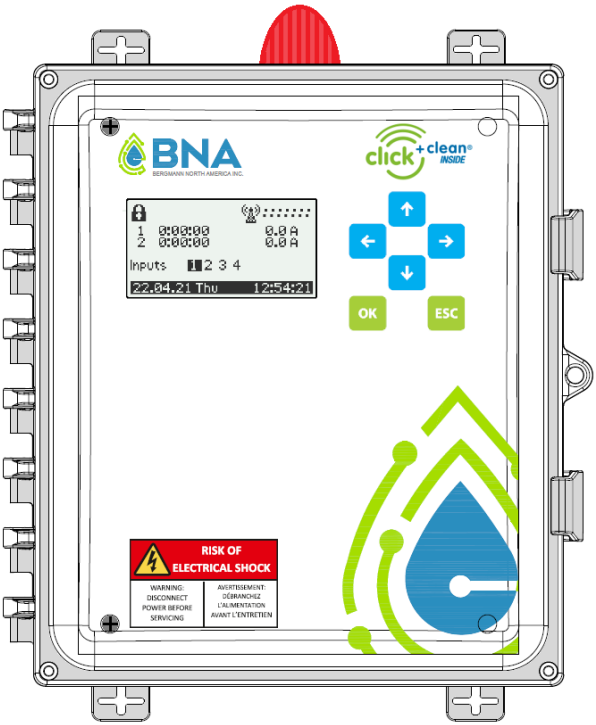


For assistance using the control panel or installation instructions please visit our website by scanning the QR code

Series 2.5 – Advanced Control Panels

Installation & Setup Manual

Table of Contents

Click+Clean™ Control Panel

Read me first
This guide walks Electricians and Technicians through safe installation, start-up, configuration, and basic service of Click+Clean control panels. Keep it with the equipment and share with anyone who services the system.

Safety & Compliance

- **Qualified personnel only.** All installation, commissioning, and maintenance must be performed by trained, licensed Electricians in accordance with local electrical and safety codes.
- **De-energize before work.** Lockout/tagout (LOTO) and test for absence of voltage prior to opening the enclosure or touching conductors.
- **Location requirements.** Panels are designed **for non-hazardous areas**. Do **not** install inside the treatment tank room or classified spaces.
- **This manual + local code.** Use this guide together with applicable standards (NEC/CEC) and site-specific regulations. If conditions arise that aren't covered, follow best practice and local code.

⚠️ **Electric shock hazard**
Incorrect wiring or service can cause serious injury or equipment damage. If in doubt, stop and contact your supervisor or BNA support.

Warranty & Eligibility

Coverage: 24 months parts & labor from shipment date, provided that:

- The panel operates within the modes/ratings described here.
- Use is limited to pumping stations and wastewater treatment plants.
- The enclosure is installed in a non-hazardous area, outside the process space.
- The panel is permanently mounted and not relocated during the warranty period.
- Installation is completed by a qualified Electrician in accordance with code.

Non-compliance voids coverage. The manufacturer/supplier isn't responsible for damage or loss arising from improper installation, operation, or modification.

Connectivity Check (if using Click+Clean Remote Features)

- **Cellular:** Works on 2G/3G/4G modules as supplied. Test with a phone at the planned panel location. Control Panel will automatically attach to the carrier available in the area. Applicable in the US and Canada

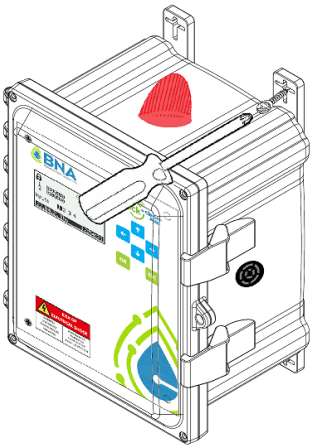
Tools & Materials

- Power drill / driver; 1/2–1-1/2" hole saws or step bits.
- Electrician's toolkit (small flat screwdrivers, wire ferrules/marrettes, etc.).
- Wire strippers and crimpers.

Refer to **Wiring → Output Wiring** and **Wiring → Input Wiring** for termination details.

Mounting & Placement

Outdoor Installations



- Keep clear of snow/ice buildup, drifting, roof shedding, or flood zones.
- Year-round service access; protect from physical damage.
- **Rigid vertical mounting only** (e.g., 4×4 post set in concrete, wall, or uni-strut). Do **not** mount flat or face-up.
- Provide protected conduit runs for **line power** and **field I/O**.
- Mount at eye height where indicators and Control Panel screen are readable.
- Comply with local code for clearances and working space.
- **Seal all conduits** to prevent moisture ingress, gases and condensation.

