio"/> Close					
Min diff pressure P1 to P2 (m)	8.0	Latch override enable	<input checked="" type="checkbox"/>	Latch override pressure P1 (m)	0.0	Latch override type	<input checked="" type="radio"/> Open	<input type="radio"/> Close	Latch regain delta above P1 (m)	0.0					
Fast regulation diff pressure (m)	10.0	Latch override pressure P1 (m)	0.0	Latch override delay (s)	30	Latch regain delta above P1 (m)	0.0	Latch regain delay (s)	30						
Latch open level setpoint (m)	20.0	Latch override delay (s)	30	Latch alarm delay (s)	30	Multiple parallel PRVs	<input type="radio"/> Yes	<input checked="" type="radio"/> No							
Latch close level setpoint (m)	2.0	Latch alarm delay (s)	30	Minimal flow	0	Pilot low pressure (m)	30.0	Pilot high pressure (m)	50.0						
Latch override enable	<input checked="" type="checkbox"/>	Minimal flow	0	Low flow failure delay (s)	400	Pilot low pressure (m)	30.0	Pilot high pressure (m)	50.0						
Latch override pressure P1 (m)	0.0	Low flow failure delay (s)	400	Pilot low pressure (m)	30.0	Pilot pressure dead-band (m)	5.0	Flow above the flow set delay (s)	1	Flow below the flow set delay (s)	1				
Latch override delay (s)	30	Pilot low pressure (m)	30.0	Pilot pressure dead-band (m)	5.0	PCBU type	<input checked="" type="radio"/> NL	<input type="radio"/> NH							
Latch alarm delay (s)	30	Pilot pressure dead-band (m)	5.0	PCBU type	<input checked="" type="radio"/> NL	<input type="radio"/> NH									
Minimal flow	0	Flow above the flow set delay (s)	1												
Low flow failure delay (s)	400	PCBU type	<input checked="" type="radio"/> NL	<input type="radio"/> NH											
Pilot low pressure (m)	30.0														
Pilot pressure dead-band (m)	5.0														
Flow above the flow set delay (s)	1														
Flow below the flow set delay (s)	1														
PCBU type	<input checked="" type="radio"/> NL	<input type="radio"/> NH													

Control type

Enables selecting the mode of operation:
Flow - pressure is defined according to water demand (rate of flow)
Time - pressure is defined according to time

Control type: Flow

Pilot pressure dead-band (m)	5.0		
Flow above the flow set delay (s)	1	Flow below the flow set delay (s)	1
PCBU type	<input checked="" type="radio"/> NL <input type="radio"/> NH		

1. Define the flow set delay parameters

Flow above the flow set delay (s)	Defines the delay time when the flow is above the flow setpoint and before the controller will switch to the next setpoint.
Flow below the flow set delay (s)	Defines the delay time when the flow is below the flow setpoint and before the controller will switch to the next setpoint.

2. Select each day of the week to define the flow setpoints or select a sequence of days by numbers

4. Define the flow in the selected days when the pressure will change

6. Click **Copy to all days** to set the same parameters for every day of the week

Setpoint tables

Pressure/Time Flow/Time Flow/Pressure Schedule Level/Flow

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	#1	#2	#3	#4
Flow (m ³ /h)											
Pressure (m)											
1											
2											
3											
4											
-											

If Flow below for (s) set Pressure

3. Change the flow and pressure (SP) definition of the weekend - optional

5. Define the pressure setpoints

Control type: Time

1. Select each day of the week to define the setpoints by time or select a sequence of days by numbers

3. Define the times in the selected days when the pressure will change

5. Click **Copy to all days** to set the same parameters for every day of the week

Setpoint tables

Pressure/Time | Flow/Time | Flow/Pressure | Schedule | Level/Flow

Mon | Tue | Wed | Thu | Fri | Sat | Sun | #1 | #2 | #3 | #4

	Time [HH:MM]	Pressure (m)
1	00 : 00	0.0
2	00 : 00	0.0
3	00 : 00	0.0
4	00 : 00	0.0
5	00 : 00	0.0

Copy to all days | If Flow above 0 for 0 (s) set Pressure 0.0

2. Change the definition of the time windows and the pressures set point for the weekend - optional

4. Define the pressure setpoints

6. An option to increase the system pressure, if the flow exceeds the defined maximum value for the defined duration. For example, in the event of fire.

Latch Settings (Optional)

Fully open the valve during insufficient inlet pressure and define the following optional parameters in the latch settings:

NOTE: Select when using the latch override system.

1. After defining the Time/Flow setpoints, define the latch parameters

Fast regulation diff pressure (m)	10.0	Latch close level setpoint (m)	2.0
Latch open level setpoint (m)	20.0	Latch override type	<input checked="" type="radio"/> Open <input type="radio"/> Close
<input checked="" type="checkbox"/> Latch override enable		Latch regain delta above P1 (m)	0.0
Latch override pressure P1 (m)	0.0	Latch regain delay (s)	30
Latch override delay (s)	30	Multiple parallel PRVs	<input type="radio"/> Yes <input checked="" type="radio"/> No
Latch alarm delay (s)	30		
Minimal flow	0		
Low flow failure delay (s)	400		

NOTE: This function is only relevant if a latch solenoid is mounted on the valve control loop in the right location for venting the valve control chamber.

Latch override pressure P1 (m)	Define the pressure at which the latch will open.
Latch override delay (s)	Define the time if a pressure is equal to or lower than the selected pressure, until the latch opens.
Latch alarm delay	Define the time before sending an alert.
Latch regain delta above P1 (m)	Define the pressure at which the latch will close and the valve returns to pressure reducing
Latch regain delay (s)	Define the time if the pressure is above the selected pressure, until the latch closes.

NOTE: Click 'Write Parameters' to save any changes that are made at each screen.

Mode 2: Two Pressures Settings (Day/Night)

Define the following parameters when using the two pressures settings option:

1. After selecting **Two Pressures Settings**, the controller's mode settings are displayed

System Manual override Sensors Mode Memory Log Warnings Communication

Read parameters Write parameters Two pressures settings

Control type Time Flow Level Latch

Fast regulation interval (s) 10 Slow regulation interval (s) 30

Max correction time (s) 300

Max correction time LOW to HIGH (s) 15 Max correction time HIGH to LOW (s) 15

Flow setpoint (m³/h) 0

Flow dead-band plus (m³/h) 2 Flow dead-band minus (m³/h) 2

Minimal differential flow (m³/h) 8

Dead-band above pressure SP (m) 2.0 Dead-band below pressure SP (m) 2.0

Min diff pressure P1 to P2 (m) 8.0

Fast regulation diff pressure (m) 10.0

Latch open level setpoint (m) 20.0 Latch close level setpoint (m) 2.0

Latch override enable Latch override type Open Close

Latch override pressure P1 (m) 0.0 Latch regain delta above P1 (m) 0.0

Latch override delay (s) 30 Latch regain delay (s) 30

Latch alarm delay (s) 30 Multiple parallel PRVs Yes No

Minimal flow 0

Low flow failure delay (s) 400

Pilot low pressure (m) 30.0 Pilot high pressure (m) 50.0

Pilot pressure dead-band (m) 5.0

Flow above the flow set delay (s) 1 Flow below the flow set delay (s) 1

PCBU type NL NH

2. Define the following parameters:

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 low pressure	Enter the low pilot pressure value from the manual calibration. For controller to sending alert in case the valve can't reach the low pressure setting.
Pilot high pressure	Enter the high pilot pressure value from the manual calibration.
Pilot pressure dead-band	Defines a dead-band above and below the pressure set point before the controller takes action.

3. Select the Control type (Control type: Time/Control type: Flow)

Control type Time Flow

System	Manual override	Sensors	Mode	Memory	Log	Warnings	Communication
Read parameters		Write parameters		Two pressures settings			
Control type <input checked="" type="radio"/> Time <input type="radio"/> Flow <input type="radio"/> Level <input type="radio"/> Latch							
Fast regulation interval (s)	10	Slow regulation interval (s)	30				
Max correction time (s)	300						
Max correction time LOW to HIGH (s)	15	Max correction time HIGH to LOW (s)	15				
Flow setpoint (m3/h)	0	Flow dead-band plus (m3/h)	2	Flow dead-band minus (m3/h)	2		
Minimal differential flow (m3/h)	8	Dead-band above pressure SP (m)	2.0	Dead-band below pressure SP (m)	2.0		
Min diff pressure P1 to P2 (m)	8.0	Fast regulation diff pressure (m)	10.0				
Latch open level setpoint (m)	20.0	Latch close level setpoint (m)	2.0				
<input checked="" type="checkbox"/> Latch override enable							
Latch override pressure P1 (m)	0.0	Latch override type	<input checked="" type="radio"/> Open <input type="radio"/> Close				
Latch override delay (s)	30	Latch regain delta above P1 (m)	0.0				
Latch alarm delay (s)	30	Latch regain delay (s)	30				
Minimal flow	0	Multiple parallel PRVs	<input type="radio"/> Yes <input checked="" type="radio"/> No				
Low flow failure delay (s)	400	Pilot high pressure (m)	50.0				
Pilot low pressure (m)	30.0	Flow below the flow set delay (s)	1				
Pilot pressure dead-band (m)	5.0						
Flow above the flow set delay (s)	1						
PCBU type	<input checked="" type="radio"/> NL <input type="radio"/> NH						

Control type

Enables selecting the mode of operation:
Flow - pressure is defined according to water demand (rate of flow)
Time - pressure is defined according to time

Control type: Flow

System Manual override Sensors Mode Memory Log Warnings Communication			
Read parameters		Write parameters	
Two pressures settings			
Control type <input type="radio"/> Time <input checked="" type="radio"/> Flow <input type="radio"/> Level <input type="radio"/> Latch			
Fast regulation interval (s)	10	Slow regulation interval (s)	30
Max correction time (s)	300		
Max correction time LOW to HIGH (s)	15	Max correction time HIGH to LOW (s)	15
Flow setpoint (m3/h)	0		
Flow dead-band plus (m3/h)	2	Flow dead-band minus (m3/h)	2
Minimal differential flow (m3/h)	8		
Dead-band above pressure SP (m)	2.0	Dead-band below pressure SP (m)	2.0
Min diff pressure P1 to P2 (m)	8.0		
Fast regulation diff pressure (m)	10.0		
Latch open level setpoint (m)	20.0	Latch close level setpoint (m)	2.0
<input checked="" type="checkbox"/> Latch override enable		Latch override type <input checked="" type="radio"/> Open <input type="radio"/> Close	
Latch override pressure P1 (m)	0.0	Latch regain delta above P1 (m)	0.0
Latch override delay (s)	30	Latch regain delay (s)	30
Latch alarm delay (s)	30	Multiple parallel PRVs <input type="radio"/> Yes <input checked="" type="radio"/> No	
Minimal flow	0		
Low flow failure delay (s)	400		
Pilot low pressure (m)	30.0	Pilot high pressure (m)	50.0
Pilot pressure dead-band (m)	5.0		
Flow above the flow set delay (s)	1	Flow below the flow set delay (s)	1

1. Define the following parameters:

Flow setpoint (m3/h)	Defines the flow rate point where the pressure set point switches from Low to High and from High to Low.
Flow dead-band plus (m3/h)	Defines a dead-band above the flow setpoint before the controller takes action.
Flow dead-band minus (m3/h)	Defines a dead-band below the flow setpoint before the controller takes action.
Flow above the flow set delay (s)	Defines the delay time after the flow rate exceeds the setpoint before the controller takes action.
Flow below the flow set delay (s)	Defines the delay time after the flow rate drops below the setpoint before the controller takes action.

