

Volume **2**



MATHEWS COMPANY

Pinnacle Lite



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# Controls Manual



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# CONTROLS MANUAL – PINNACLE LITE

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## Section 1: Introduction

### User Interface

Upon loading the Pinnacle Lite HMI touch screen program, you will be presented with the *Discharge Screen*. At this particular screen your main discharge operations of the dryer will be performed. You will be able to change the mid-grain temperature set point if you're operating in TruDry mode and the discharge speed setpoint if you're operating in Manual mode. From this screen, you will also be able to switch from Manual to TruDry mode. TruDry is an automatic mode of operation that controls the discharge rate by maintaining the averaged mid-grain temperature equal to the setpoint. As you will see throughout this manual, the easy to use navigation bar will guide you through the operations of your dryer.

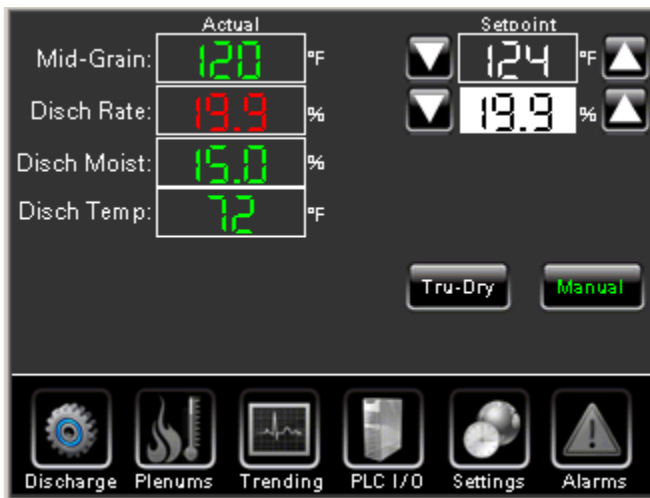


Figure 2: "Discharge Screen (Manual Control Mode)"

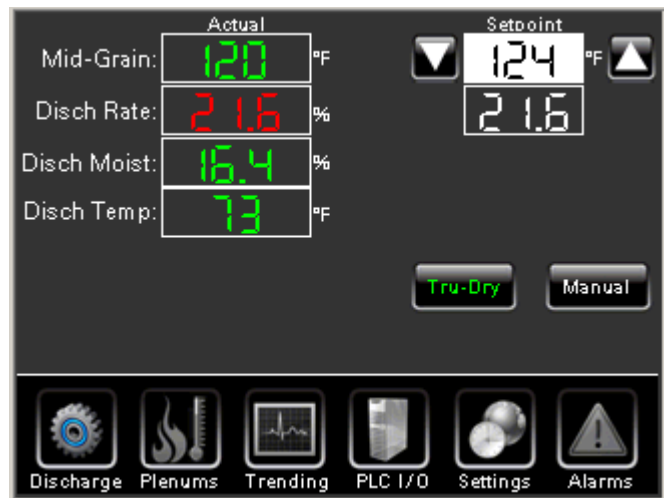


Figure 1: "Discharge Screen (TruDry Control Mode)"



## How it Works

Grain flows from the in-feed point at the top of the dryer through the grain column. Four separate mid-grain temperature probes read the temperature of the grain midway through the grain column. The probes are mounted at four equidistant points in the grain column around the perimeter of the dryer.

The temperature measurement from these four probes are transmitted to the PLC, averaged together and used to control the discharge when in TruDry mode.

Additionally, the discharge moisture sensor sends separate moisture and temperature signals to the PLC as the grain is being discharged.

The PLC continuously updates the HMI touch screen display so that the user can monitor the grain moisture and temperatures and make necessary adjustments accordingly.

Trending screens on the HMI provide the operator with a graphical display of numerous operational parameters that include the grain drying temperatures and moisture. This data is stored in the HMI for later retrieval.

In order to control the discharge rate of the dryer, a control signal is sent from the PLC to the discharge *Variable Frequency Drive* (VFD). The line power from the AC drive is converted to DC power, re-converted to a variable frequency AC power, depending upon the speed required, and sent to the discharge AC motor. The end result is a system that is able to continuously and accurately control the discharge rate.

Necessary adjustments to the commanded speed are reflected periodically as the system continuously monitors the mid-grain temperatures when discharging in TruDry mode.

