



WHERE MATCHLESS SERVICE MEETS
PRACTICAL ENGINEERING FOR
EXCEPTIONAL SOLUTIONS.

Heated Recirculation Panel

Easy Automation, Inc. User Guide
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TOTALLY INTEGRATED SOLUTION

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OVERVIEW OF HMI

The Easy Automation Heated Recirculation Panel is meant to be an all-in-one package for maintaining temperature and consistency of bulk fertilizer products. This panel is to be used in conjunction with either in-wall tank heating or external glycol heating systems to provide controls for recirculation based on temperature, time, or manual controls.

Header

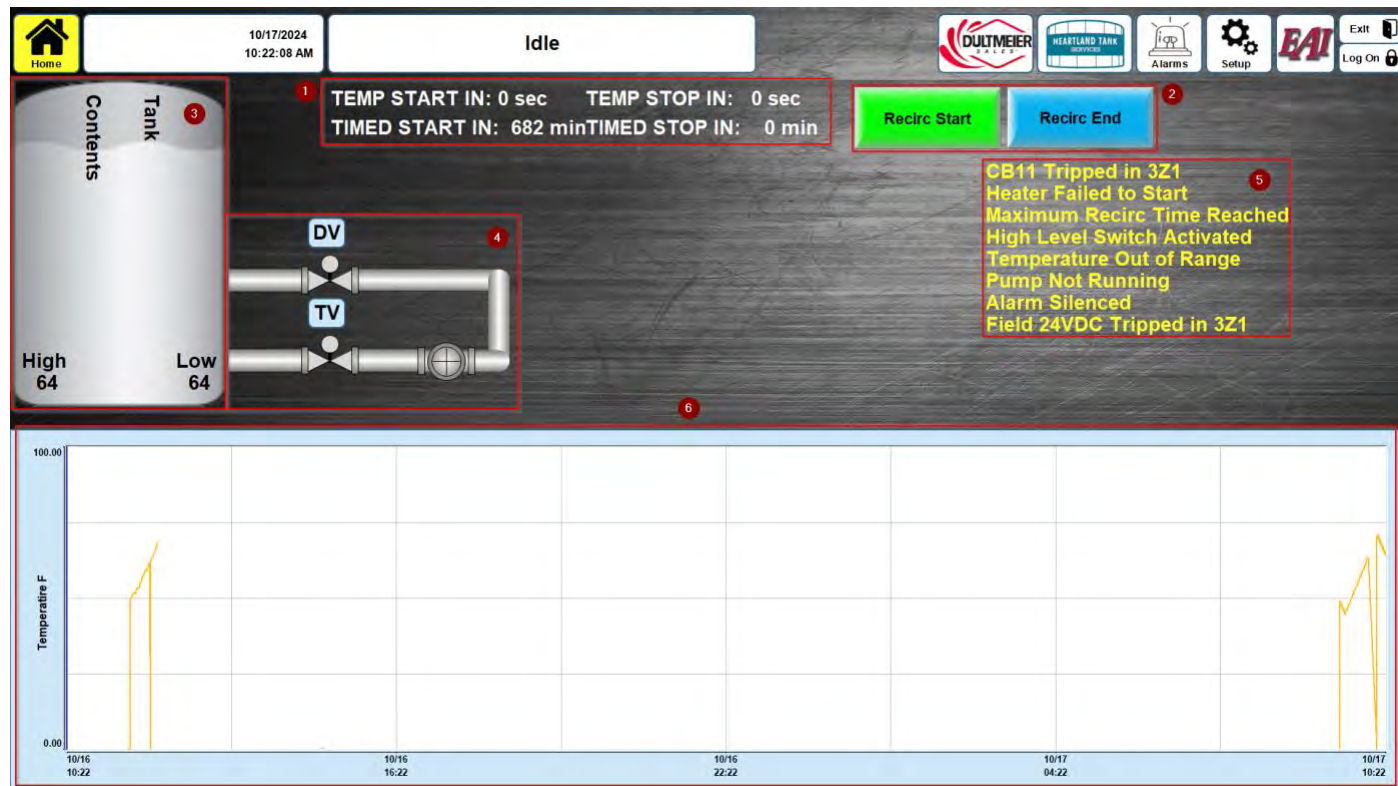
The header has all of the buttons for switching between what screens are displayed as well as the status of the system.