Control type: Time

1. Select each day of the week to define the setpoints by time or select a sequence of days by numbers

2. Define the times in the selected days when the high pressure will open

3. Define the times when the high pressure will close

4. Click **Copy to all days** to set the same parameters for every day of the week

5. An option to move to a high pressure window, if the flow exceeds the defined maximum value for a defined duration. For example, in the event of fire.

NOTE: Click 'Write Parameters' to save any changes that are made at each screen.

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	#1	#2	#3	#4
Open [HH:MM]	00 : 00	00 : 00	00 : 00	00 : 00	00 : 00	00 : 00	00 : 00				
Close [HH:MM]	00 : 00	00 : 00	00 : 00	00 : 00	00 : 00	00 : 00	00 : 00				

Copy to all days If Flow above 0 for 0 (s) open Latch

Warning Parameters

Define the following parameters in the warnings tab:

1. From the app, select **Warnings**

2. The controller's warning settings are displayed

3. Define the following parameters:

The screenshot shows the 'Warnings' tab with the following settings:

- Flow warning (m3/h):** High, Very High, Low, Very Low. Each row has a threshold field, a 'for' field with '0' and 'sec', and a 'do' dropdown set to 'nothing'.
- Pressure #1 (m):** High, Very High, Low, Very Low. Each row has a threshold field, a 'for' field with '0' and 'sec', and a 'do' dropdown set to 'nothing'.
- Level #1 (m):** High, Very High, Low, Very Low. Each row has a threshold field, a 'for' field with '0' and 'sec', and a 'do' dropdown set to 'nothing'.
- Pressure #2 (m):** High, Very High, Low, Very Low. Each row has a threshold field, a 'for' field with '0' and 'sec', and a 'do' dropdown set to 'nothing'.

Flow warning	Define the threshold value for exceeding or dropping below the defined flow.
Pressure #1 (upstream pressure)	Define the threshold value for exceeding or dropping below the defined upstream pressure.
Pressure #2 (downstream pressure)	Define the threshold value for exceeding or dropping below the defined downstream pressure.

5. Select the delay reaction: Nothing, Add to the Log or Burst (sends an alert)

The dropdown menu shows the following options:

- nothing
- add log
- burst

4. Define the delay time for when the flow/pressure exceeds or drops below the defined value



NOTE: Click 'Write Parameters' to save any changes that are made at each screen.

Verifying DELTA Reaches the Setpoint Automatically

Perform the following step to verify the DELTA controller reaches the setpoint automatically:

1. Define time and pressures that will require the system to start with a minimum pressure, after a few minutes to change to maximum pressure, and after a few additional minutes to return back to minimum pressure

Setpoint tables

Pressure/Time Flow/Time Flow/Pressure Schedule Level/Flow

Mon	Tue	Wed	Thu	Fri	Sat	Sun	#1	#2	#3	#4
1	00 : 00		0.0							
2	00 : 00		0.0							
3	00 : 00		0.0							
4	00 : 00		0.0							
5	00 : 00		0.0							
6	-- : --		--							

From mon to all If Flow above 0 for 0 (s) set Pressure 0.0

2. Verify the downstream pressure is stabilized on correct pressure setpoint

COM6			
P1	000.0	Accumulated value	00000000000 m3
P2	000.0	Water level	00.0m
Flow	000	Valve position	OPEN

3. When the setpoint changes verify it takes no more than the predefined time for the system to stabilize on the correct pressure setpoint



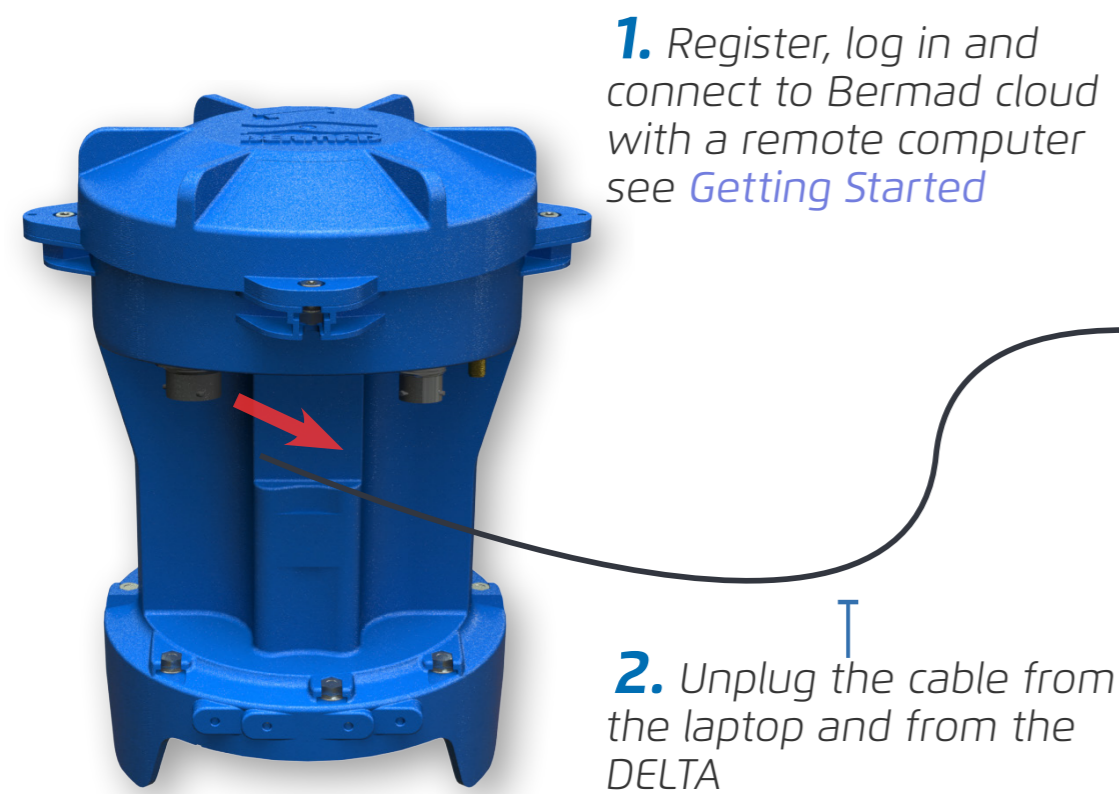
4. Define a real program that is based on time control see [Full Modulation PRV Mode Settings](#)



NOTE: This procedure is relevant when operating based on a time schedule. When operating based on flow windows, verify the pressure set point aligns with the current flow rate in the designated flow table.

Verifying DELTA Connects to Bermad Cloud

Perform the following steps to verify the DELTA controller is connected to Bermad cloud:

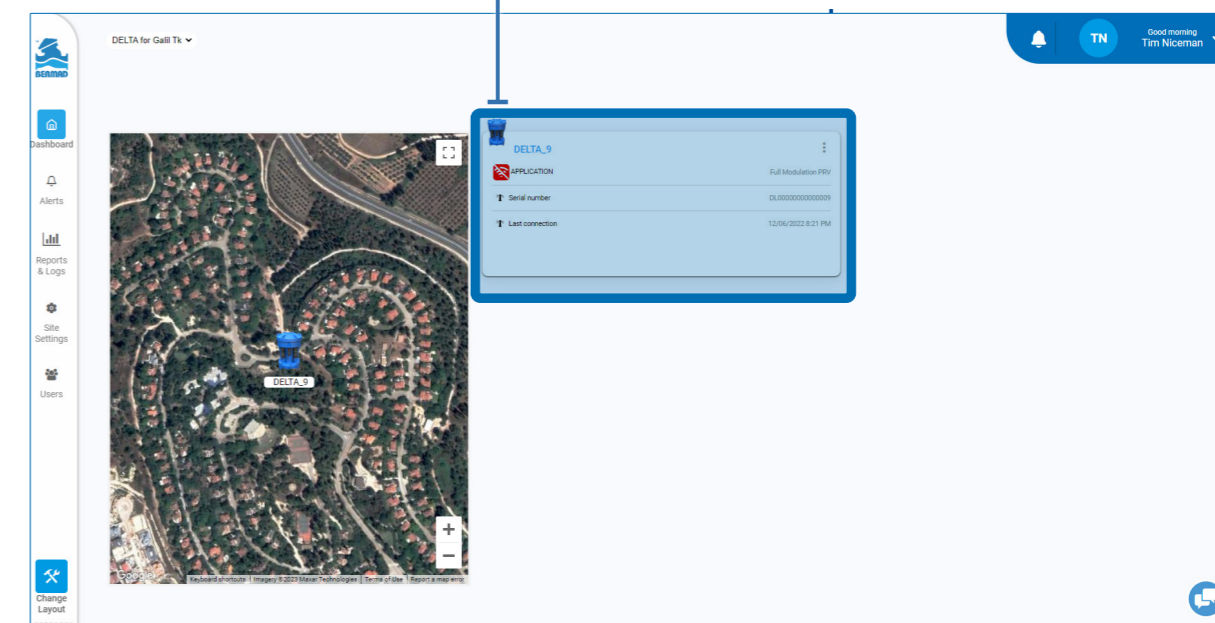


Tip: This process may take up to 2 hours. It is recommended to perform this process before installing the controller.