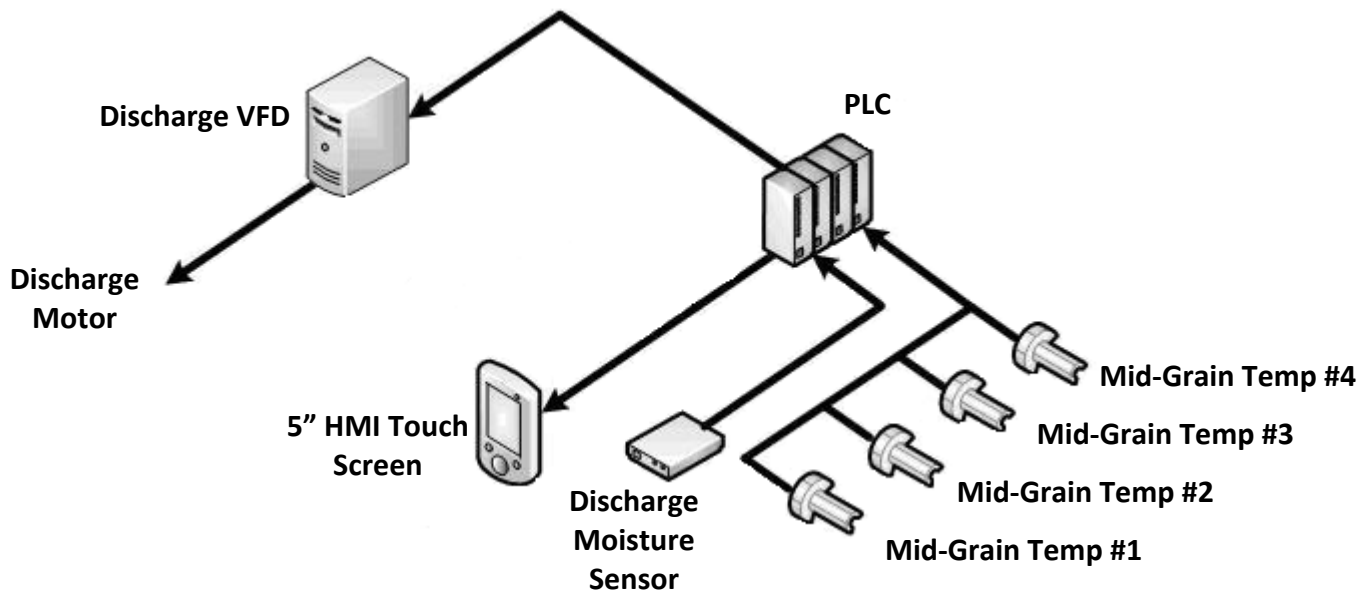
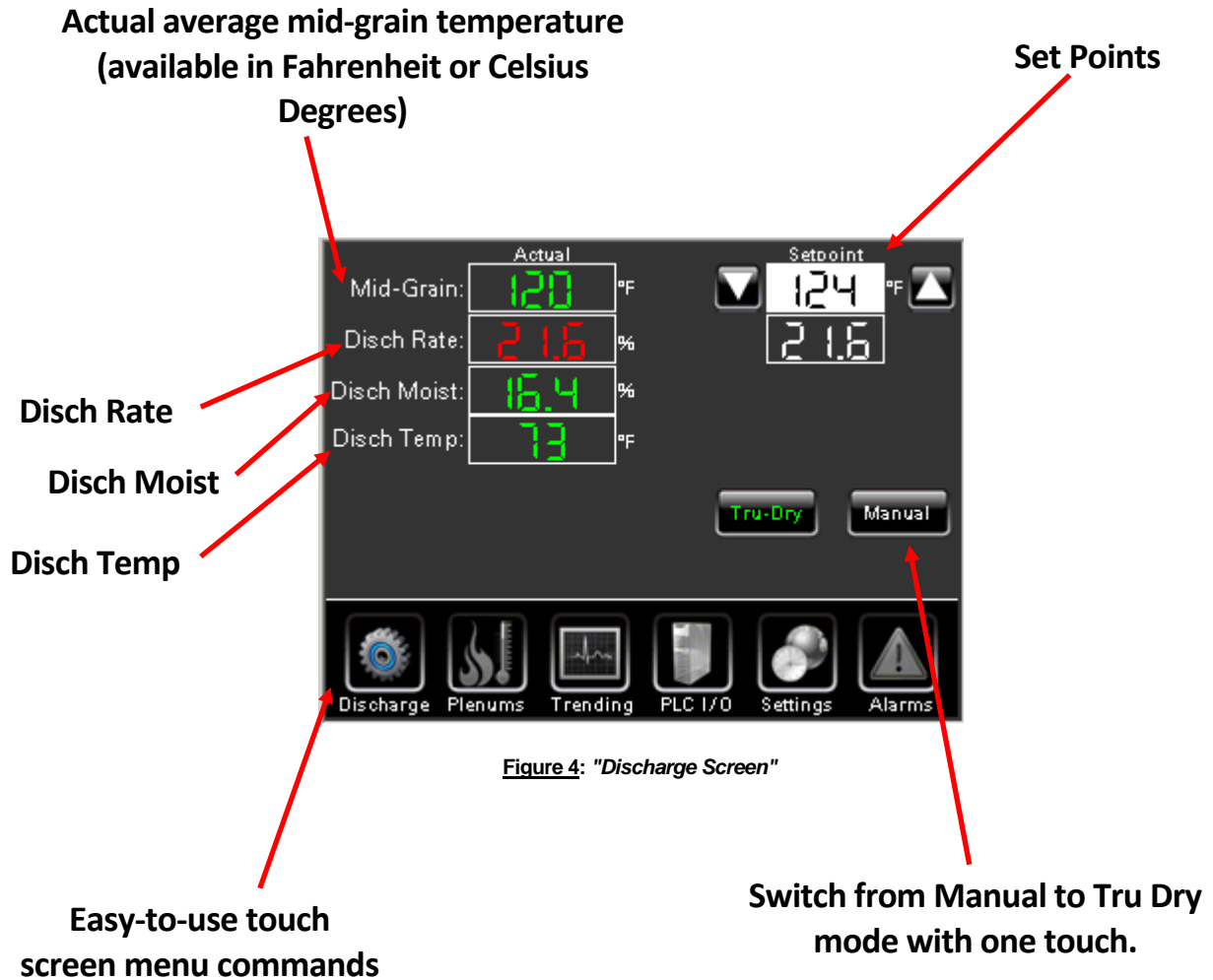


Figure 3: "Pinnacle Lite Controls Overview"

## Discharge Screen



## Mid-Grain Temperature

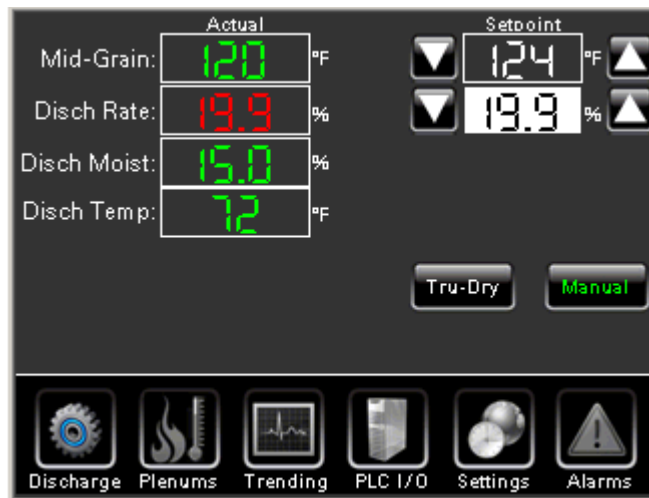
To change the mid-grain temperature set point, touch the box under the caption *Setpoint* and enter the desired temperature or touch the up and down buttons at the side of the numeric display to make fine adjustments.

The display on the left shows the actual mid-grain temperature. If the discharge mode is in TruDry mode and the temperature set point is changed, the discharge speed will increase or decrease until the actual temperature matches the set point.



## Discharge Speed

To change the discharge speed when the dryer is operating in Manual mode, the operator can enter the desired discharge percentage speed by touching the numeric display and using the keypad or touch the up and down buttons to increase or decrease the discharge speed. Note that although the temperature set point numeric field has a grey background, the up/down buttons are still available and the setpoint value can be updated. This is so the operator can adjust the desired mid-grain temperature setpoint prior to switching to TruDry mode.



**Figure 5: "Discharge Screen (Manual Mode)"**



## Section 2: Operation

### Overview

On the bottom of all screens there is a navigation bar to move throughout the different chapters. When you select a chapter, its corresponding icon will appear in color. The icons that are not selected will appear in grayscale.



Figure 6: "Navigation Bar"

Pressing inside a white field to change the numerical value will bring up a number keypad.

Enter the desired value and press "Enter" to return to the main screen. If you do not wish to change the value, press "Esc" to return to the previous screen without making a change.

The "←" button will delete one digit and "Clr" will delete the entire entry.



Figure 7: "Pinnacle Lite Numerical Keypad"

Some Pinnacle Lite functions require a password. An attempt to access these screens requires the user to enter a password as shown on the following screen prompts. Clicking in the white field to enter a password will cause the keypad to appear.

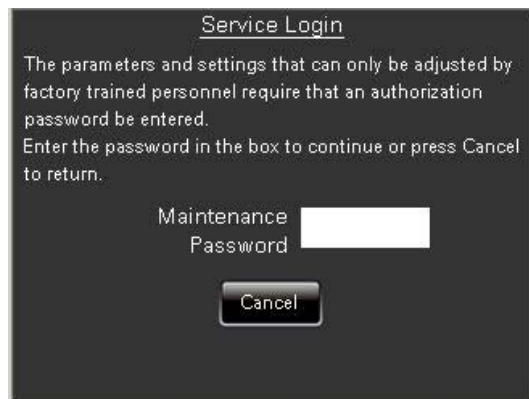


Figure 8: "Service Login Screen"

### Pinnacle Lite Keypad



Figure 9: "Pinnacle Lite Keypad"



This keypad includes numbers and symbols. The default option is capital letters.