Indoor Installations

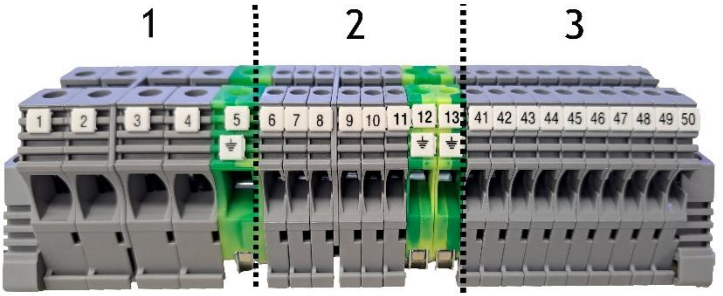
- Maintain clear access and viewing height.
- Provide clean conduit routing for power and I/O.
- Ensure adequate **cellular** access if remote monitoring is enabled.
- **Rigid vertical mounting** only.
- **Seal all conduits** to prevent moisture ingress, gases and condensation.

Mounting: Attach the supplied brackets to the enclosure back using the included screws. Use site-appropriate anchors/fasteners. The installer is responsible for a secure installation.

! Panels that detach due to improper mounting are **not** covered by warranty.

System Basics: Inputs & Outputs Definitions

- **Inputs** (floats, transducers, flow meters, Dissolved Oxygen Sensors, etc.) send **signals** to the controller.
- **Outputs** (pumps, blowers, aerators, chemical pumps, etc.) receive **power** via panel contactors/relays.



Wiring

Factory wired. Panels ship pre-assembled and tested. Any internal changes must be approved by **BNA** to keep the warranty valid. Please refer to the supplied Electrical Schematic for your system configuration.

⚠ **Electrical work = licensed techs.** Always LOTO and verify ALL equipment is de-energized before wiring.

Terminal Block Sections

1. **Power Wiring** — Line/neutral/ground landed at the disconnect and power terminals
2. **Output Wiring** — Labeled contactor outputs to field devices
3. **Input Wiring** — Low-voltage terminations for sensors/switches (expandable)

Power Wiring

All control panels come pre-configured for the power supply requirements as specified when the order for the panel was placed.

From the **power source**, all live wires must be wired to the **disconnect switch**; the **neutral** and **ground** wires are to be connected directly on their labeled terminals and not through the Disconnect Switch.

120 V, Single-Phase

- Each hot leg uses a **separate disconnect switch pole**.
- Where code permits, a single leg of power may feed two poles using the **appropriate gauge wire** as a bridge.

240 V, Single-Phase

- Two hot legs occupy **two disconnect poles**.
- A supplemental 120 V leg (if specified) may use the **third pole**.

Three-Phase

- Use **all three** disconnect poles; **L1, L2, L3**.

⚠ Check nameplate voltage/phasing and torque specs before energizing.

Output Wiring

Outputs 1 through 8 are arranged from left to right within the panel. Depending on system requirements, not all outputs may be used.

➤ Maintain a clear record of which device is connected to each output to simplify programming and troubleshooting.

Wiring for 120V Single-Phase Loads:

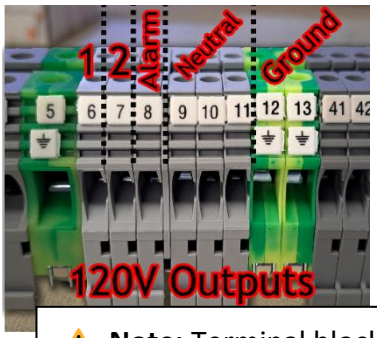
- Hot: Black
- Neutral: White
- Ground: Green

Wiring for 240V Single-Phase Loads:

- Hot: Black
- Hot: Red
- Neutral: White
- Ground: Green

Wiring for Three-Phase Loads:

- L1: Black
- L2: Red
- L3: Blue
- Ground: Green



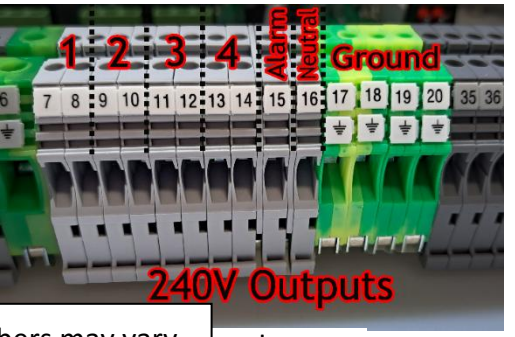
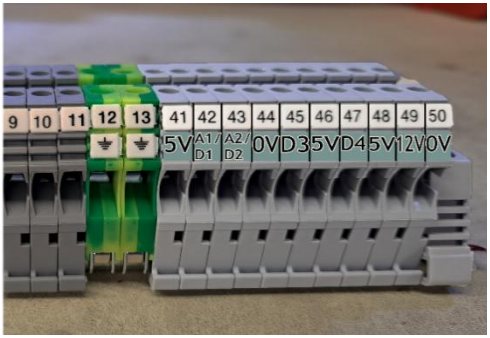


Fig **xample**

⚠ **Note:** Terminal block numbers may vary.

Input Wiring

The input area typically consists of 10 terminal blocks, each directly linked to corresponding input terminals on the Logic PCB (Found on the door of the panel). In some configurations, an input extension module may be installed, enabling support for more than four input devices when expanded functionality is required.