3. The DELTA will connect to the cloud



4. The DELTA controller is displayed in the cloud



4. CONFIGURATION

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

- [Getting Started](#)
- [Managing Sites and Controllers](#)
- [Controller Settings](#)
- [Managing Users](#)

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

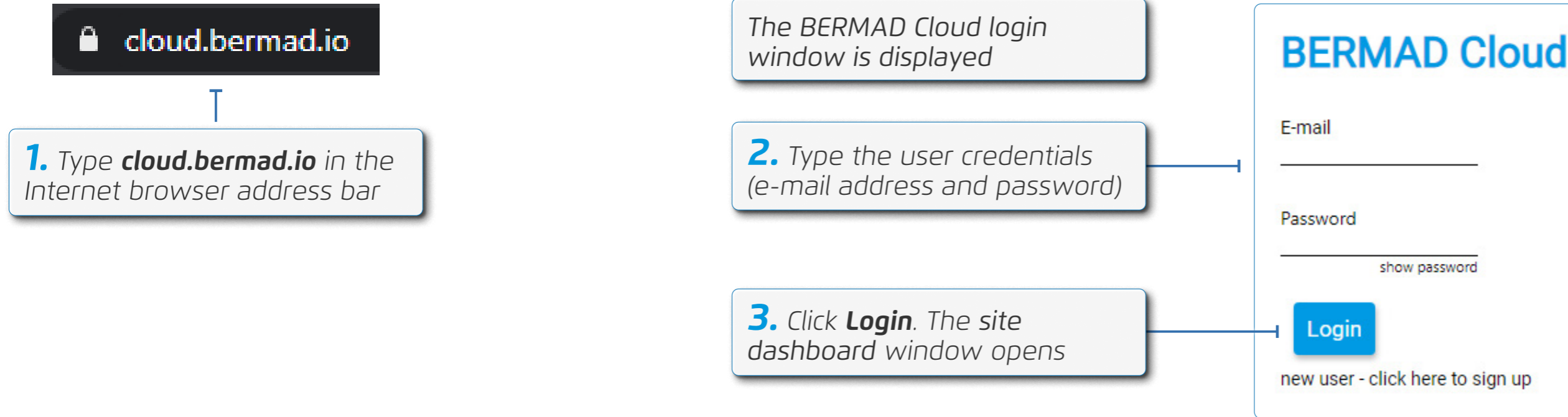
4. Type a password, then type it again to confirm

5. Select the relevant options

6. Click **Sign Up**

Logging In

Perform the following steps to log in to BERMAD Cloud:



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](#)

The screenshot shows the Site Dashboard interface. At the top left is the BERMAP logo and a dropdown menu for 'DELTA for Galil Tk'. Below this is a vertical main toolbar with icons for Dashboard, Alerts, Reports & Logs, Site Settings, and Users. At the bottom of the toolbar is a 'Change Layout' icon. The central part of the dashboard features a live map with a blue pin labeled 'DELTA_9'. To the right of the map is a 'Controllers Display' panel for 'DELTA_9' showing details for an 'APPLICATION' (Full Modulation PRV) with a serial number 'DL0000000000009' and a last connection time of '12/06/2022 8:21 PM'. At the top right is a user info section showing a notification bell, the user initials 'TN', and the name 'Good morning Tim Niceman'. At the bottom right is a 'Cloud Assistant' icon.

Live map – displays the site controllers on a live map

Controllers Display – displays the selected site's controllers see [Selecting a Controller](#)

User info – displays and enables managing user information

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

Controller Display

The 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

The screenshot shows the Delta controller's main display. At the top left is a blue status icon and the word "DELTA". Below it is a Wi-Fi icon labeled "Application". To the right, it says "Full Modulation PRV". Underneath, there are three rows of information: "Serial number" with the value "DL00000000000034", and "Last/Next connection hours" with the value "08:02/ tomorrow 07:00". A callout box points to the status icon, and another points to the serial number.

Last / Next Connection Hours– Displays last and next communication of the controller

Serial Number– Displays the serial number of the controller

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

This screenshot shows the settings menu. At the top, there is a "Settings" button with a red arrow pointing to a three-dot menu icon to its right. Below the button, the text "DL000000000000008" is visible, and at the bottom right, the time "13:01" is displayed.

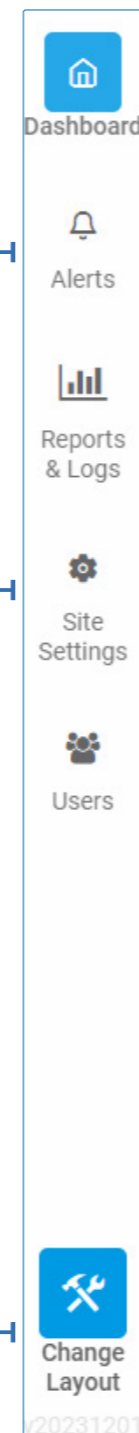
Main Toolbar

The main toolbar displays the following:

Alerts – displays the alerts see [Alerts](#)

Site Settings – displays the settings see [Creating a Site](#)

Change Layout – Enables changing the layout of the site dashboard see [Changing Layout](#)



Dashboard – displays the site dashboard see [Site Dashboard Overview](#)

Reports and Logs – displays the reports and logs

Users – displays users see [Managing Users](#)

Changing Layout

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

1. Click **Change Layout** on the main tool bar

Click **Cancel** to cancel any changes

2. Click **Add** to add a new window display to the dashboard

3. Click the **X** icon to remove a window display from the dashboard

4. Click **Save**

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](#)
- [Controller Main Toolbar](#)

Creating a Site

Perform the following steps to create a site:

1. Verify that **Dashboard** is selected

2. Open Cloud Assistant

3. Click **Add New Site**

4. Cloud Assistant guides the user through the process of adding the new site

5. Type answers to the questions

6. At the end of the new site definition process the new site is added to the dropdown menu

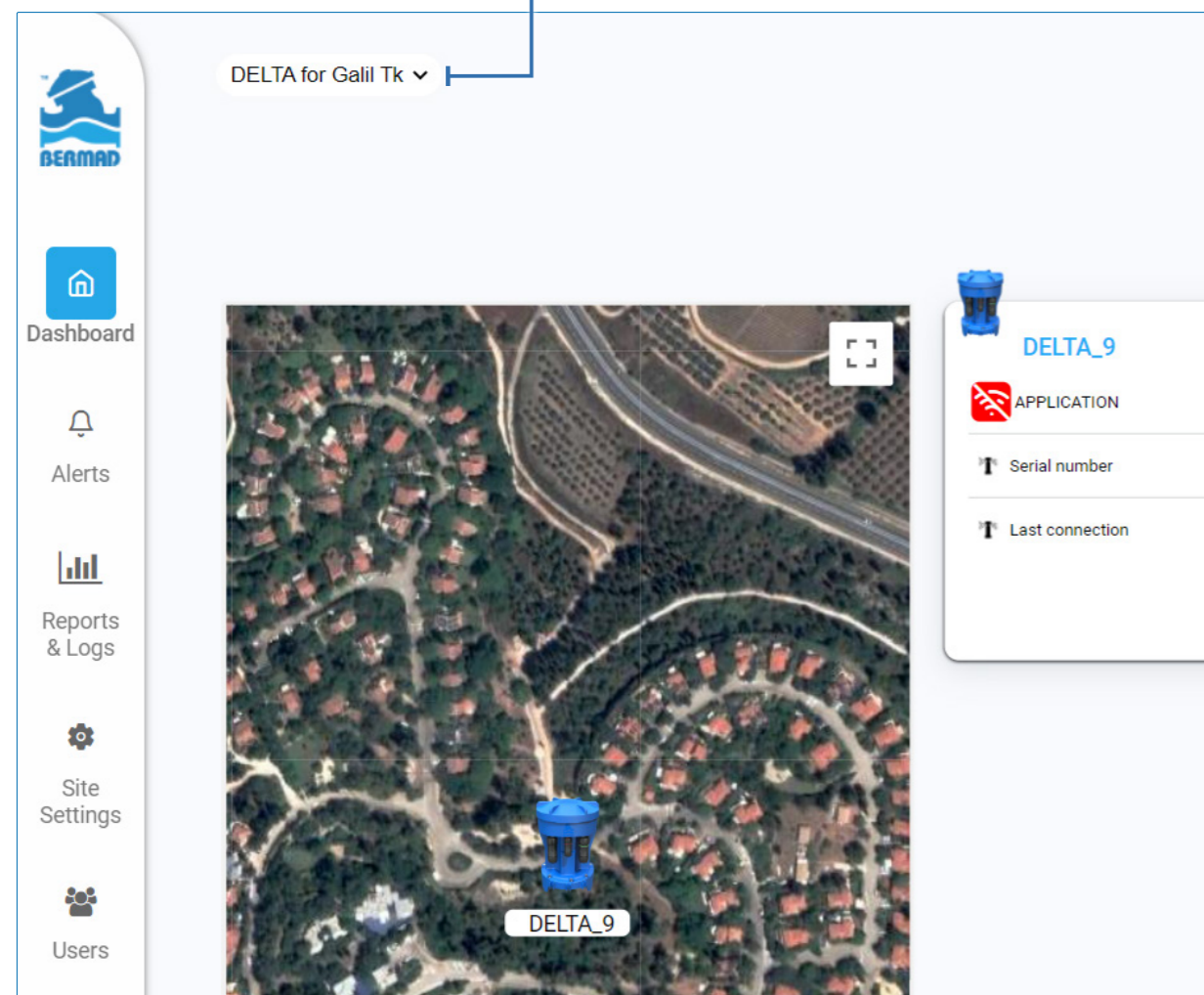
The interface shows a sidebar with the following options: Dashboard, Alerts, Reports & Logs, Site Settings, Users, and Change Layout. The main area displays a map with a site marker labeled DELTA_9. A dropdown menu at the top left shows 'DELTA for Galil Tk'. A chat window titled 'Claudio' is open, displaying a greeting and buttons for 'Add New Delta', 'Add New Site', and 'Customer Support'. A table below the chat shows details for DELTA_9:

Serial number	Last connection
DL0000000000	12/06/2022 8:2

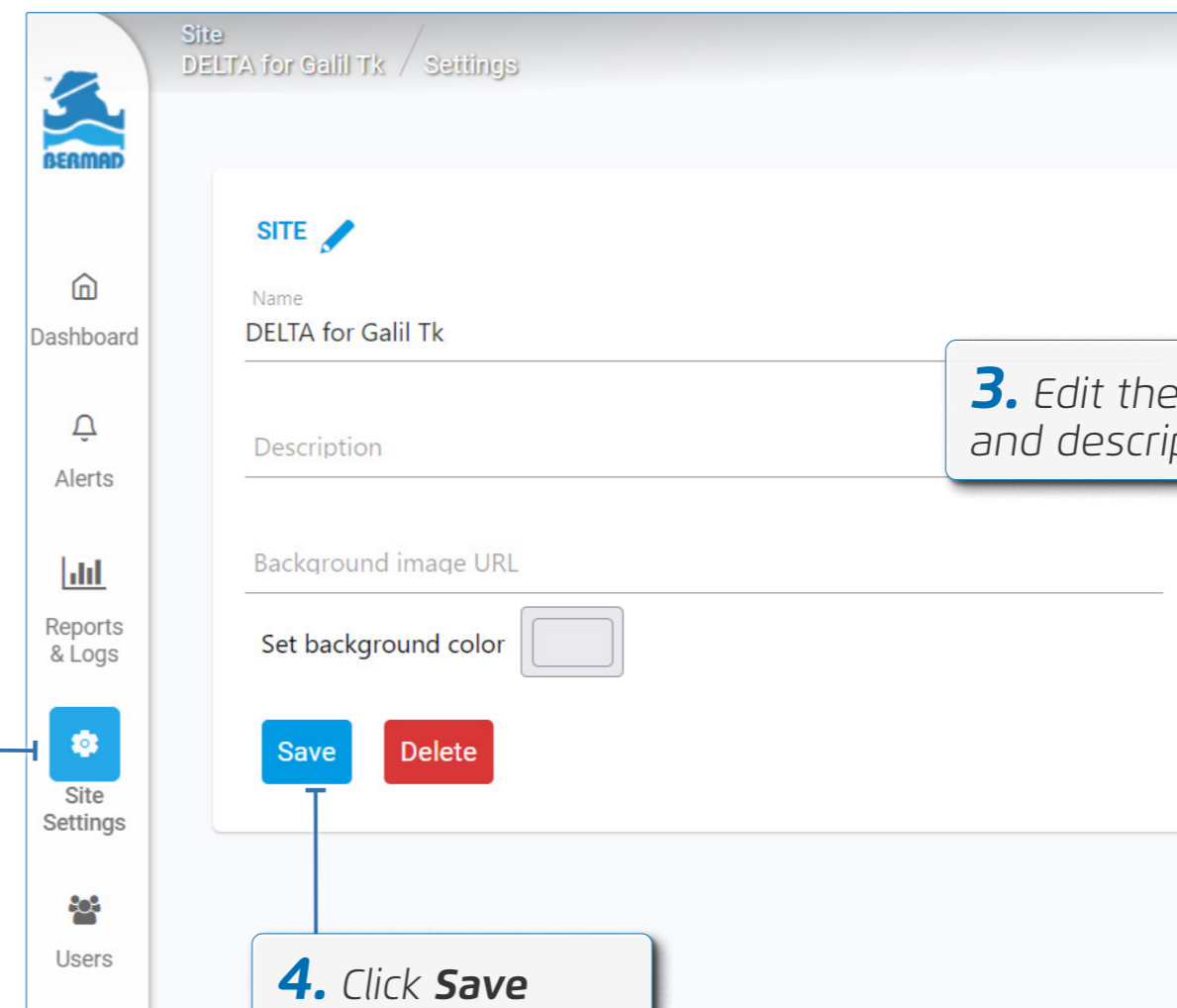
Editing a Site

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 **Site 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

The screenshot illustrates the steps for adding a new controller to a selected site. The interface is divided into several sections:

- Top Bar:** Shows the site name "DELTA for Galil Tk" and the user's name "Good morning Tim Niceman".
- Sidebar:** Contains navigation options: Dashboard, Alerts, Reports & Logs, Site Settings, Users, and Change Layout.
- Main Map View:** Displays an aerial view of a residential area with a blue controller icon labeled "DELTA_9" placed on the map.
- Controller Details Panel:** Shows information for "DELTA_9":

APPLICATION	Full Modulation
Serial number	DL0000000000
Last connection	12/06/2022 8:2
- Cloud Assistant (Claudio):** A chat window with the message "Hello! How can I help you?" and buttons for "Add New Delta", "Add New Site", and "Customer Support".

Seven numbered steps are overlaid on the interface to guide the user:

1. Verify the relevant site is selected
2. Verify that **Dashboard** is selected
3. Open Cloud Assistant
4. Click **Add New DELTA**
5. Cloud Assistant 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:

1. Verify that **Dashboard** is selected

The screenshot shows the BEAMAD Delta management interface. On the left sidebar, the 'Dashboard' icon is highlighted. The main area displays a live map with a blue controller icon labeled 'DELTA_9' positioned over a residential area. To the right of the map, a panel displays details for the selected controller:

- DELTA_9
- APPLICATION
- Serial number
- Last connection

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

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

Controller Dashboard Overview

When selecting a controller, the following information is displayed:

Chart Display

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

Selected controller identification

Option to view data in a chart or table format

Controller Main Toolbar - displays the navigation options for the controller see [Controller Main Toolbar](#)

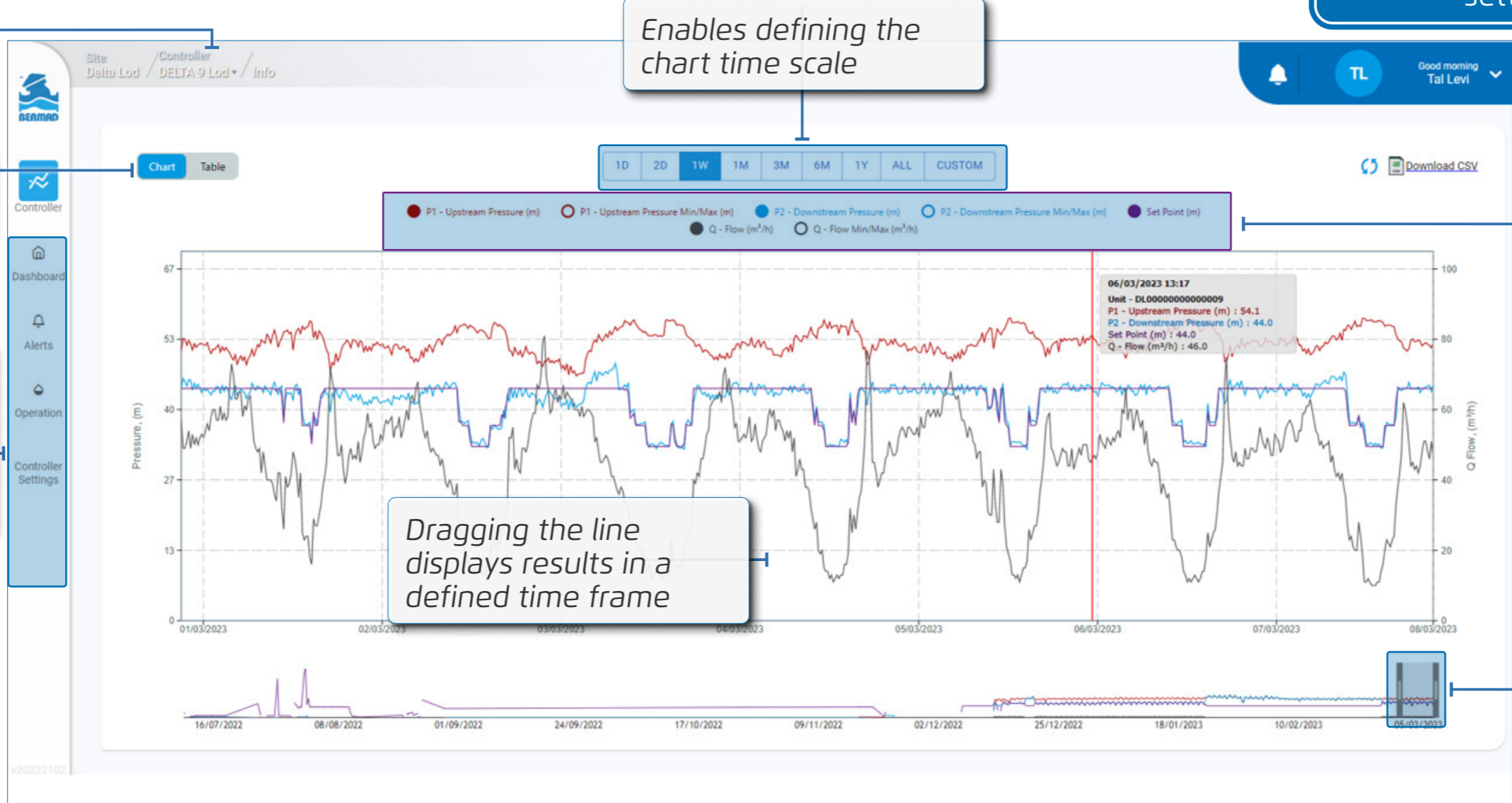
Enables defining the chart time scale

Download options

Chart Displays:

- P1 Upstream pressure
 - P2 Downstream pressure
 - Q Flow rate
 - Set Points
- ● ● Displays the curve
○ ○ ○ Does not display the curve

Moving the brackets displays results in a defined time frame



Dragging the line displays results in a defined time frame

Table Display

Selected controller identification

Option to view data in a chart or table format

Controller Main Toolbar - displays the navigation options for the controller 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.