Press the **"Cap"** button once for lower case

While navigating through the system, remember that fields with a gray background usually cannot be modified. Fields with a white background can be modified using the keypad

### Manual Operation

Upon selecting the **"Manual"** button on the discharge screen, you will be able to change the Discharge Speed set point.

Selecting the **"TruDry"** button will allow you to be able to change the mid-grain temperature set point.

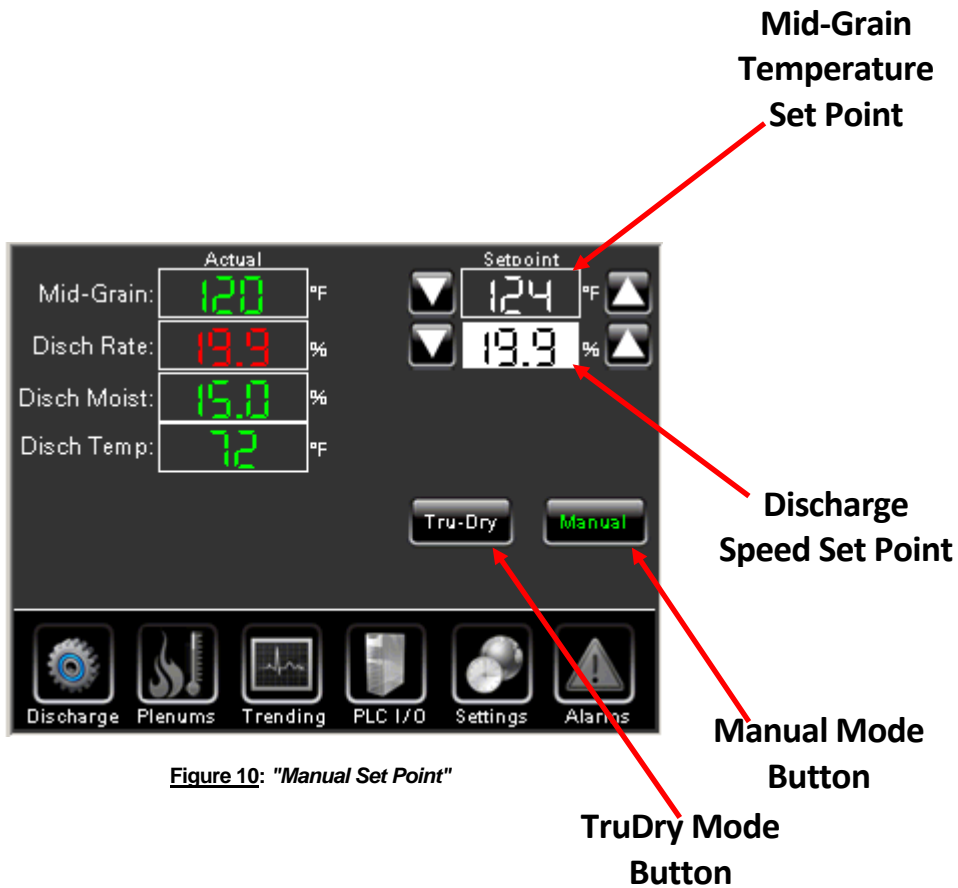


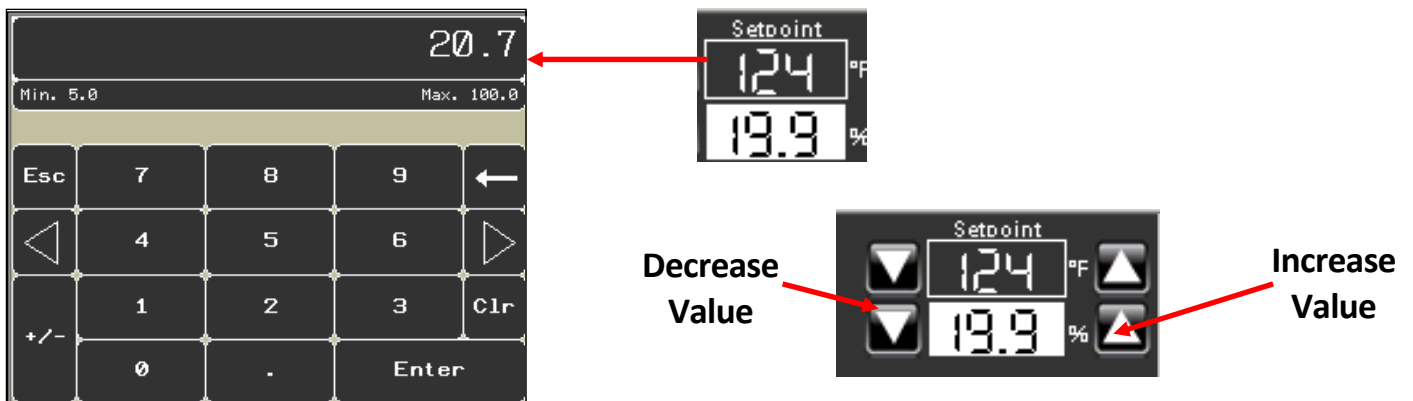
Figure 10: "Manual Set Point"



There are two options available to change the *Set Point Temperature* or the *Discharge Rate*:

- 1.) Click on the actual number present in either the Set Point Temperature Value or the Discharge Rate field(s).

Once you click on the actual number on the HMI, a numerical keypad will pop up.



**Figure 11:** "Set point Numerical Keypad"

- 2.) You can also change the value by touching the up or down arrows next to the set points.

### Discharge Mode

Choose between *Manual* or *TruDry* discharge mode. Manual mode shows the discharge rate whereas TruDry, which uses an average mid-grain temperature, shows the set point and actual mid-grain temperature values.



**Figure 12:** "TruDry and Manual Selection"



### TruDry Mode

By touching the **"TruDry"** button, you are enabling the system to run in an automatic discharge mode. Within this mode, the only thing that can be changed is the mid-grain temperature setpoint. The discharge percentage speed will be automatically controlled by the PLC.