- **5 V** — Power (**T1, T6, T8**)
- **A1/D1** — Input 1 (**T2**)
- **A2/D2** — Input 2 (**T3**)
- **0 V** — Digital Ground (**T4, T10**)
- **D3** — Digital Input 3 (**T5**)
- **D4** — Digital Input 4 (**T7**)
- **12 V** — Sensor power for 4–20 mA (**T9**)

Expanded Inputs (Input Module)

For systems that require **more than four input devices**, an **input expansion module** is installed (see image below). This module includes **two 10-pole terminal blocks**, labeled **X1** and **X2**, allowing connection of up to **12 input devices** in total.

Figure 2: Input Module Terminals

Terminal #	X1	Description	X2	Description
1	5V	5-volt supply terminal	5V	5-volt supply terminal
2	Not used	----------	5V	5-volt supply terminal
3	5V	5-volt supply terminal	0V	Neutral ground for inputs
4	D8	Digital input 8	A6/D12	Analog input 6 or Digital input 12
5	0V	Neutral ground for inputs	0V	Neutral ground for inputs
6	D7	Digital input 7	A5/D11	Analog input 5 or Digital input 11
7	0V	Neutral ground for inputs	0V	Neutral ground for inputs
8	A8/D6	Analog input 8 or Digital input 6	A4/D10	Analog input 4 or Digital input 10
9	0V	Neutral ground for inputs	0V	Neutral ground for inputs
10	A7/D5	Analog input 7 or Digital input 5	A3/D9	Analog input 3 or Digital input 9

Table 1: Input Module Terminals

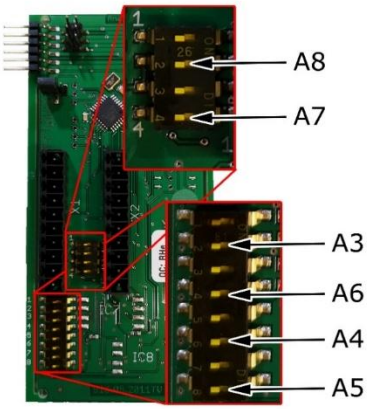
By default, the input card is configured to handle **digital inputs**. To enable **analog input control**, you'll need to adjust the DIP switches on the PCB corresponding to the desired input channels.

The **smaller DIP switch** manages the **X1 terminal block**:

- **Switch #2** activates analog input **8**
- **Switch #4** activates analog input **7**

The **larger DIP switch** manages the **X2 terminal block**:

- **Switch #2** enables analog input **3**
- **Switch #4** enables analog input **4**
- **Switch #6** enables analog input **5**
- **Switch #8** enables analog input **6**



📋 Refer to the input mapping table above for exact terminal assignments and switch positions.

Level Sensing — Floats

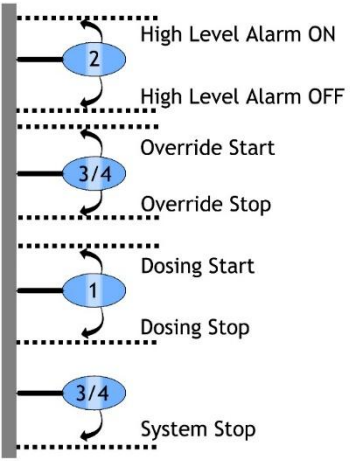
Before installing float switches, carefully determine the appropriate mounting heights for the following control points:

- **High-Level Alarm Activation/Deactivation**
- **Critical Water Level** (triggers temporary increase in dosing rate)
- **Minimum Dosing Volume**
- **Lowest Acceptable Tank Water Level**

Float Configuration Options

Each chamber may use **2 to 4 float switches**, depending on operational needs:

- **2-Float Setup**:
  - One float controls **pump start/stop**
  - One float triggers a **high-level alarm**
- **3 or 4-Float Setup**:
  - Option to add a **redundant OFF float** for backup shutoff
  - Option to include an **override float** to modify pump behavior under specific conditions (e.g., increased dosing)



Wiring Instructions

Float sensors typically include **two wires**:

- **Black (Power)** → Connect to a **5V terminal**
- **White (Signal)** → Connect to any available **digital input terminal**

⚠ Ensure all connections are secure and labeled for easy identification during diagnostics or maintenance.

Transducer Setup Instructions

Level transducers must be connected to an **analog input**. All control features available with float-based systems—such as alarms, dosing triggers, and overrides—remain accessible. However, instead of being activated by discrete switches (Floats), these functions are now triggered by specific fluid levels measured by the transducer.

Installation Steps:

- **Mounting:** Secure the bottom end of the transducer to a vertical pole, positioned **15–30 cm above the tank floor** to avoid sediment interference.
- **Wiring:**
  - **Signal Wire** (Brown) → Connect to an **analog input 1, 2 or 3**
  - **Power Wire (+)** (White)→ Connect to the **12V terminal**
  - **GND (-)** (Green) → Connect to a 0V Terminal
- **Air Line Port:** Ensure the air line is vented to **atmospheric pressure**. In vented tanks, it can be mounted anywhere **above the maximum water level** to maintain accurate readings.