Download options

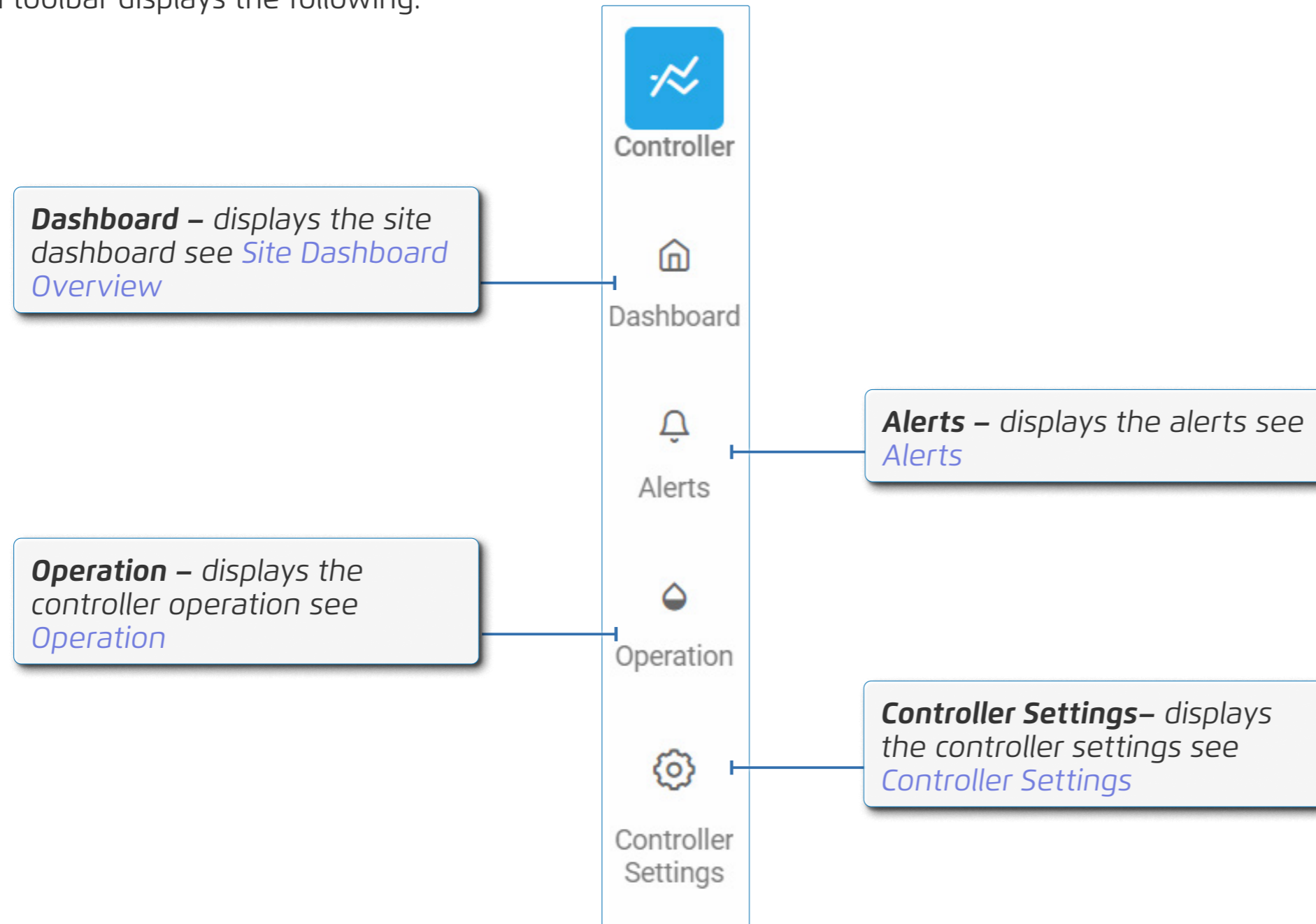
Log Parameters

The screenshot shows the 'DELTA LOG (289)' interface. At the top, there are navigation tabs for 'Chart' and 'Table', with 'Table' selected. A time scale selector is set to '1W' (1 Week). A 'Download CSV' button is visible in the top right. The main content is a table with the following columns: Date, Flow (m³/h), Flow Min (m³/h), Flow Max (m³/h), Flow Avg (m³/h), Flow SP (m³/h), Pr. p1 current (m), Pr. p1 min (m), Pr. p1 max (m), Pr. p1 avg (m), Pr. SP (m), Pr. p2 current (m), Pr. p2 min (m), Pr. p2 max (m), Pr. p2 avg (m), V bat (V), v1, v2, and Latch Position. The table contains 18 rows of data for the date 30/08/2022.

Date	Flow (m³/h)	Flow Min (m³/h)	Flow Max (m³/h)	Flow Avg (m³/h)	Flow SP (m³/h)	Pr. p1 current (m)	Pr. p1 min (m)	Pr. p1 max (m)	Pr. p1 avg (m)	Pr. SP (m)	Pr. p2 current (m)	Pr. p2 min (m)	Pr. p2 max (m)	Pr. p2 avg (m)	V bat (V)	v1	v2	Latch Position
30/08/2022 15:25:04	59.0	57.0	59.0	58.0	0.0	122.7	122.6	124.6	123.6	0	63.7	63.5	64.6	63.9	7.1	0	0	0
30/08/2022 15:20:04	58.0	56.0	60.0	58.0	0.0	124.2	124.2	133.6	127.5	0	64.2	63.1	65.3	64.1	7.1	0	0	0
30/08/2022 15:15:04	59.0	58.0	61.0	59.0	0.0	132.3	64.2	132.2	101.3	0	65.1	57.6	65.3	63.8	7.1	0	0	0
30/08/2022 15:10:04	58.0	56.0	59.0	57.0	0.0	70.5	74.5	125.7	114.7	0	57.6	57.8	64.8	62.4	7.1	0	0	0
30/08/2022 15:05:04	58.0	58.0	68.0	60.0	0.0	122.4	103	126.4	118.7	0	63.1	62.8	65.1	64	7.1	0	0	0
30/08/2022 15:00:04	67.0	66.0	74.0	69.0	0.0	103.3	56.4	123.5	89.6	0	63.2	50.1	67.8	60	7.1	0	0	0
30/08/2022 14:55:04	69.0	67.0	71.0	70.0	0.0	102.9	101.1	123.4	121.4	0	60.8	56	63.9	63.1	7.1	0	0	0
30/08/2022 14:50:04	71.0	69.0	72.0	70.0	0.0	122.6	75.1	132.8	121.6	0	63.5	60.6	64.6	63.3	7.1	0	0	0
30/08/2022 14:45:04	69.0	68.0	72.0	70.0	0.0	75.1	65.1	126.7	95.5	0	60.6	58.7	66.4	62.5	7.1	0	0	0
30/08/2022 14:40:04	70.0	67.0	73.0	70.0	0.0	125.7	105.1	125.3	117.7	0	63	59.6	66.5	63.4	7.1	0	0	0
30/08/2022 14:35:04	70.0	68.0	77.0	70.0	0.0	120.1	105.8	120.6	114.4	0	63.7	62.8	64.5	63.8	7.1	0	0	0
30/08/2022 14:30:04	77.0	64.0	77.0	70.0	0.0	120.1	119	120.6	119.8	0	64.3	62.8	64.6	63.8	7.1	0	0	0
30/08/2022 14:25:04	70.0	69.0	71.0	70.0	0.0	119.6	118.6	120.7	119.7	0	63.3	63.4	65.1	64.3	7.1	0	0	0
30/08/2022 14:20:04	71.0	69.0	71.0	70.0	0.0	120.3	118.7	120.6	119.8	0	64.5	63.4	64.5	64	7.1	0	0	0
30/08/2022	70.0	68.0	71.0	70.0	0.0	119.4	113.2	120.3	118.5	0	64.1	63.3	64.7	64	7.1	0	0	0

Controller Main Toolbar

The controller main toolbar displays the following:



Controller Settings

This section reviews basic device settings and includes:

- [General Settings](#)
- [Internal Solenoid Settings](#)
- [Flow Meter Settings](#)
- [Full Modulation PRV Mode Settings](#)
- [Two Pressures Mode Settings](#)
- [Pressure Sensor Threshold 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

The screenshot shows the 'CONTROLLER' settings page with the 'GENERAL' tab selected. The parameters listed are:

- Controller name: DELTA 5 Pavel
- Firmware version: 2.1.1.6
- Serial number: DL00000000000005 (with a 'Link to controller' button)
- Site: DELTA 1
- Time zone: Asia/Jerusalem
- Wakeup period: Set value
- Measure period: Set value
- Log period: 00:00 (mm:ss)
- Location: 33.0228 - 35.0953

Controller name	Enables naming of the controller.
Firmware version	Displays the firmware version currently installed on 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.
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 name	DELTA 5 Pavel ▶
Firmware version	2.1.1.6 ▶
Serial number	DL000000000000005 Link to controller
Site	DELTA 1 ▼
Time zone	Asia/Jerusalem ▶
Wakeup period	Set value ▶
Measure period	Set value ▶
Log period	00:00 (mm:ss) ▶
Location	33.0228 - 35.0953

4. The following parameters define the log and processor parameters

Wakeup period	Defines how often the processor wakes up.
Measure period	Defines the frequency of sensor measurements.
Log period	Defines how often to log the measure into the controller memory.

Internal Solenoid Settings

Perform the following steps to view and adjust the internal solenoid settings:

1. From the controller settings, select the relevant solenoid

2. The internal solenoid settings are displayed

3. Define the following parameters

The screenshot shows the DELTA controller settings interface. The left sidebar is titled 'CONTROLLER' and includes sections for 'General', 'Internal Solenoids (2)', 'Flow Meter', 'Mode', 'Pressure Sensor Threshold', 'External Latch', and 'Communication'. The 'Internal Solenoids (2)' section is expanded, showing 'Internal Solenoid 1' and 'Internal Solenoid 2'. The main content area displays the settings for 'INTERNAL SOLENOID 1' and 'INTERNAL SOLENOID 2'. The 'INTERNAL SOLENOID 1' settings include 'Pulse length' (4 ms) and 'INTERNAL SOLENOID 2' settings include 'Pulse length' (8 ms). Below these are the 'FLOW METER' settings, including 'Input number' (Digital 1), 'Pulse size' (100 L), 'Number of samples' (4), and four threshold settings: 'Very High Threshold', 'High Threshold', 'Low Threshold', and 'Very Low Threshold', each with a 'Set value' button.

Internal Solenoid 1	Defines the solenoid pulse duration to increase the water pressure.
Internal Solenoid 2	Defines the solenoid pulse duration to decrease the water pressure.



NOTE: These settings are for advanced users only.

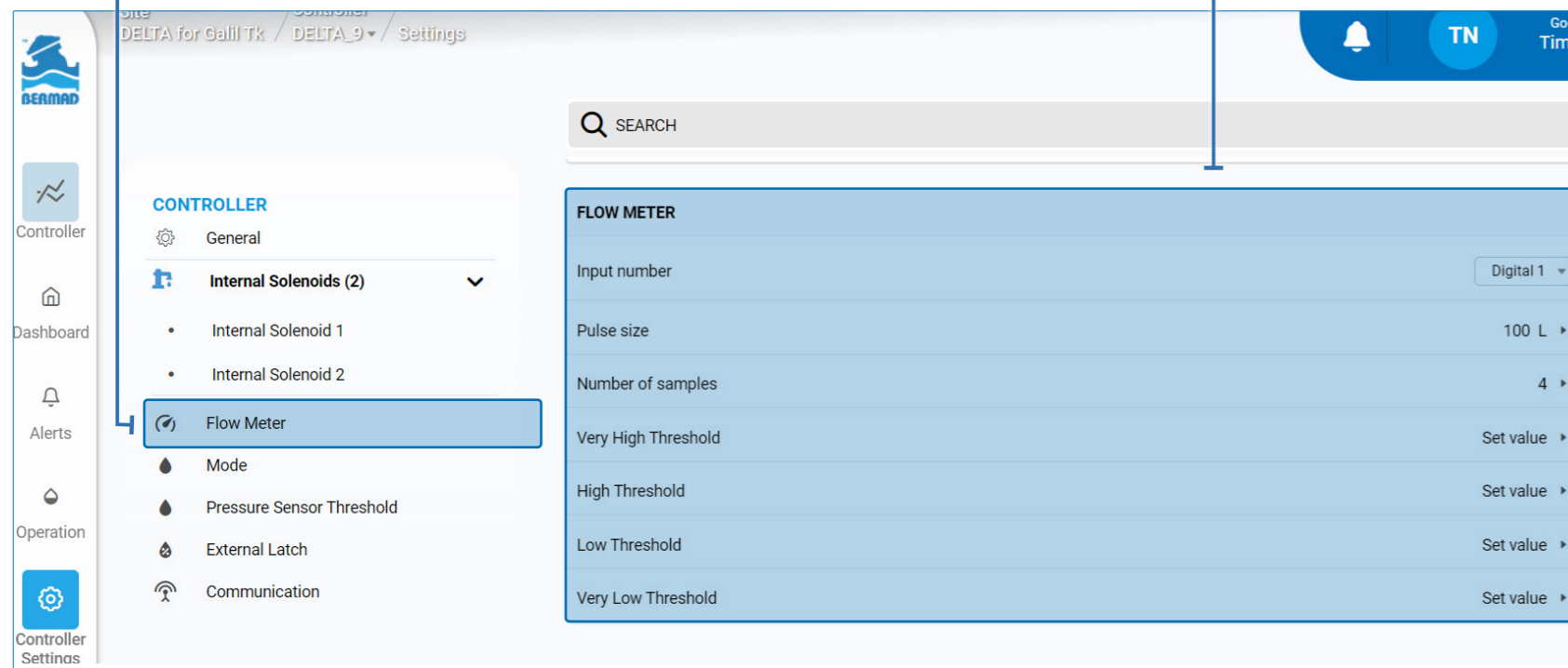
Flow Meter Settings

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

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

2. The flow meter settings of the controller are displayed

3. Define the following parameters



Input number	Select from the drop down list to define the type of flow meter input (analog or digital) and the channel to which the flow meter is connected.
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.
Very high threshold	Enables setting an alert for when the measurement exceeds a defined value.
High threshold	Enables setting an alert for when the measurement exceeds a defined value.
Low threshold	Enables setting an alert for when the measurement drops below a defined value.
Very low threshold	Enables setting an alert for when the measurement drops below a defined value.