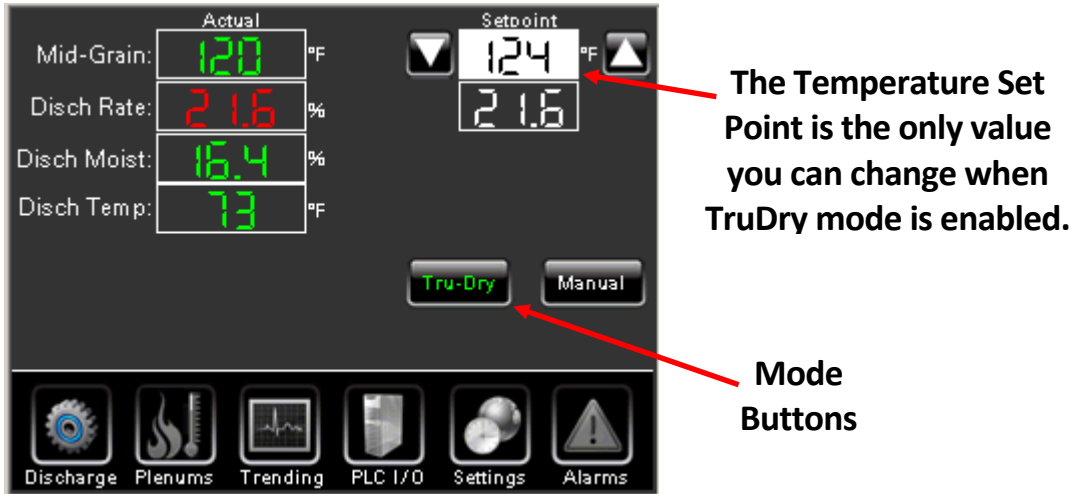


Figure 13: "TruDry Selection Screen"

### Plenum Temperatures

Each plenum's temperature is controlled by means of a digital temperature controller which is mounted on the gas train of the dryer. Local or remote operation of the plenum temperature controllers is done either at the dryer or at the remote control cabinet by means of the communication that is established between the Pinnacle Lite HMI and the temperature controllers. As a result of this arrangement, setting plenum temperature set points is accomplished via communication to the temperature controllers located at the dryer. Similar to the average mid-grain temperature, the *Plenums* screen display actual values and set points. The actual plenum temperatures are measured by either a thermocouple (*Legacy & Infinity Series*) or an RTD (*Tower Series*). Additionally, the output of the controller is shown in % Output which corresponds to the commanded voltage output by the controller to the gas control valve(s).

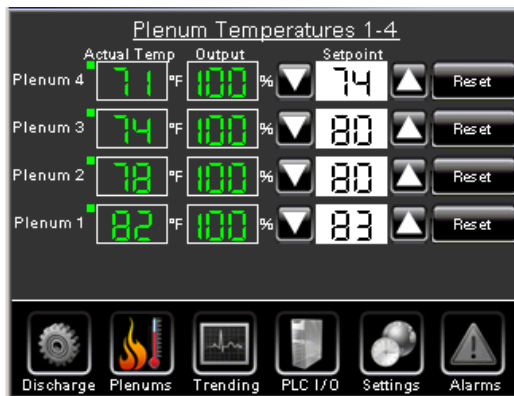


Figure 14: "Plenum Temperature Screen"



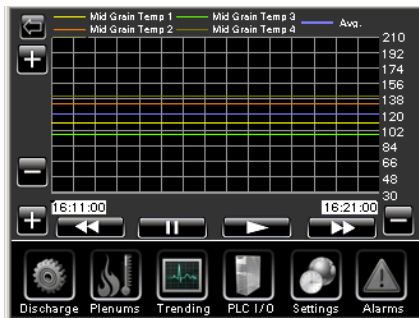
## Data Trending

Individual trending graphs are available to provide the user with the ability to review the operating data of the dryer. For further data analysis, a button is provided to copy files to a USB flash drive.

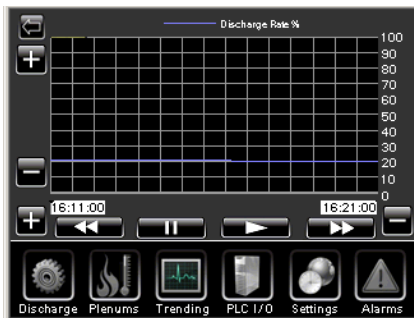


**Figure 15: "Data Trending Chapter"**

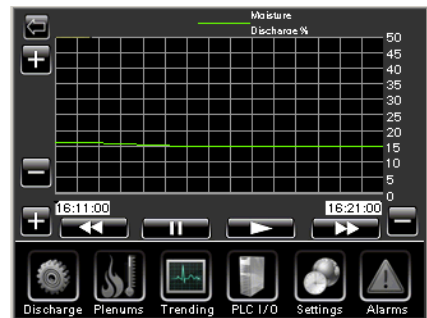
Up to five (5) trending screens are available depending on features installed, including plenum temperature(s). Note that the operator may zoom in and out of the data by click on the Plus or Minus on the left side and bottom side of the screen.



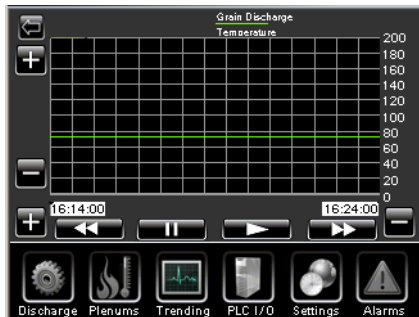
**Figure 17: "Mid-Grain Temperature Trending Chart"**



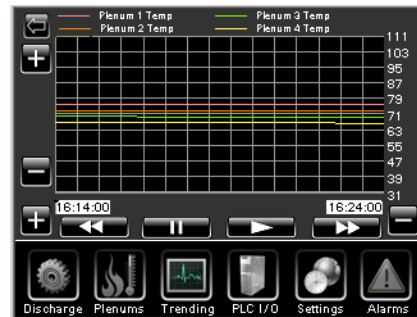
**Figure 16: "Discharge Rate Trending Chart"**



**Figure 18: "Moisture Trending Chart"**



**Figure 19: "Discharge Grain Temperature Trending Chart"**



**Figure 20: "Plenum Temperature Trending Chart"**

By touching the trend graph, the operator is presented with the ability to view the underlying data that is being recorded in a tabular format.



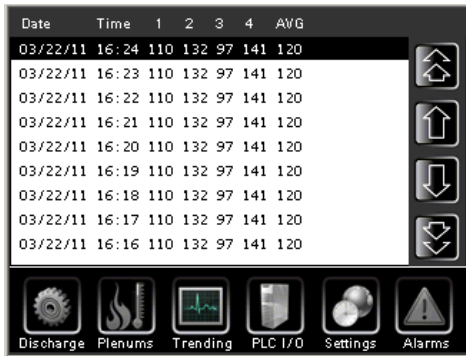


Figure 22: "Mid-Grain Temperature Trend Data"

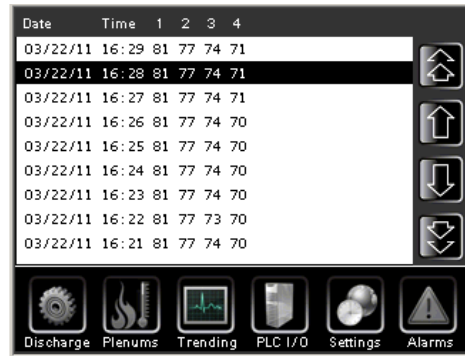


Figure 23: "Plenum Temperature Trend Data"

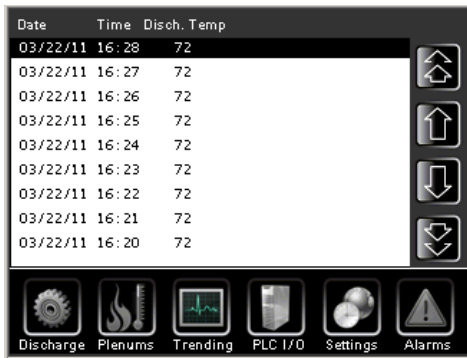


Figure 21: "Discharge Temperature Trend Data"

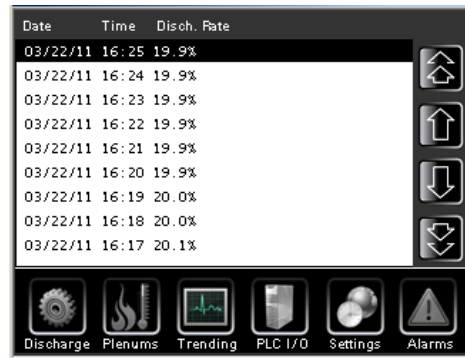


Figure 24: "Discharge Rate Trend Data"

## Data Summary

By clicking on the *Data Summary* button you can see a summary of the most pertinent trend data.