📌 **Note:** Record the **sensor height from the bottom of the tank**. This measurement is critical for calculating fluid height and volume in later configuration steps.

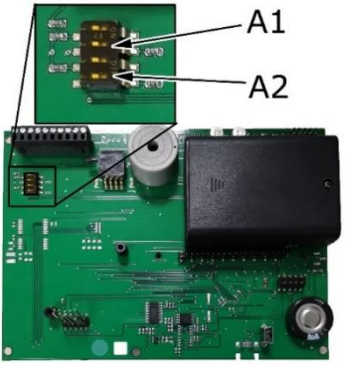


Figure 3: Logic PCB Dip Switches

Analog Input Configuration for Transducers

Alongside proper wiring of the transducer to its designated input terminal, the electrician must also verify that the input is configured for **analog signal processing** rather than digital.

This is done via the **DIP switch** located on the **logic board**, which governs the first two input channels:

- **Switch #2** enables **analog mode for Input 1**
- **Switch #4** enables **analog mode for Input 2**

Ensure the correct switch is toggled based on which input terminal the transducer is connected to.

Flow Meters (Pulse Output)

Flow meters must be installed in such a way that the pipe past the flow meter is always submerged in water. They must not be installed horizontally or where the pipe past the flow meter is lower than the meter itself.

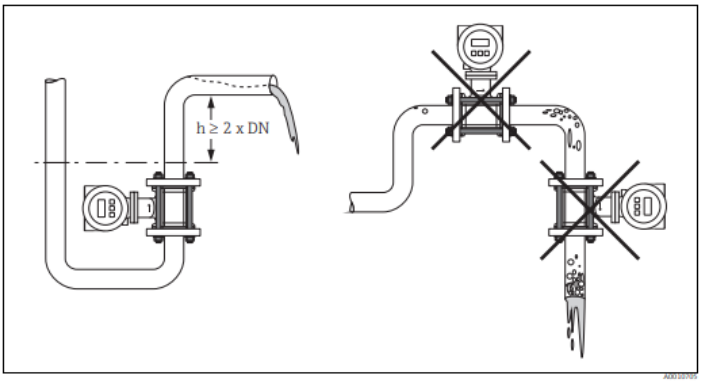
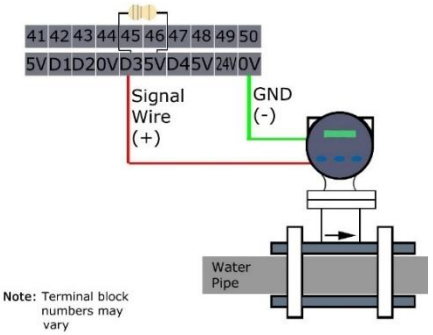


Figure 4: Flow Meter Installation (picture taken from Endress + Hauser website)

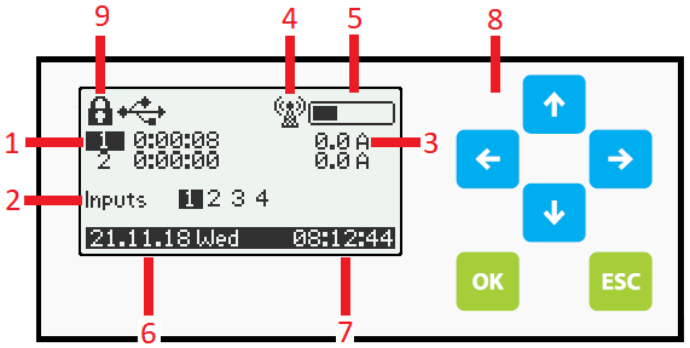
Wiring:

- **Signal (+) → D3 or D4**
- **Signal (–) → 0 V**
- **Resistor: 10 kΩ** from **5 V** to the selected D3/D4 terminal
- Provide continuous power to the flowmeter (internal or external supply as specified by manufacturer)



Flow meter data is logged and displayed on both the Control Panel screen and the Webviewer platform**. These readings are for monitoring purposes only and do not directly control outputs**. On the Impulse Sensor screen, D3 corresponds to Impulse Sensor 1 and D4 to Impulse Sensor 2. To access this screen, press ▼ from the main screen and continue pressing ▼ until the Impulse Sensor screen appears. Flow meters typically generate one pulse per 10 liters; therefore, when calculating daily flow using this screen, multiply the displayed value by 10 to convert it to liters. If remote monitoring is enabled, flow calculations and conversions are automatically handled by the Webviewer platform.

Panel Interface



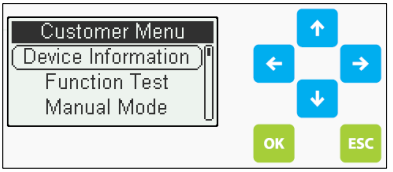
Main Display

1. **Outputs**
   Active outputs are shaded; countdown shows remaining ON time (active) or time to next start (inactive).
2. **Inputs**
   Inputs 1–4 show state (shaded = active).
3. **Amperage/Current Readings**
   The current draw in amperage of an active output is displayed here (additional page for >5 outputs).
4. **Cellular Connection**
   Connection to the server is displayed on the screen by a cell tower icon.
5. **Cellular Signal Strength**
   The strength of the cell signal is displayed here. Panel automatically determines best carrier to use based on signal strength.
6. **Date**
   The date is displayed in DD.MM.YY format.
7. **Time**
   The user can select a 12 HR or 24 HR clock in the Date / Time menu.
8. **Navigation Keys**
   OK (confirm), ESC (back), ▲/▼ (scroll or value), ◀/▶ (cursor/shift).