1. The home button opens the main screen that displays important information about the tank and errors for diagnosing issues.
2. Space for company logo to be inserted by EAI.
3. The system status is displayed in the center of the header and tells you what the system is currently doing.
4. The alarms button opens the screen that gives access to the alarm history and settings for audible and visual alarms.
5. The settings button will take you to the system configuration screen allowing for adjustments to the recirculation times and temperatures.
6. The EAI button opens the EAI support website to allow for easy access to support from Easy Automation.
7. The Exit button closes the HMI and will bring the user back to the windows desktop.

Home Screen

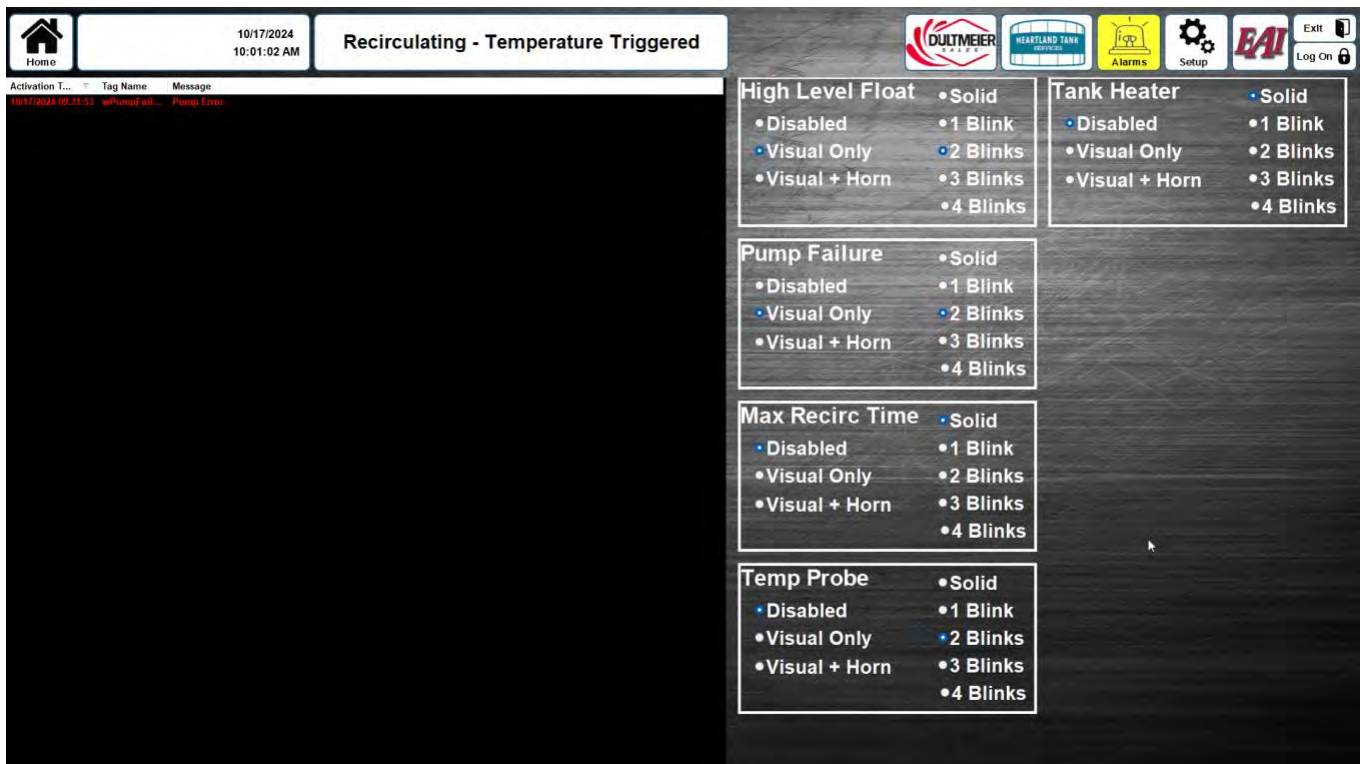
The home screen is where the main controls are for operating the system.