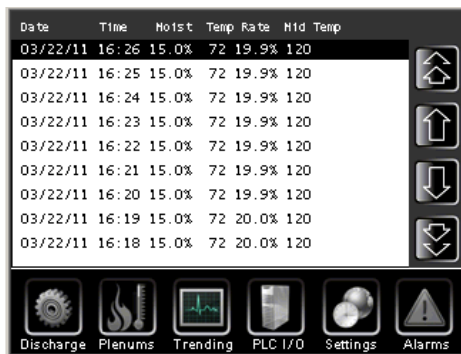


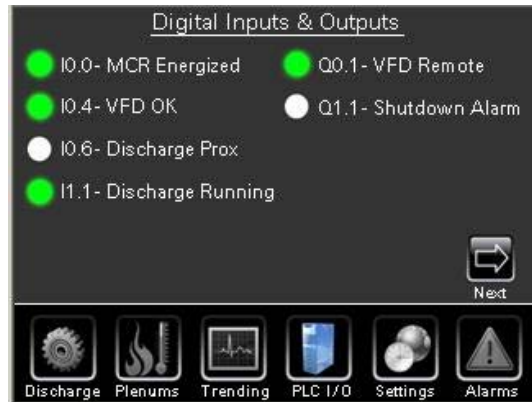
Figure 25: "Data Summary Trending Data"



## PLC Inputs & Outputs

Click the *PLC I/O* icon on the bottom menu bar to navigate to the *Digital Inputs & Outputs* screen. These screens allow the user to monitor the operation of the PLC in real time.

On the *Digital Inputs & Outputs* screen, an illuminated green bulb will indicate that a signal is on and white will appear when it is off.



**Figure 26: "Digital Inputs & Outputs Screen"**

### IO.0- MCR Energized

If green, the control power is on and the safety circuit is functioning properly.

### IO.4- VFD OK

If green, the *VFD* is not exhibiting a fault. If a fault is generated, the bulb will turn white. This could indicate a discharge *VFD* alarm if the discharge and the metering rolls or the sweep system is running when the fault occurs.

### IO.6- Discharge Prox

The *Discharge Prox* turns green at intervals in conjunction with the speed of the discharge. When the discharge is running, the proximity sensor input will be continuously toggled based on the rate of discharge. If the proximity sensor does not change within a predetermined amount of time, an alarm indicating a discharge fault will be generated.

### I1.1- Discharge Running

When the discharge is running, this bulb will be green.



**Q0.1- VFD Remote**

A green light indicates communication between the VFD and the PLC. If the PLC fails or is turned off, this output is no longer sent to the VFD and manual adjustment of the VFD by a service professional may be necessary.

**Q1.1- Shutdown Alarm**

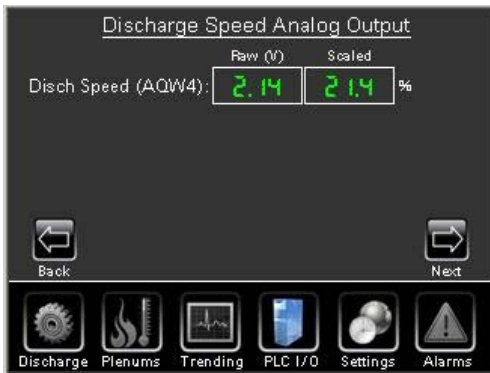
Indicates the presence of a shutdown alarm.

Press the "Next" arrow in the bottom right corner of the display to advance to the *Analog Output* screen.

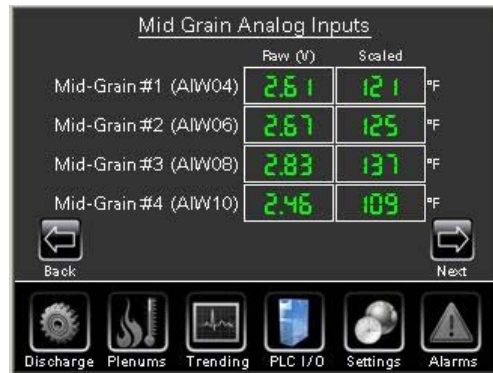
The analog screens display the signal voltages to and from the PLC as well as the scaled values.

The *Analog Output* screen shows the discharge speed data, which displays as a percentage of the motor speed capacity, similar to the display on the overview page.

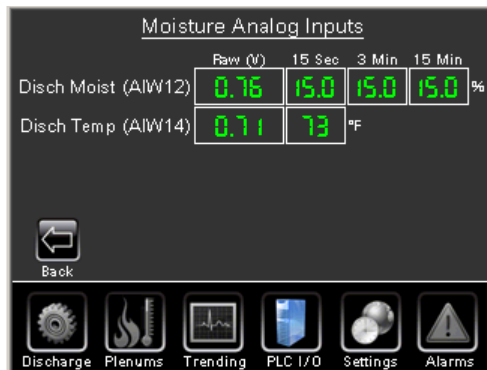
Advancing to the next screen, *Mid-Grain Analog Inputs*, the four (4) mid-grain temperatures are shown with separate readings from each of the probes which get averaged together to comprise the actual mid-grain temperature displayed on the Discharge page. Advancing again to the final analog input screen will take the user to the *Moisture Analog Inputs* which contains similar data along with rolling averages.



**Figure 28: "Analog Outputs"**



**Figure 27: "Mid-Grain Analog Inputs"**



**Figure 29: "Moisture Sensor Analog Inputs"**





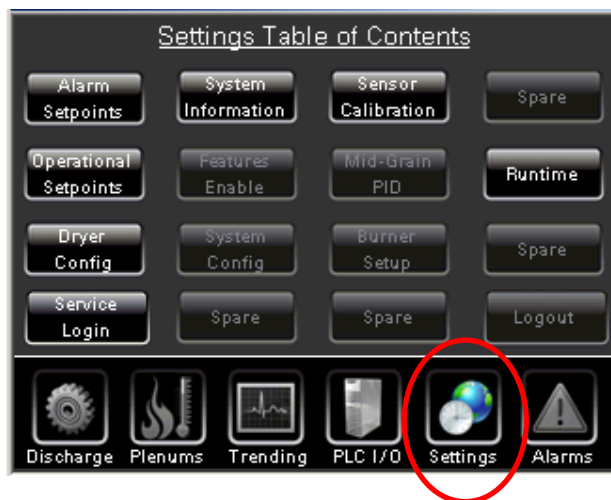
## Section 3: Configuration

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### Settings Table of Contents

Dryer control system configuration is handled from the Settings Table of Contents. Many of these settings are programmed at the factory before the dryer is shipped and there should be no need to change them. Fields with a gray background are not modifiable. Those with a white background may be changed, however note that a password is required to change certain factory settings.