Menus

User Menu (No Password)

The **User Menu** gives access to the basic functions of the control panel. This section is accessed by pressing ▼ from the main screen.



Device Info
General information regarding the device. Includes Firmware version, Serial Number, Variant information, and production date.

Function Test
Function Test allows a user to perform a quick run through all the outputs to verify proper operation and amperage readings. The cycle will run through all enabled outputs by sequence, test the alarm and check the backup battery status.

Manual Mode
Allows the operator(s) to temporarily run a specified output for a period of time. The time of this run is predetermined at time of construction.

Operation Time
Breakdown of the Operation Time for all outputs. Operation time is broken down by calendar weeks.

Date/Time
Allows user to change date and time settings.

Display
Allows user to modify Contrast, Brightness, and Illumination settings.

Language
Choose language of operation.

Restart Panel
Performs a software restart of the panel.

How to perform Function Test

The **Function Test** feature provides a quick diagnostic cycle to verify the operation of all enabled outputs, including amperage readings, alarm functionality, and backup battery status.

Steps:

1. Navigate to the **User Menu** by pressing ▼ from the main screen.
2. Scroll down to **Function Test** and press **OK**.
3. Scroll to **Start Test** and press **OK**.

A preset delay will initiate a countdown. Once complete, the first active output will turn ON for its designated cycle duration. During this time, the output's amperage will be displayed at the bottom of the screen.

To skip an output or proceed to the next one, press **OK** — this will bypass the remaining cycle time for the current output.

At the end of the Function Test, the system will automatically test visual/audio alarms and assess the backup battery status.

🛠 Manual Mode Operation

Manual Mode allows operators to temporarily activate a specific output for a predefined duration, set during system configuration.

Steps:

1. Access the **User Menu** by pressing OK on the main screen.
2. Scroll down to **Manual Mode** and press **OK**.
3. In the Manual Mode menu, scroll to the desired output and press **OK** to select.
4. Choose the desired mode:
    - **Automatic**: Uses the output's default programmed settings.
    - **Always ON**: Forces the output ON for the manual run time.
    - **Always OFF**: Forces the output OFF for the manual run time.

Use the ▲/▼ buttons to select the mode, then press **OK** to activate. Press **ESC** to exit the Manual Mode menu.

🔍 Checking Active Inputs

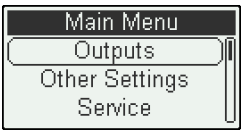
Active inputs are displayed on the **Main Screen** near the bottom. Inputs 1 to 4 will show their status — shaded indicators denote active inputs.

For Panels with More Than 4 Inputs:

- Press the ◀ button while on the main screen to access the extended **Input Screen**.
- This screen displays the status of additional inputs beyond Input 4

🔧 Operator Menu (Password)

The **Operator Menu** gives the user access to the core functions of the system and the ability to change/modify parameters and functionality of the system including outputs, inputs, run times, etc. The Main menu is accessed by pressing OK on the main screen. If system is password protected it will prompt the user to enter the password. Use the ◀/▶ keys to move the cursor. Use the ▲/▼keys to change the numbers. If the password is lost, please contact the administrator of the system.



Outputs

The Output menu will allow the user to configure the functions and inputs for each output.

Operation Time

Historical data for run times for each output. It keeps log of the last 52 calendar weeks.

Reports

History of events that have occurred in the panel.

Other Settings

Additional functionality settings are found here. Backup Alarms, GPRS settings, Manual mode Run time, quiet mode duration, etc.

Service

Advanced functionality found here, recommended only for service technicians.

Output Setup Guide

The panel interface provides the same output programming capabilities as the Series2 Software. This section outlines how to configure output modes, current sensing, and operational parameters.

Output Setup

Steps:

1. From the **Operator Menu**, scroll down to **Outputs** and press **OK**.
2. Scroll to the desired output and press **OK**.
3. Scroll down to **Operating Mode** and press **OK**.
4. Choose one of the following modes:

Output Modes:

Mode	Description
OFF	Permanently disables the selected output.
Time Dose	Uses preset **Run Time** and **Off Time** to dose specific volumes. This method distributes effluent more evenly throughout the day. Controlled by floats or transducers. Signal floats trigger the timer when effluent reaches a set level. Compatible with 2-Float, 3/4-Float, and Transducer setups.
Demand Dose	Activates the output immediately when the Start signal is received. Stops when the signal is deactivated. Compatible with 2-Float, 3/4-Float, and Transducer setups.
Chemical Dose	Designed for chemical dosing. Triggered by another output using Time or Demand Dose. Includes ON/OFF delay settings and allows a secondary output to run in parallel.
Aeration Mode	Runs blowers continuously or in Time Dose mode. No input required to activate. Optional Default OFF input can reduce aeration when water levels are low. Compatible with 2-Float, 3/4-Float, and Transducer setups.
Day/Night Mode	Allows different run cycles for day and night periods. Useful for adjusting output frequency based on time of day. Compatible with 2-Float, 3/4-Float, and Transducer setups.
Permanent ON	Keeps the output ON at all times.