Full Modulation PRV Mode Settings

Perform the following steps to navigate to the full modulation PRV mode settings by **Flow**:

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

2. Select **Full Modulation PRV**, and **Flow**

The screenshot shows the 'CONTROLLER' settings page for 'DELTA 1'. The 'Mode' dropdown is set to 'Full Modulation PRV' and the 'Control Type' dropdown is set to 'Flow'. The 'Mode' settings are displayed as follows:

Parameter	Value
Fast Regulation Interval	20 s
Slow Regulation Interval	30 s
Max Correction Time	300 s
Deadband Above Pressure SP	2 m
Deadband Below Pressure SP	2 m
Min Diff Pressure P1 to P2	10 m
Latch Mini Pressure P1	30 m
Latch Mini P1 Delay	30 s
Latch Alarm Delay	30 s
Flow Above The Flow Set Delay	1 s
Flow Below The Flow Set Delay	1 s
Latch Operation Enabled	<input checked="" type="checkbox"/>
Multi Parallel PRV	<input type="checkbox"/>

3. The Mode settings of the controller are displayed

4. Define the following parameters

Fast Regulation Interval	The time between each pulse while the pressure setpoint is changed. This interval is used only while the pressure setpoint has changed and until the pressure reached the new setpoint.
Slow Regulation Interval	The time between internal solenoid pulses that is used during normal operation while the system maintains the pressure around the defined setpoint.
Max Correction Time	Enables sending an alert after the defined amount of time if the setpoint did not change, and suspends further attempts to reach the set point until the next time/flow window.
Deadband Above Pressure SP	Enables setting a deadband value above the setpoint due to the operation of the hydraulic pilot installed on the valve control loop
Deadband Below Pressure SP	Enables setting a deadband value below the setpoint due to the operation of the hydraulic pilot installed on the valve control loop.
Min Diff Pressure P1 to P2	If the pressure differential (upstream-downstream) drops to below this value, the system suspends its pressure regulation and sends an alert.

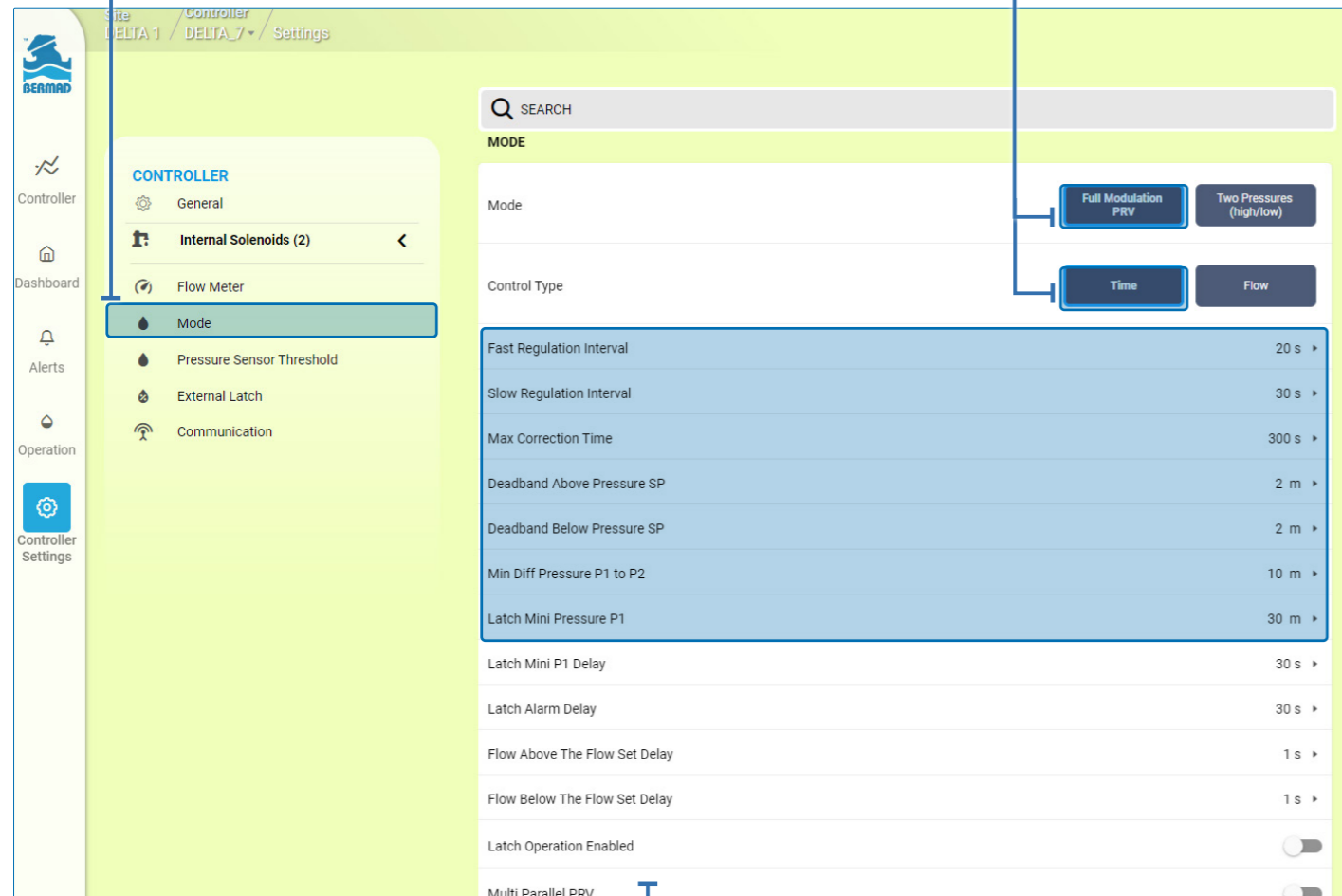
Full Modulation PRV Mode Settings

Perform the following steps to navigate to the full modulation PRV mode settings by **Time**:

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

2. Select **Full Modulation PRV**, and **Time**

4. Define the following parameters



3. The mode settings of the controller are displayed

Fast Regulation Interval	The time between each internal solenoid pulse while the pressure setpoint is changed. This interval is used only while the pressure setpoint has changed and until the pressure reached the new setpoint.
Slow Regulation Interval	The time between internal solenoid pulses that is used during normal operation while the system maintains the pressure around the defined setpoint.
Max Correction Time	Enables sending an alert after the defined amount of time if the setpoint did not change, and suspends further attempts to reach the set point until the next time/flow window.
Deadband Above Pressure SP	Enables setting a deadband value above the setpoint due to the operation of the hydraulic pilot installed on the valve control loop
Deadband Below Pressure SP	Enables setting a deadband value below the setpoint due to the operation of the hydraulic pilot installed on the valve control loop
Min Diff Pressure P1 to P2	If the pressure differential (upstream-downstream) drops to below this value, the system suspends its pressure regulation and sends an alert.

Control Type	Time	Flow
Fast Regulation Interval	20 s	▶
Slow Regulation Interval	30 s	▶
Max Correction Time	300 s	▶
Deadband Above Pressure SP	2 m	▶
Deadband Below Pressure SP	2 m	▶
Min Diff Pressure P1 to P2	10 m	▶
Latch Mini Pressure P1	30 m	▶
Latch Mini P1 Delay	30 s	▶
Latch Alarm Delay	30 s	▶
Flow Above The Flow Set Delay	1 s	▶
Flow Below The Flow Set Delay	1 s	▶
Latch Operation Enabled	<input checked="" type="checkbox"/>	
Multi Parallel PRV	<input type="checkbox"/>	

4. Define the following parameters

Latch Mini Pressure P1	This parameter is relevant when using a PRV that can be controlled by an Override latch. The latch will fully open the valve while the upstream pressure drops below this value.
Latch Mini P1 Delay	Defines the delay time before the Override latch is activated and the valve fully opens.
Latch Alarm Delay	Defines how long to delay sending the alarm after the override latch is activated, if the pressure did not change as a result of opening or closing the override.
Flow Above the Flow Set Delay	Defines the delay time when the flow is above the flow setpoint and before the controller will switch to the next setpoint.
Flow Below The Flow Set Delay	Defines the delay time when the flow is below the flow setpoint and before the controller will switch to the next setpoint.
Latch Operation Enabled	Enabled using the latch override system.

Two Pressures Mode Settings

Perform the following steps to navigate to the two pressures mode settings by **Flow**:

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

2. Select **Two Pressures**, and **Flow**

The screenshot shows the Delta controller settings interface. On the left, a sidebar contains navigation options: Controller, Dashboard, Alerts, Operation, and Controller Settings. The main area is titled 'CONTROLLER' and has a search bar. Below the search bar, there are several tabs: 'General', 'Internal Solenoids (2)', 'Flow Meter', 'Mode', 'Pressure Sensor Threshold', 'External Latch', and 'Communication'. The 'Mode' tab is selected and highlighted. In the 'Mode' settings, there are two buttons: 'Full Modulation PRV' and 'Two Pressures (high/low)'. The 'Two Pressures (high/low)' button is selected. Below these buttons, there are two more buttons: 'Time' and 'Flow'. The 'Flow' button is selected. The main content area displays a list of settings for the 'Two Pressures' mode:

Max Correction Time Low to High	300 s
Max Correction Time High to Low	300 s
Flow Setpoint	30 m ³ /h
Flow Deadband Plus	2 m ³ /h
Flow Deadband Minus	2 m ³ /h
Pilot High Pressure	52 m
Pilot Low Pressure	42 m
Pilot Pressure Deadband	2 m
Delay For Above Reaction	60 s
Delay For Below Reaction	60 s

3. The mode settings of the controller are displayed

4. Define the following parameters

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.
Flow Setpoint	Defines the desired flow rate of water through the system.
Flow Deadband Plus	Defines a deadband above the flow setpoint before the controller takes action.
Flow Deadband Minus	Defines a deadband below the flow setpoint before the controller takes action.
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.
Delay for Above Reaction	Defines the delay time after the flow rate exceeds the setpoint before the controller takes action.
Delay for Below Reaction	Defines the delay time after the flow rate drops below the setpoint before the controller takes action.