1. Timers for when recirculation will start, and stop are shown right below the system status.
2. Manual buttons can be enabled to allow for starting and stopping recirculation
3. Live temperature information can be seen on the left-hand side of the screen. The name of the tank and the contents of the tank are also able to be adjusted in the settings screen.
4. Manual controls of the valves and pumps are available by simply double clicking on the desired equipment. However, to start the pump both valves are required to be open to prevent damage to the system.
5. Alarms and system errors can be seen on the right side of the screen to be able to give additional visual feedback of what alarm has been triggered.
6. A graph at the bottom of the screen shows a display of product temperature over the last 24 hours.

Alarms Screen

The left side of the alarms screen is dedicated to a log that shows the alarms that have been triggered and when they are triggered. The right side of the screen shows the enabled alarms and how the alarm is going to visually or audibly alert the user to an error.



Each alarm can be customized by the end user for what they find useful. The alarm type can either be disabled by ignoring the alarm entirely, Visual Only which will utilize the alarm light on the panel, and Visual + Horn which will utilize the alarm light and the horn on the panel. Then the pattern for the alarm can be selected to have a continuous alarm or a series of blinks to indicate different alarms.

ALARM DESCRIPTIONS

Below are the alarm descriptions.

High Level Float

- Alarm that triggers if the high-level sensor is triggered for the required amount of time.

Pump Failure

- Alarm that triggers if the pump does not receive run verification.

Max Recirc Time

- Alarm that triggers when the system has recirculated longer than the maximum allowable time.

Temp Probe

- Alarm triggers if the system detects a temperature too high or too low.