Press **OK** to confirm your selection. Press **ESC** to return to the previous screen.

Current Sensing Configuration

Output modules include a built-in current sensor rated for the contactor's maximum load. Choose the appropriate current source:

- **Internal** – Use the built-in sensor.
- **External** – Select based on the external sensor rating:
  - External 10A
  - External 20A
  - External 50A

⚠️ **Setting Undercurrent / Overcurrent Thresholds**

These thresholds protect the system by stopping the output and triggering alarms if current levels fall outside the safe operating range.

Steps:

1. Scroll to **Min Current** and press **OK**.
2. Use the ◀/▶ buttons to move the cursor.
3. Use the ▲/▼ buttons to adjust the value.
4. Press **OK** to confirm.

Repeat the process for **Max Current**.

⚠️ Recommended: Set the minimum current slightly above zero, but not too close to the operating range. Set the maximum current based on the rated load of the output.

Programming Terms & Definitions

*Programming outputs using the panel interface will only display the parameters that are needed for the Operation Mode you selected, it dynamically updates based on the selections.

Term	Associated Mode setting	Definition
Operating Mode		Choose from a range of operating modes for each output. Available options include Time Dosing, Demand Dosing, Aeration Mode, Chemical Dosing, Day/Night Mode, Permanently ON, and OFF.
Current Sense Type	ALL	Enables you to specify the source of amperage sensor feedback. While most modules include built-in sensors for amperage measurement, this function allows you to define the range for an external sensor if one is used. Available options include 10A, 20A, and 50A variants.
Min Current	ALL	Defines the minimum expected amperage from the motor. If the actual amperage falls below this set point, the controller will shut down the motor and trigger an alarm. The expected alarm type is "Undercurrent"
Max Current	ALL	Defines the maximum expected amperage from the motor. If the actual amperage exceeds this set point, the controller will shut down the motor and trigger an alarm. The expected alarm type is "Overcurrent". It is recommended to set this value about 10-15% above FLA
Run Time	• Time Dose • Chemical Mode (Time Dosing Mode) • Aeration Mode (Dosing Mode) • Day/Night Mode	Duration the output remains ON during a cycle.
OFF Time	• Time Dose • Chemical Mode (Time Dosing Mode) • Aeration Mode (Dosing Mode) • Day/Night Mode	Duration the output remains OFF between cycles.

Term	Associated Mode setting	Definition
Initial State	• Time Dose • Chemical Mode (Time Dosing Mode) • Aeration Mode (Dosing Mode) • Day/Night Mode	Determines whether the cycle begins with Run Time or Off Time.
Input Type	• Time Dosing • Demand Dosing • Aeration • Day/Night • Chemical Mode	Choose the desired input configuration: 2-Float, 3/4-Float, or Transducer. • For Chemical Mode, inputs can be set to either Time Dosing or Demand Dosing. • For Aeration Mode, available input types include Constant, Float-based, or Transducer-based control.
Start Signal	• Time Dosing (3/4 Float Configuration) • Demand Dosing (2 Float, 3/4 Float Configuration)	Controls ON/OFF operation in 3/4-input setups.
Stop Signal	• Time Dosing (3/4 Float Configuration) • Demand Dosing (2 Float, 3/4 Float Configuration)	Acts as a Lockout or Redundant Float in 3- or 4-input configurations. If the Start float remains active but the Stop float (Lockout) disengages, the pump will shut off. This feature is designed to prevent the motor from running dry in the event that the Start float fails in the active position.
Start/Stop Signal	• Time Dosing (3/4 Float Configuration) • Demand Dosing (2 Float, 3/4 Float Configuration)	Controls ON/OFF operation in 2-input setups.
High Level Alarm	• Time Dosing • Demand Dosing • Day/Night Mode	Notifies when water reaches a high level. Does not affect output operation.
Override Alarm	• Time Dosing • Demand Dosing (3/4 Float Configuration, Transducer) • Day/Night Mode	Activates alternate dosing settings to prevent flooding. Includes override notifications, alternate Run/Off Times, and Duplex Slave output.
Override Run Time	• Time Dosing • Day/Night Mode	Duration the output remains ON during an override condition.
Override Off Time	• Time Dosing • Day/Night Mode	Duration the output remains OFF during an override condition.
Delay	• Demand Dosing	Allows you to configure an OFF delay for the output. Once the input that activates the motor turns off, the motor will continue running for the duration specified in the Delay parameter.
Max No-Cycle	• Demand Dosing	Sets the maximum number of ON cycles allowed in a 24-hour period. Triggers a notification if exceeded.
Max Cycle Time	• Demand Dosing	Set a notification if the motor exceeds this value in minutes for duration of a single output cycle. Does not affect the operation of the output, it is only for notification purposes.
Max Override Cycles	• Time Dosing • Demand Dosing • Day/Night Mode	Allows you to define the number of override cycles in a 24-hour period that can occur before an alarm is triggered. This setting is for notification only and does not impact output operation.
Per Cycle Duplex/Triplex	• Time Dosing • Demand Dosing • Day/Night Mode • Aeration Mode	Splits dosing between 2 or 3 outputs across cycles.
Signal Source	Chemical Mode	Select the output signal that will start the Chemical Dosing sequence.
Switch On Delay	Chemical Mode	Sets the delay before the Chemical Pump turns ON after the activation output is engaged.
Switch OFF Delay	Chemical Mode	Sets the delay before the Chemical Pump turns OFF after the activation output is disengaged.
Parallel Output	Chemical Mode	Enables a secondary output to operate in parallel with the Chemical Pump when the controlling output is activated.
Parallel ON Delay	Chemical Mode	Sets the delay before the Parallel Output turns ON after the activation output is engaged.
Parallel OFF Delay	Chemical Mode	Sets the delay before the Parallel Output turns OFF after the activation output is disengaged.