Two Pressures Mode Settings

Perform the following steps to navigate to the two pressures mode settings by **Time**:

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

2. Select **Two Pressures**, and **Time**

The screenshot shows the BEAMAD controller settings interface. The left sidebar contains navigation options: Controller, Dashboard, Alerts, Operation, and Controller Settings. The main content area is titled 'CONTROLLER' and shows a search bar and a list of settings categories: General, Internal Solenoids (2), Flow Meter, and Mode. The 'Mode' category is selected, displaying a list of settings: Emergency Flow (100 m³/h), Emergency Flow Delay (10 s), Max Correction Time Low to High (300 s), Max Correction Time High to Low (300 s), Pilot High Pressure (52 m), Pilot Low Pressure (42 m), and Pilot Pressure Deadband (2 m). The 'Mode' is set to 'Two Pressures (high/low)' and the 'Control Type' is set to 'Time'.

3. The mode settings of the controller are displayed

4. Define the following parameters

Emergency Flow	If the flow is above the defined amount it will move to the high setpoint until regular flow resumes.
Emergency Flow Delay	If the flow is above the defined emergency flow and after the defined delay time, it will move to the high setpoint until regular flow resumes.
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. The controller will send an alert if the valve can't reach the high pressure setting.
Pilot Low Pressure	Enter the low pilot pressure value from the manual calibration, the controller will send an alert if the valve can't reach the low pressure setting.
Pilot Pressure Deadband	Enables sending an alert after the defined deadband if the pressure was not reached.

Pressure Sensor Threshold Settings

Perform the following steps to navigate to the pressure sensor threshold settings:

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

2. The pressure sensor threshold settings of the controller are displayed

3. Define the following parameters

The screenshot shows the DEADM Delta controller settings interface. The left sidebar contains navigation options: Controller, Dashboard, Alerts, Operation, and Controller Settings. The 'CONTROLLER' section is expanded, showing 'Internal Solenoids (2)', 'Flow Meter', 'Mode', 'Pressure Sensor Threshold', 'External Latch', and 'Communication'. The 'Pressure Sensor Threshold' option is selected and highlighted. The main content area displays the 'PRESSURE SENSOR THRESHOLD' settings table.

PRESSURE SENSOR THRESHOLD	
Upstream Very High Threshold	Set value
Upstream High Threshold	Set value
Upstream Low Threshold	Set value
Upstream Very Low Threshold	Set value
Downstream Very High Threshold	Set value
Downstream High Threshold	Set value
Downstream Low Threshold	70 bar
Downstream Very Low Threshold	20 bar

Upstream very high threshold	Enables sending an alert when the upstream measurement exceeds a defined value.
Upstream high threshold	Enables sending an alert when the upstream measurement exceeds a defined value.
Upstream low threshold	Enables sending an alert when the upstream measurement drops below a defined value.
Upstream very low threshold	Enables sending an alert when the upstream measurement drops below a defined value.
Downstream very high threshold	Enables sending an alert when the downstream measurement drops below a defined value.
Downstream high threshold	Enables sending an alert when the downstream measurement drops below a defined value.
Downstream low threshold	Enables sending an alert when the downstream measurement drops below a defined value.
Downstream very low threshold	Enables sending an alert when the downstream measurement drops below a defined value.

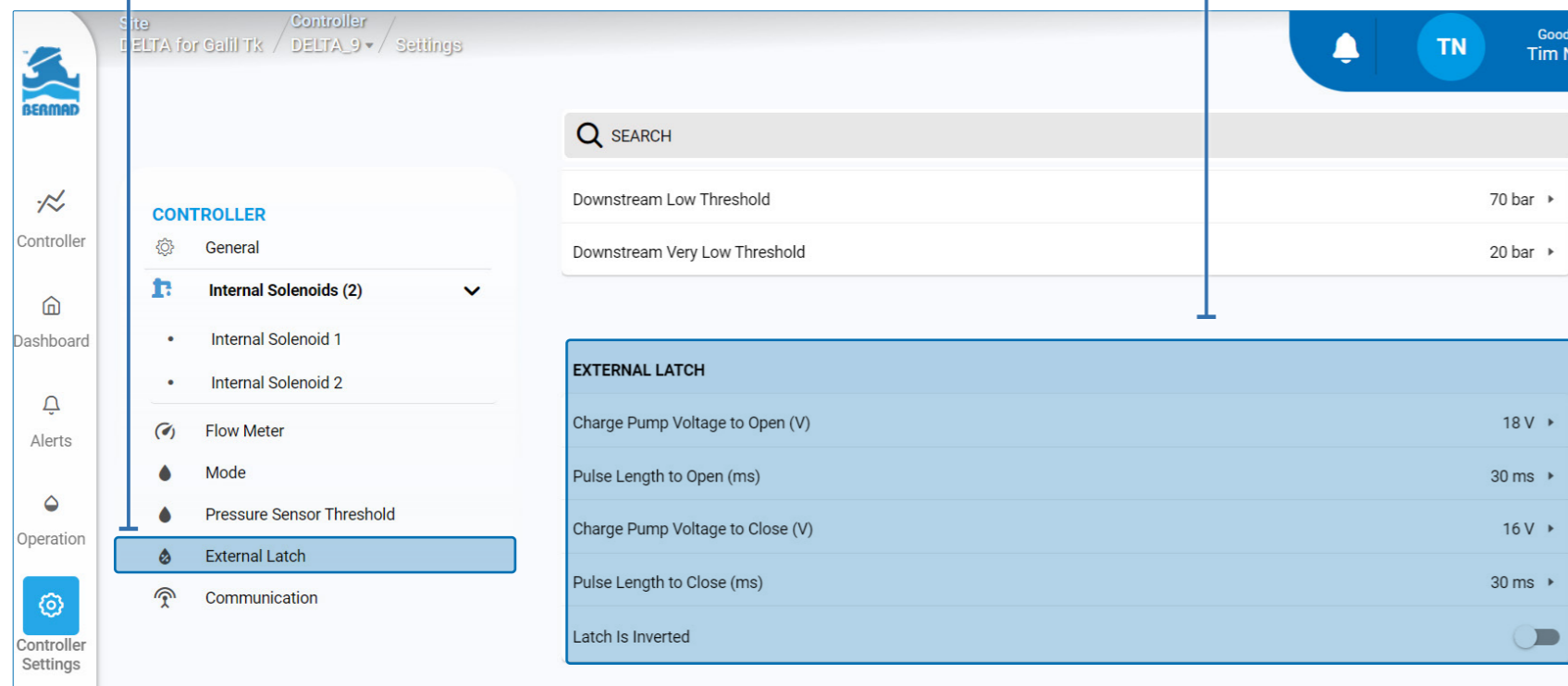
External Latch Settings

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

1. From the controller settings, select **External Latch**

2. The external latch settings of the controller are displayed

3. Define the following parameters



Charge pump voltage to open (V)	Defines the voltage required to activate the latch solenoid.
Pulse length to open (ms)	Defines the pulse length to open.
Charge pump voltage to close (V)	Defines the voltage required to close the latch solenoid.
Pulse length to close (ms)	Defines the pulse length to close.
Latch is inverted	Defines if the latch is inverted or not.

Communication Settings

Perform the following steps to navigate to the communication settings:

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

2. The communication settings of the controller are displayed

3. Define the following parameters

The screenshot shows the BEAMAD controller settings interface. On the left, a sidebar contains navigation options: Controller, Dashboard, Alerts, Operation, and Controller Settings. The 'Communication' option is selected. The main content area displays various settings:

- General** (selected)
- Internal Solenoids (2)**
 - Internal Solenoid 1
 - Internal Solenoid 2
- Flow Meter**
- Mode**
- Pressure Sensor Threshold**
- External Latch**
- COMMUNICATION** (highlighted)
 - cloud connection hours (Set value)
 - switch to offline mode (energy saving) (toggle)

Other visible settings include: Downstream Low Threshold (70 bar), Downstream Very Low Threshold (20 bar), Charge Pump Voltage to Open (18 V), Pulse Length to Open (30 ms), Charge Pump Voltage to Close (16 V), Pulse Length to Close (30 ms), and Latch Is Inverted (toggle).

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 DELTA and includes:

- Full Modulation by Time
- Full Modulation by Flow
- Two Pressures (High / Low)
- Alerts
- Managing Users

Full Modulation by Time

Perform the following steps to operate in full modulation mode by time:

1. Verify the relevant controller is selected

2. Click the **Operation** button

3. Set the time when the pressure setpoint should be changed

4. Set the pressure setpoint

5. Click the **+** icon to add setpoints during the day (up to 16 setpoints)

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

7. If needed, click **Add Special Day** to define a day of the week when the setpoints are different

8. If the weekend days require a different pressure schedule, define them here

9. Click **Save Changes**



Tip: Click the **x** icon to remove a setpoint.

Full Modulation by Flow

Perform the following steps to operate in full modulation mode by flow:

1. Verify the relevant controller is selected

3. Define the water flow required by pressure

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

2. Click the **Operation** button

7. If needed, click **Add Special Day** to define a day of the week when the setpoints are different

9. Click **Save Changes**

4. Set the pressure setpoint

5. Click the **+** icon to add setpoints during the day (up to 16 setpoints)

8. If the weekend days require a different pressure schedule, define them here

The screenshot displays the 'Full Modulation PRV - By Flow' configuration page. The top navigation bar shows 'Site DELTA 1' and 'Controller Delta 4 Mivdaka'. The main content area is organized into three columns: WEEKDAY, SATURDAY, and SUNDAY. Each column contains two input fields: 'Flow (m³/h)' and 'Pressure (m)'. A '+' icon is positioned to the right of each 'Pressure (m)' field, and an 'x' icon is to its right. Below the WEEKDAY section, there is a blue button labeled 'Set To All Week Days'. At the bottom of the interface, there is a blue button labeled 'Add Special Day' and a blue button labeled 'Save Changes'. The sidebar on the left contains icons for 'Controller', 'Dashboard', 'Alerts', 'Operation', and 'Controller Settings'.



Tip: Click the **x** icon to remove a setpoint.