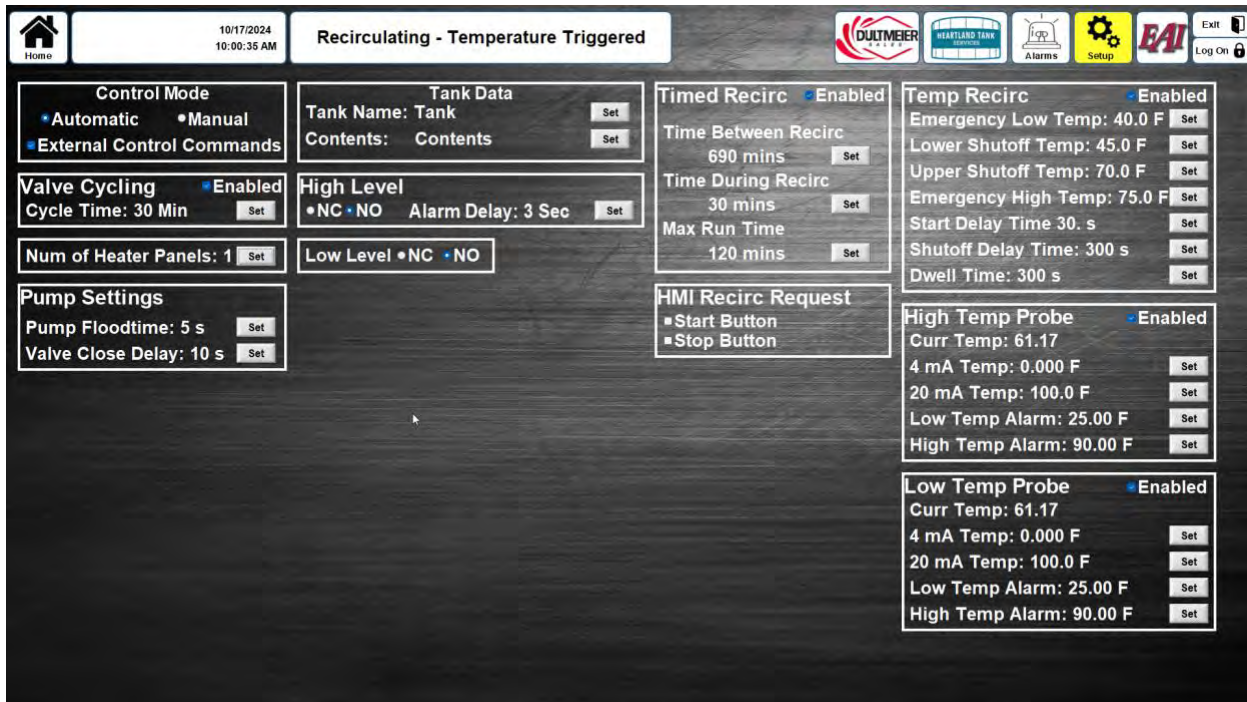
Tank Heater

- Alarm that triggers if any of the heater panels do not send feedback acknowledging startup.

SYSTEM CONFIGURATION

Settings Screen

The settings screen allows for configuration of sensors, equipment, and recirculation. All settings can be adjusted by pressing the set button corresponding to the setting being adjusted. This will open a keypad that will allow the user to adjust the settings as they need.



Control Mode

- Automatic vs Manual
 - Automatic prevents manual control of valves and the pump and enables automatic recirculation.
 - Manual allows for control over the valves and pump by double tapping on the respective icon on the home screen.
- External Control Commands
 - This setting enables the ability for the valves and pump to be interacted with from other control systems if needed.

Tank Data

- Tank Name
 - Allows for setting up a custom name for the tank to be displayed on the main screen
- Contents
 - Allows for setting up a custom name for the product to be displayed on the main screen

Timed Recirc

- Time Between Recirc
 - The amount of time between timed recirculation cycles. (Time the system is off before it starts recirculation again)
- Time During Recirc
 - The amount of time the system will recirculate for.
- Max Run Time
 - Total allowable time the system can recirculate when started based on time or temperature.

Temp Recirc

- Emergency Low Temp
 - Temperature where recirculation will immediately start if below
- Lower Shutoff Temp
 - Temperature where recirculation will start after the start delay time has elapsed
- Upper Shutoff Temp
 - Temperature where recirculation will stop after the shutoff delay time has elapsed
- Emergency High Temp
 - Temperature where recirculation will immediately stop if above
- Start Delay Time
 - Amount of time required to be below the Lower Shutoff Temperature to start recirculation
- Shutoff Delay Time
 - Amount of time required to be above the Upper Shutoff Temperature to stop recirculation
- Dwell Time
 - Minimum amount of time required between recirculation cycles to prevent rapid starting and stopping of the system.

High Temp Probe and Low Temp Probe (Physical Sensors Mounted on Tank)

- Enabled
 - Enables the sensor reading from the specified temperature probe.
- Curr Temp
 - Displays live sensor reading for the temperature probe.
- 4 mA Temp
 - Temperature at the lowest possible sensor value (Usually Zero)
- 20 mA Temp
 - Temperature at the highest possible sensor value (Usually 100)
- Low Temp Alarm
 - Temperatures that a low temperature alarm trigger if below.
- High Temp Alarm
 - Temperature that a high temperature alarm triggers if above.

Pump Settings

- Enabled
 - Allows for settings for an optional current transducer
- Pump Flood Time
 - Amount of time to leave the valves open before starting the pump
- Valve Close Delay
 - The amount of time after the pump shuts off to prevent the valves from closing

Valve Cycling

- Enabled
 - Enables automatic cycling of the valves in the system to relieve system pressure and prevent damage to equipment.
- Cycle Time
 - Amount of time between valve cycles

High Level

- NC vs. NO
 - Selects the way the high-level sensor is wired either normally closed or normally opened.
- Alarm Delay
 - The amount of time that the high-level sensor is triggered before a high-level alarm is activated.

Low Level - For Display Only

- NC vs. NO
 - Selects the way the low-level sensor is wired either normally closed or normally opened.

HMI Recirc Request

- Start Button
 - Make manual recirculation start button visible on home screen.
- Stop Button
 - Make manual recirculation stop button visible on home screen.

Number of Heater Panels

- The number of associated heater panels for this tank. (Maximum of 3 Per Tank)