Term	Associated Mode setting	Definition
Tank Empty Input	Chemical Mode	Triggers a notification or alarm when the float/input inside the chemical container deactivates, indicating a low tank level.
Tank Empty Alarm	Chemical Mode	Configures the notification displayed or sent by the control panel. Supports up to three alarm options.
Default OFF	Aeration Mode	Within the Aeration settings, the 'Default OFF' option lets you assign an input that activates alternate timer configurations.
Alt. ON Time	Aeration Mode	Specifies how long the output stays ON while the 'Default OFF' input is inactive.
Alt. OFF Time	Aeration Mode	Specifies how long the output stays OFF while the 'Default OFF' input is inactive.
ON Level	• Time Dose (Transducer) • Demand Dosing (Transducer) • Day/Night Mode (Transducer)	Configure the ON trigger level for the transducer. If using standard water level ranges (0–250 mBar or 0–400 mBar), enter the value in centimeters. Note: Additional Settings must be enabled to adjust the transducer range. For other configurations, use the digital equivalent of the 4–20 mA signal.
OFF Level	• Time Dose (Transducer) • Demand Dosing (Transducer) • Day/Night Mode (Transducer)	Configure the OFF trigger level for the transducer. If using standard water level ranges (0–250 mBar or 0–400 mBar), enter the value in centimeters. Note: Additional Settings must be enabled to adjust the transducer range. For other configurations, use the digital equivalent of the 4–20 mA signal.
Override ON Level	• Time Dose (Transducer) • Demand Dosing (Transducer) • Day/Night Mode (Transducer)	Configure the Override ON trigger level for the transducer. If using standard water level ranges (0–250 mBar or 0–400 mBar), enter the value in centimeters. Note: Additional Settings must be enabled to adjust the transducer range. For other configurations, use the digital equivalent of the 4–20 mA signal.
Override OFF Level	• Time Dose (Transducer) • Demand Dosing (Transducer) • Day/Night Mode (Transducer)	Configure the Override OFF trigger level for the transducer. If using standard water level ranges (0–250 mBar or 0–400 mBar), enter the value in centimeters. Note: Additional Settings must be enabled to adjust the transducer range. For other configurations, use the digital equivalent of the 4–20 mA signal.
High Alarm	• Time Dose (Transducer) • Demand Dosing (Transducer) • Day/Night Mode (Transducer)	Configure the High Level Alarm trigger level for the transducer. If using standard water level ranges (0–250 mBar or 0–400 mBar), enter the value in centimeters. Note: Additional Settings must be enabled to adjust the transducer range. For other configurations, use the digital equivalent of the 4–20 mA signal.
Backup Low Level	• Time Dose (Transducer) • Demand Dosing (Transducer) • Day/Night Mode (Transducer)	Activates the "Backup Low Level Lockout Alarm," used in conjunction with transducers to prevent motor operation when the low-level float input is disengaged.
Backup High Level	• Time Dose (Transducer) • Demand Dosing (Transducer) • Day/Night Mode (Transducer)	Activates the "Backup High Level Lockout Alarm," used in conjunction with transducers to force motor operation when a high-level float is engaged, regardless of transducer readings. This serves as a safety override in case of transducer failure.
Level OFF	• Aeration Mode (Transducer)	Defines the level at which alternate timer settings become active, similar to the 'Default OFF' function in Aeration when using floats