Two Pressures (High / Low)

To operate in two pressures mode perform the following steps:

1. Verify the relevant controller is selected

3. Enter the start times of the high pressure setpoint

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

2. Click the **Operation** button

7. If needed, click **Add Special Day** to define a day of the week when the setpoints are different

9. Click **Save Changes**

4. Enter the end times of the high pressure setpoint

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

The screenshot shows the BEAMAD web interface for configuring two pressures (high/low) by time. The interface is divided into three columns for WEEKDAY, SATURDAY, and SUNDAY. Each column has a 'Start' and 'End' time input field with a clock icon and an 'x' icon. Below each column is an '+ Add Set Point' button. A 'Set To All Week Days' button is located below the WEEKDAY column. At the bottom of the page are '+ Add Special Day' and 'Save Changes' buttons. A sidebar on the left contains navigation icons for Controller, Dashboard, Alerts, Operation, and Controller Settings. The top of the page shows 'Site DELTA 1' and 'Controller Delta 4 Miivdake'.



Tip: Click the **x** icon to remove a setpoint.

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

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

5. Click to refresh, download or export to PDF

The screenshot shows the Delta Alerts interface for a site named 'Evron' and a controller named 'Delta 249 Evron'. The interface includes a sidebar with navigation options: Controller, Dashboard, Alerts, Reports & Logs, Operation, and Controller Settings. The main content area displays a list of alerts with columns for Date, Event, and Data. The alerts are filtered by date from 01/05/2024 to 01/21/2024, and the total number of records is 250. The alerts include events such as Controller connected, Modem Connect, Provider RSSI, and Modem Disconnect. The interface also features a Filter button, a date range selector, and buttons for Download CSV and Export to PDF.

Date	Event	Data
21/01/2024 16:01:43	Controller connected	
21/01/2024 16:01:42	Modem Connect	
21/01/2024 16:01:08	Provider RSSI	cellular provider: 42502. 23
21/01/2024 15:11:41	Modem Disconnect	
21/01/2024 15:11:34	Controller connected	
21/01/2024 15:11:33	Modem Connect	
21/01/2024 15:11:27	Provider RSSI	cellular provider: 42502. 26
21/01/2024 15:10:59	P1_below_P2	
21/01/2024 14:00:52	Modem Disconnect	
21/01/2024 14:00:45	Controller connected	
21/01/2024 14:00:44	Modem Connect	
21/01/2024 14:00:40	Provider RSSI	cellular provider: 42502. 25
21/01/2024 12:01:13	Modem Disconnect	
21/01/2024 12:01:06	Controller connected	
21/01/2024 12:01:00	Modem Connect	
21/01/2024 12:00:55	Provider RSSI	cellular provider: 42502. 24
21/01/2024 10:01:28	Modem Disconnect	
21/01/2024 10:01:22	Controller connected	
21/01/2024 10:01:21	Modem Connect	

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.

The screenshot shows the DELTA user management interface. The top navigation bar includes a bell icon, a user profile for 'TN' (Tim Niceman), and a dropdown menu. The main content area displays a table of users with columns for 'Name' and 'Email'. The 'Users' icon in the left sidebar is highlighted. A pop-up window titled 'Invite User' is open, showing an 'E-mail' input field, a warning message 'Only registered users can receive an invitation', and 'Send Invitation' and 'Cancel' buttons.

Name	Email
Gilad Enav	gilad_e@bermad.com
Tim Niceman	tamir@galiltc.co.il
Tal Levi	tal_l@bermad.com
Robert Smith	reuben@galiltc.co.il

The pop-up window contains the following text:

E-mail

Only registered users can receive an invitation

Send Invitation Cancel

Defining User Alerts

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

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

1. Verify that the relevant site is selected

The screenshot shows the 'Users' management page for the 'DELTA for Galil Tk' site. The page includes a sidebar with navigation options: Dashboard, Alerts, Reports & Logs, Site Settings, and Users. The main content area displays a table of users with columns for Name and Email. A dropdown menu is open for the user 'Tim Niceman', showing options for 'Alerts' and 'Remove User'. An 'Invite User' button is located in the top right corner of the table area. The top right of the page shows a user profile for 'Tim Niceman' with the initials 'TN' and a greeting 'Good morning'.

Name	Email	
Gilad Enav	gilad_e@bermad.com	⋮
Tim Niceman	tamir@galiltc.co.il	Alerts Remove User
Tal Levi	tal_l@bermad.com	⋮
Robert Smith	reuben@galiltc.co.il	⋮

2. Click the **Users** icon

4. Select the relevant alerts

Gilad Enav Status

- Critically low battery voltage
- Capacitor failure
- Very Low Flow
- Very High Flow
- Very Low Level
- Very High Level
- Very Low P1
- Very High P1
- Very Low P2
- Very High P2

- Cant Reach High Pressure Pilot
- Cant Reach Low Pressure Pilot
- Cant Reach Setpoint
- P1 Is Below P2
- P1 Is Below Target PSV
- P1 Is Below Target Rate Of Flow
- High flow
- Latch Short Circuit

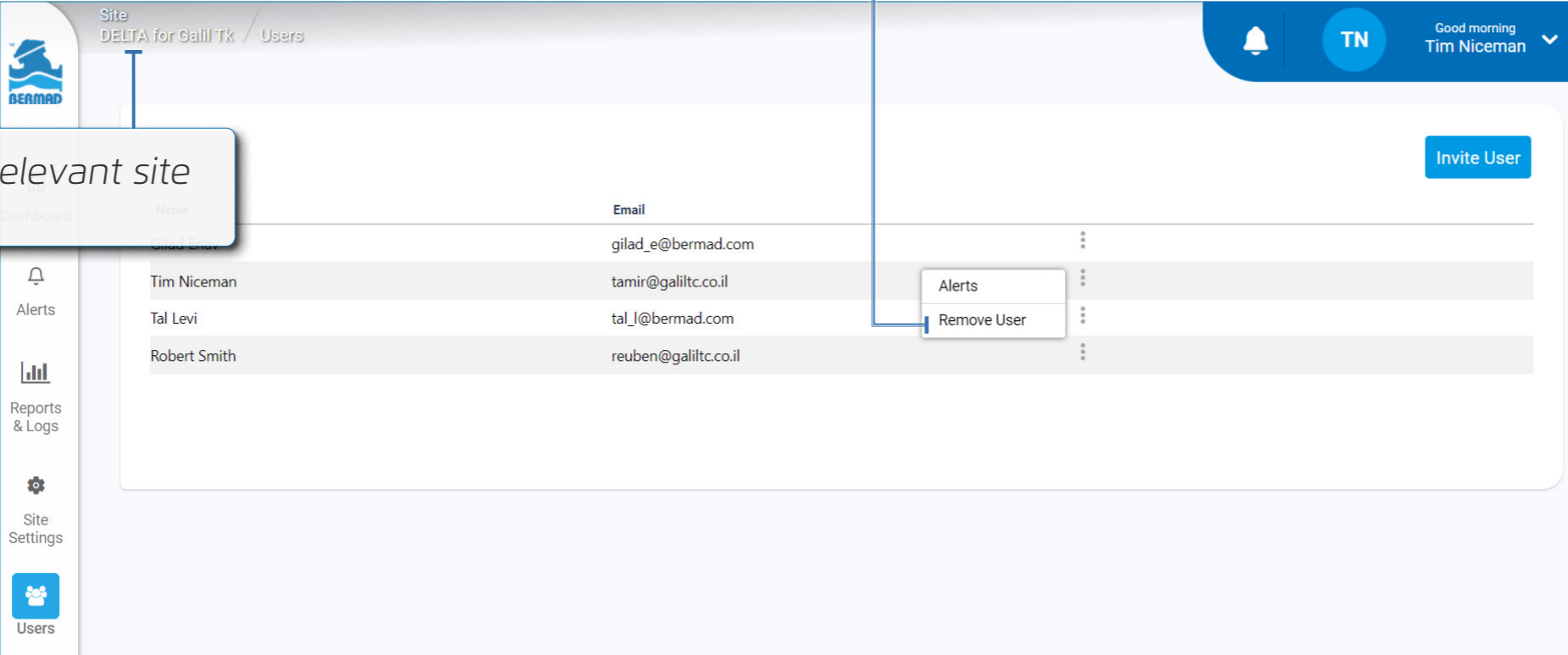
5. Click Update

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**



The screenshot shows the DELTA user management interface. The top navigation bar includes the DELTA logo, the site name 'DELTA for Galil Tk', and the user profile 'Tim Niceman'. A sidebar on the left contains navigation options: Dashboard, Alerts, Reports & Logs, Site Settings, and Users. The main content area displays a table of users with columns for Name and Email. The 'Remove User' option is highlighted in the context menu for the user 'Tal Levi'. A confirmation dialog is shown on the right, asking 'Are you sure you want to remove this user from the site?' with 'Yes' and 'Cancel' buttons.

Name	Email
gilad_e@bermad.com	gilad_e@bermad.com
Tim Niceman	tamir@galiltc.co.il
Tal Levi	tal_l@bermad.com
Robert Smith	reuben@galiltc.co.il

Are you sure you want to remove this user from the site?

Yes Cancel

3. Click **Yes**

6. SPECIFICATIONS

Main Features

- Valve is “Normally Low” in event of mechanical failure
- Manual override to open and close the valve
- For optimal operation allow to set
 - Fast & slow regulation intervals
 - Dead-band from set-point
- Sensors calibration for all physical units
- Internals
 - 2 clog free high speed internal solenoids for the Bias chamber
 - chamber operation
 - 2 0-20 bar internal pressure sensors +/- 0.5%
- Local I/O:
 - 1 Latch outputs (16V DC; 100 mS pulse) for Day/Night control or venting the valve chamber
 - 3 digital inputs for metering and discrete sensors
 - 2 analogue inputs for 4-20mA or 0-10VDC sensors. for pressure, level. and

Connectivity

- Built in 4G Modem with 2G fallback
 - Global data sim card for worldwide plug-and-play internet connectivity
 - Supports NB-IoT, CAT-M & GPRS communication protocols
- Bluetooth communication or USB cable for technician local operation

Operation modes:

- Online mode: 24/7 connection between controller and
 - cloud (require external power source)
- Offline mode:
 - Autonomous control operation, predefined cloud communication and real time alerts
 - Designed for power saving when using internal batteries

Power source:

- 2 Lithium batteries for operation in offline mode
- 9-24VDC external power input for online mode operation (solar panel, grid power, etc.)

- **Integral data logger** - with more than 150K records, enables comprehensive log registry that can cover long periods of offline operation
- **Periodic over the air firmware upgrades (FOTA)**
- **Outdoor installation** - IP68 rated with UV protection
- **Standard compliance** - CE, FCC (Pending)
- **Industrial grade electronic components** - -35°C to 75°C
- **Push type connectors** - for quick and easy wiring without need for special tools

7. WARRANTY

BERMAD Standard International Limited Warranty

Product Details: DELTA 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.

8. APPENDIX

Technician App

This section reviews the technician app.

DELTA



www.bermad.com

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