Push the Settings button on the navigation bar. From there, the *Settings Table of Contents* chapter will appear and from here you will be able to navigate through the different dryer configurations. This screen will help you set up the Alarm Set Points, Operational Set Points, Dryer Configuration, System Information, Runtime, Sensor Calibration, and allow for factory and dealer personnel to work on the dryer.



**Figure 30:** "Settings Table of Contents"



## Set Points

### Alarm Set Points



**Figure 31: "Alarm Set Point Screen"**

By clicking on the white fields a key pad will pop up. There you can enter the desired value for your alarm set points

To get more help, click the "?" button to display additional information about a particular field or button. Click "**Return**" to take you back to the *Settings Table of Contents*.

#### Mid-Grain Band:

If the actual grain temperature is below the lower band when the discharge is running in auto, a mid-grain band alarm will occur after 30 seconds. If the actual grain temperature is above the upper band, a mid-grain band delay will occur after 30 seconds regardless if the discharge is running or not.

#### Mid-Grain Band Delay:

The mid-grain band delay is a user-defined time duration that will delay the shutdown of the dryer after the mid-grain band warning alarm has occurred. If the mid-grain band delay is set to 10 minutes, the dryer will shutdown 10 minutes after the mid-grain temperature warning alarm has occurred.

#### Discharge Moisture Low Limit:

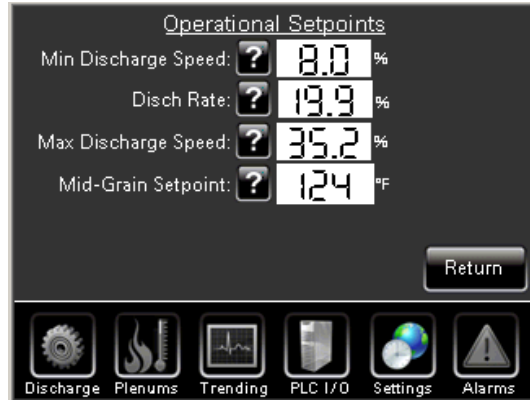
The discharge moisture low limit alarm set point is a discharge moisture value that will trigger an alarm when the value drops below the discharge moisture low limit set point for duration of 5 minutes while running.



**Discharge Moisture High Limit:**

The discharge moisture high limit alarm set point is a discharge moisture value that will trigger an alarm when the value exceeds the discharge moisture high limit set point for duration of 5 minutes while running.

**Operational Set Points**



**Figure 32: "Operational Set Points Screen"**

By clicking on the white fields a key pad will pop up. There you can enter the desired value for your operational set points.

To get more help, click the "?" button to display additional information about a particular field or button. Click "Return" to take you back to the *Settings Table of Contents*.

**Minimum Discharge Speed:**

The minimum discharge speed set point is the lowest possible discharge speed allowed by the dryer. When the discharge speed is manually adjusted the lowest possible value allowed is the minimum discharge speed set point.

**Discharge Speed:**

The discharge speed is the measured speed of the discharge metering in % when the discharge system is running. It is calculated as a percentage of the maximum possible speed of the discharge system.



### Maximum Discharge Speed:

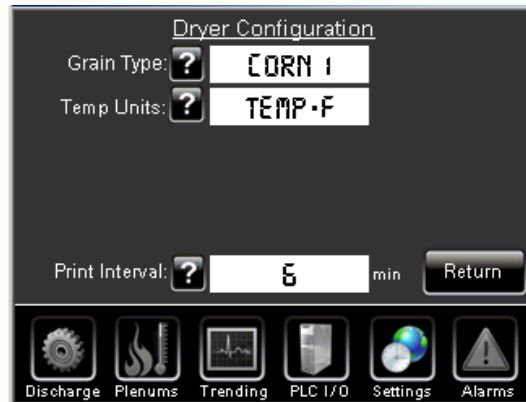
The maximum discharge speed set point is the highest possible discharge speed allowed by the dryer. When the discharge speed is manually adjusted the highest possible value allowed is the maximum discharge speed set point.

### Mid-Grain Temperature Set Point:

The mid-grain temperature setpoint refers to the target mid-grain temperature that the dryer will attempt to maintain during automatic discharge control. For ease of adjustment, this value can also be entered on the overview.

## Dryer Configuration

The *Grain Type* can be selected to permit the user to note which grain is being processed. The temperature units being used may also be changed here. If this is changed, confirm the operational and alarm set points are correct based on the temperature unit's change.



**Figure 33: "Dryer Configuration Screen"**

To get more help, click the "?" button to display additional information about a particular field or button. Click "**Return**" to take you back to the *Settings Table of Contents*.

### Grain Type:

Select the grain type you are processing.

### Temperature Units:

Select the desired temperature units, °F or °C.



## System Information

Within the *System Information* screen, you can review the serial number and model number of the dryer. Additionally, you can set the date and time by pressing on the date and time fields. The model number and serial number are set at the factory and can only be changed by service personnel.



Figure 35: "System Information Screen"

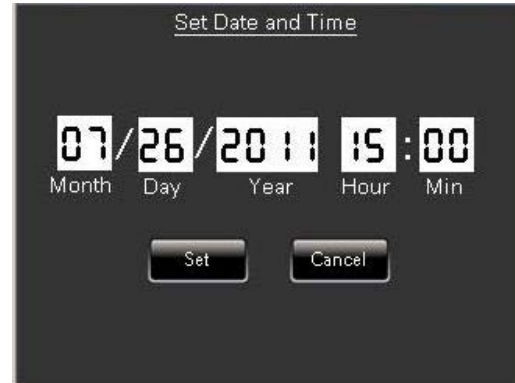


Figure 34: "Set Date and Time Screen"

## Moisture Sensor Calibration

There are two modes of moisture calibration available to the user: (1) A simple calibration mode and (2) An advanced calibration mode.

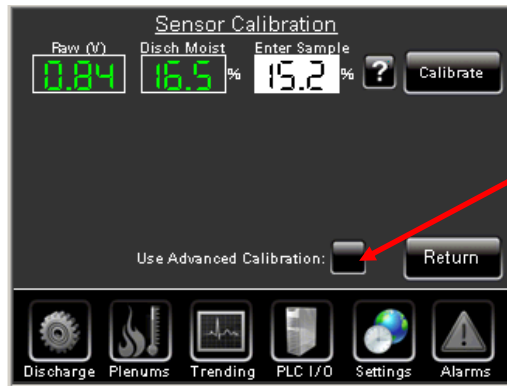
Using the simple method, the operator will take a sample of grain and test the moisture content using a suitable grain moisture testing instrument. The moisture value determined is then entered in the field marked *Enter Sample* and saved to the PLC by pressing the "**Calibrate**" button; this will update the calibration being used. The operator will see the Discharge Moisture value change to align the displayed moisture value with the measured sampled grain. There are limitations with this method of calibration:

1. Only one data point is being used by the Pinnacle Lite system to determine the correlation between sensor voltage and the moisture of the grain.
2. It is assumed that the sensor has a linear relationship over the range of moisture being sampled and that a zero (0) value signal from the moisture sensor means the moisture value is 0% (y-intercept value of 0).