Troubleshooting – General Errors

Fault Name	Cause	Possible Solution
Power Failure	Brief Loss of Power	Once Power comes back ON system will resume to normal operation
	Power Outage	Turn ON generator, if available to provide power to the system
	Disconnect Switch OFF	Ensure that the Disconnect Switch is turned ON
	Defective Disconnect Switch	Disconnect Switch will need to be replaced
System Startup	Power to the system has returned	No Action Required. Only a notification
Backup Alarm 1, 2, 3 or 4	User-settleable Alarm	Check which Input is triggering this alarm/notification
IO Module not Available	One of the Output Modules is defective	Defective Output Module will need to be replaced
Fuse Defective	Blown Fuse	Replace Fuse
	Low or no incoming power to output	Check Incoming Power. If the voltage is less than the voltage specified for your Equipment the sensor on the Module board detects the error.
	Defective Voltage Sensor	Replace output board
Undercurrent	External disconnect switch is OFF (if applicable)	Turn External Disconnect Switch ON
	Equipment drawing less than minimum current setting	Equipment is beginning to show signs of deterioration.
		Minimum current setting is too high, adjust output setting parameters
	Equipment not drawing any amperage	Equipment is faulty.
	Equipment not drawing any amperage	Equipment is in thermal overload state. Let the equipment cool off and re-test
	Defective Current Sensor	Replace output board
Overcurrent	Equipment drawing more amperage than Max. Current parameter is set to	Check the motor-rated current.
		Equipment is beginning to show signs of deterioration.
		Max. Current setting is too low, adjust output setting parameters.
		Check the power supply for phase loss.
		Check for Blockages on the Equipment
	Defective Current Sensor	Output board needs to be replaced
High Level Alarm	High Level Float has been reached	Possible high flow through the plant, it is possible that the alarm will clear itself after a few more pump cycles
	Start/Stop Float Level Stuck in inactive position	Check to make sure that the Start Float is active. If the Start Float is inactive the pump will not start causing the water levels to rise
	High Level Float is stuck	Float could be defective and causing false alarms
	Flows are constantly higher than design	Contact the Operator/Designer regarding how to deal with the excess flows
	Pump is down	If the pump(s) are down it will cause the water to rise the in the tank. Ensure to have the pump fix/replaced as soon as possible
	Defective Float	Replace Float
	Wire breakage /Connected incorrectly	Check wiring connection

Fault Name	Cause	Possible Solution
Override Level Alarm	Override Level has been reached	Possible high flow through the plant, it is possible that the alarm will clear itself after a few more pump cycles. If Override condition continues it could exceed programmed capacity for the plant
	Start/Stop Float Level Stuck in inactive position	Check to make sure that the Start Float is active. If the Start Float is inactive the pump will not start causing the water levels to rise
	Override Level Float is stuck	Check to make sure that the Start Float is active. If the Start Float is inactive the pump will not start causing the water levels to rise
	Flows are constantly higher than design	Contact the Operator/Designer regarding how to deal with the excess flows
	Pump is down	If the pump(s) are down, it will cause the water to rise the in the tank. Ensure to have the pump fix/replaced as soon as possible
	Defective Float	Replace Float
	Wire breakage /Connected incorrectly	Check wiring connection
Max. Cycle Time Exceeded	The user-settable setting has exceeded the programmed time. Notification only, does not affect the operation of the Output	Ensure that the motor is operating as expected if related to a pump. Pump could be down, or air-locked
		If related to a Blower operating with Dissolved Oxygen sensors, it could indicate that the aeration is not ideal or High Loading through the plant
		If related to a Blower operating with Dissolved Oxygen sensors, it could indicate a Dissolved Oxygen sensor failure
Backup Low Level Lockout Alarm	Water Level Transducer OFF Level set below the height of the Backup Low Level Lockout Float	Adjust the OFF Level setting for the Transducer for the Output that relates to this tank(s). Height should always be set to about 10cm about the ON position of the Backup Low Level Lockout.
	Water Level Transducer readings not reading properly.	Remove the Water Level Transducer from the water and rinse the sensor body and diaphragm with clean water to remove sludge, dirt or any residue
	Water Level Transducer is faulty	Replace Sensor
	Backup Low Level Lockout Float Stuck in inactive position	Check to make sure that the Backup Low Level Lockout is free of any entanglement and it is active. If the Backup Low Level Lockout Float is inactive the pump will not start causing the water levels to rise
	Wire breakage /Connected incorrectly	Check wiring connection
	Defective Float	Replace Float
Backup High Level Lockout Alarm	Water Level Transducer ON Level set higher than the height of the Backup High Level Lockout Float	Adjust the ON Level setting for the Transducer for the Output that relates to this tank(s). If the set height for the ON level is higher than the Backup Float Level Lockout Alarm the system will not engage the regular programmed settings
	Water Level Transducer readings not reading properly.	Remove the Water Level Transducer from the water and rinse the sensor body and diaphragm with clean water to remove sludge, dirt or any residue
	Water Level Transducer is faulty	Replace Sensor
	Backup High Level Lockout Float Stuck in active position	Check to make sure that the Backup High Level Lockout is free of any entanglement. If the Backup High Level Lockout Float is active the pump will continue to pump in either Override Mode or regular settings until the issue is resolved
	Wire breakage /Connected incorrectly	Check wiring connection
	Defective Float	Replace Float
Tank Empty 1, 2, 3 or 4	Chemical Level is below the Float set point	Refill of chemical is needed
	Float switch is defective	Float switch needs to be replaced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