Experience has shown that the simple calibration approach is only accurate over a small range of moisture values. It is important to understand that repeated single point calibrations would be required for a wider range of moisture which requires continuous operator intervention. In order to make the calibration of the moisture sensor more accurate over a wider range of moisture and minimize operator intervention with this process, the advanced calibration feature must be used.

Advanced calibration is selected by pressing the "**Advanced Calibration**" button.





Press this button to enable Advanced Calibration.

Figure 36: "Sensor Calibration"

### Advanced Calibration

Instead of entering the actual moisture of the sampled grain and pressing the **"Calibrate"** button, the user is able to accumulate multiple sample points and align them with the data that the Pinnacle Lite recorded at the time the sample was taken.

Note that the operator can delete or add calibration points. Each time a point is deleted, changed or added, the *Proposed Calibration* is changed. Additionally, the operator may manually enter the calibration if the values have been determined elsewhere. Points that have been entered may be also viewed on a plot.

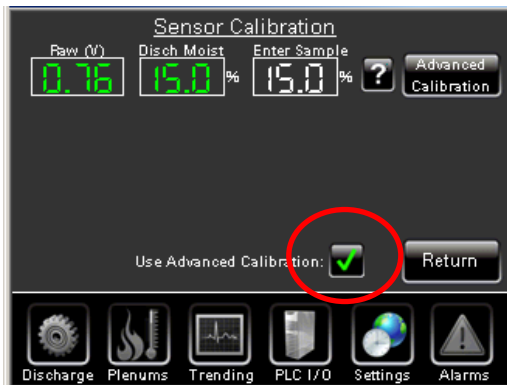


Figure 38: "Advanced Calibration"

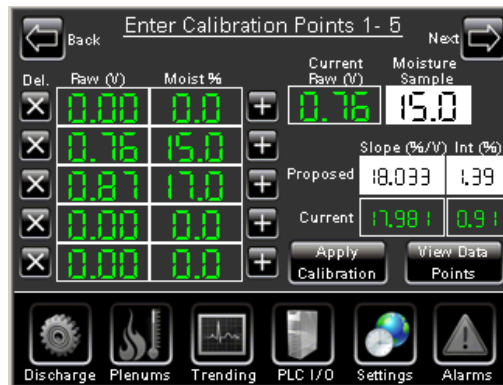


Figure 37: "Advanced Calibration Point Screen"

To get more help, click the "?" button to display additional information about a particular field or button. Click **"Return"** to take you back to the *Settings Table of Contents*.

#### Discharge Moisture Calibration:

When you have determined the moisture of the grain with your moisture sampling equipment, enter the actual value. When the calibrate button is pressed the new calibration value will be used.

#### Advanced Calibration:

Use multiple data points to achieve a calibration based upon a range of moisture values being used.



The operator may enter up to ten (10) sample points which are displayed in a table on the left of the calibration screen; note that there are two pages of calibration points which can be accessed by pressing the next or back buttons.

The two fields *Slope* and *Int* refer to the calibration slope and Y-intercept. The white fields are the proposed values. Each time a data point is added or removed the "Proposed" values are updated.

**Advanced Calibration Procedure:**

1. Note the *Current Slope* and *Intercept* values – If you are changing the grain type and wish to return to a previous calibration, you can use these values to quickly restore the calibration.
2. Make sure that grain is moving past the grain sensor.
3. Take a sample of grain from the sampler point by the moisture sensor and using a suitable grain moisture tester determines the actual moisture of the grain. It is assumed that the temperature of the grain being sampled is not too hot for the moisture tester.
4. Enter the actual moisture value in the "Moisture Sample" field on the screen.
5. Add the sample by pressing the "+" button next to one of the table entries for which you have not yet entered a value.

Del.	Raw (V)	Moist %	
X	0.00	0.0	+
X	0.76	15.0	+
X	0.87	17.0	+
X	0.00	0.0	+
X	0.00	0.0	+

6. You can delete a calibration point by pressing the "x" next to the table entry.
7. Each time you add or delete a calibration point you will see the *Proposed Slope* and *Int* values change.
8. Note that you can add calibration points 6-10 by pressing the next arrow button at the top of the screen.

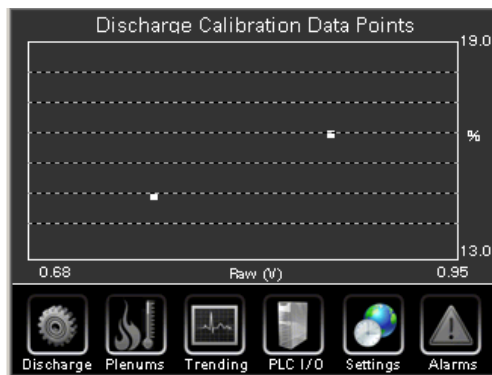


Figure 39: "Discharge Calibration Data Points"



9. View the data points in a graph by pressing the "**View Data Points**" button.
10. Once you are satisfied with the calibration points you have recorded, pressing the "**Apply Calibration**" button will update the calibration being used and the proposed calibration will now equal the current calibration.

**Note that if you wish to return to the previously established calibration, you can re-enter the values that you recorded in step 1.**

## Runtime

Clicking on the Runtime button will display the Total Hours and Reset Hours.



Figure 40: "Dryer Run Time"



Figure 41: "Dryer Run Time Reset Hours"

Pressing the "**Reset Hours**" button will reset the total hours accumulated.

To get more help, click the "?" button to display additional information about a particular field or button. Click "**Return**" to take you back to the *Settings Table of Contents*.

### Total Hours:

The total hours is an hour counter that refers to the total number of hours that the dryer has been in operation.

### Resettable Hours:

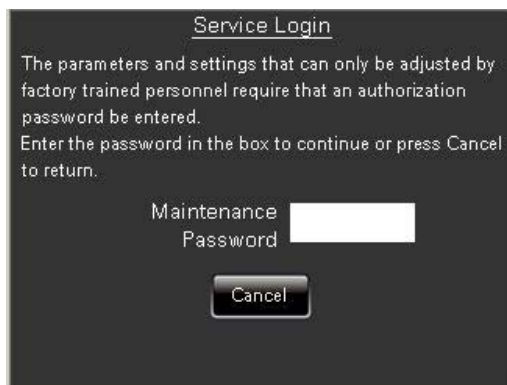
The resettable hours is an hour counter that refers to the number of hours that the dryer has been in operation over a defined length of time.





## Service Login

The Service Login screen is for factory and dealer personnel only. This screen contains material that is critical to your machine and contains fragile data to help operate your machine at its peak performance.



**Figure 42: "Service Login Screen"**



## Section 4: Troubleshooting

### Alarms

Alarms are presented to the user in two ways: (1) As pop ups when the alarm condition occurs as well as (2) A recorded event in the *Alarms* chapter. When an alarm condition occurs, a popup will appear on the screen detailing the reason for the alarm and what type of alarm it is. Press the "**Accept**" button to acknowledge the alarm and return to the previous screen.

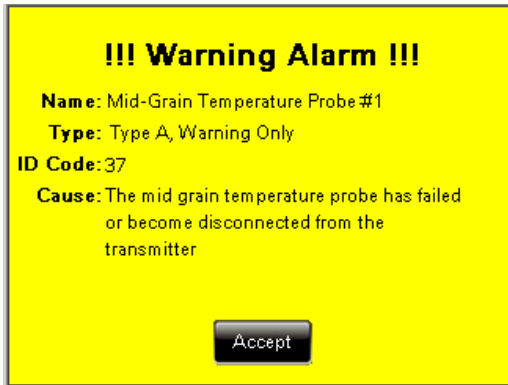


Figure 44: "Warning Alarm Pop up Screen"



Figure 43: "Shutdown Alarm Pop up Screen"

To navigate to the alarm list, press the *Alarms* icon on the bottom navigation bar. The alarm list shows a brief description of the alarm as well as the date it was recorded.

Alarms that have been acknowledged are shown in yellow. Alarms that have been resolved appear in green.

Scroll to the right using the scroll bar or arrows to show the date of the alarm and the date that it was accepted from the initial pop up.

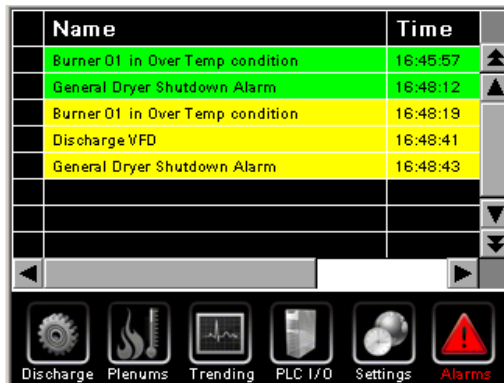


Figure 45: "Alarms Page Screen"

## Alarm Troubleshooting Messages

Alarm Popup Name	Alarm ID Code	Type	Cause
General Dryer Shutdown Alarm	1	Type C, System Shutdown	The MCR has become de-energized due to lost power or a tripped safety circuit.
Mid-Grain Band	35	Type A, Warning Only	The mid-grain temperature has exceeded or dropped below the mid-grain band alarm set point for a duration of 30 seconds.
Mid-Grain Band Delay	36	Type C, System Shutdown	The mid-grain temperature has exceeded or dropped below the mid-grain band alarm set point for the duration of the mid-grain band delay.
Discharge Moisture Low Limit	29	Type A, Warning Only	The discharge moisture has dropped below the discharge moisture high limit set point for duration of 5 minutes while the discharge metering is running.
Discharge Moisture High Limit	30	Type A, Warning Only	The discharge moisture has exceeded the discharge moisture high limit set point for duration of 5 minutes while the discharge metering is running.
Discharge VFD	25	Type C, System Shutdown	The Discharge VFD has detected a fault due to a possible overload of metering system.
Discharge Failure	28	Type C, System Shutdown	The Discharge metering system has stopped running. The proximity sensor is not detecting rotation of the metering system.
Mid-Grain Temperature Probe # 1 Failure	37	Type A, Warning Only	The mid-grain temperature probe has failed or become disconnected from the transmitter.
Mid-Grain Temperature Probe # 2 Failure	38	Type A, Warning Only	The mid-grain temperature probe has failed or become disconnected from the transmitter.
Mid-Grain Temperature Probe # 3 Failure	39	Type A, Warning Only	The mid-grain temperature probe has failed or become disconnected from the transmitter.
Mid-Grain Temperature Probe # 4 Failure	40	Type A, Warning Only	The mid-grain temperature probe has failed or become disconnected from the transmitter.
Mid-Grain Temperature Probe #1 Transmitter	41	Type A, Warning Only	The mid-grain temperature probe transmitter in the junction box has failed or become disconnected.
Mid-Grain Temperature Probe #2 Transmitter	42	Type A, Warning Only	The mid-grain temperature probe transmitter in the junction box has failed or become disconnected.



<b>Mid-Grain Temperature Probe #3 Transmitter</b>	43	Type A, Warning Only	The mid-grain temperature probe transmitter in the junction box has failed or become disconnected.
<b>Mid-Grain Temperature Probe #4 Transmitter</b>	44	Type A, Warning Only	The mid-grain temperature probe transmitter in the junction box has failed or become disconnected.
<b>Temperature Controller 01 in Alarm</b>	51	Type C, System Shutdown	Temperature Controller 01 has experienced an over temperature condition
<b>Temperature Controller 02 in Alarm</b>	52	Type C, System Shutdown	Temperature Controller 02 has experienced an over temperature condition
<b>Temperature Controller 03 in Alarm</b>	53	Type C, System Shutdown	Temperature Controller 03 has experienced an over temperature condition
<b>Temperature Controller 04 in Alarm</b>	54	Type C, System Shutdown	Temperature Controller 04 has experienced an over temperature condition
<b>Temperature Controller 05 in Alarm</b>	55	Type C, System Shutdown	Temperature Controller 05 has experienced an over temperature condition
<b>Temperature Controller 06 in Alarm</b>	56	Type C, System Shutdown	Temperature Controller 06 has experienced an over temperature condition
<b>Temperature Controller 07 in Alarm</b>	57	Type C, System Shutdown	Temperature Controller 07 has experienced an over temperature condition
<b>Temperature Controller 01 in Alarm</b>	61	Type C, System Shutdown	Temperature Controller 01 has experienced an under temperature condition
<b>Temperature Controller 02 in Alarm</b>	62	Type C, System Shutdown	Temperature Controller 02 has experienced an under temperature condition
<b>Temperature Controller 03 in Alarm</b>	63	Type C, System Shutdown	Temperature Controller 03 has experienced an under temperature condition
<b>Temperature Controller 04 in Alarm</b>	64	Type C, System Shutdown	Temperature Controller 04 has experienced an under temperature condition
<b>Temperature Controller 05 in Alarm</b>	65	Type C, System Shutdown	Temperature Controller 05 has experienced an under temperature condition
<b>Temperature Controller 06 in Alarm</b>	66	Type C, System Shutdown	Temperature Controller 06 has experienced an under temperature condition
<b>Temperature Controller 07 in Alarm</b>	67	Type C, System Shutdown	Temperature Controller 07 has experienced an under temperature condition



## General Troubleshooting

Issue	Possible Cause(s)	Solution
<b>MCR is de-energized</b>	Lost power or tripped safety circuit	-Perform a step-by-step check of each unit on the safety circuit until you find the problem.
<b>HMI screen is blank</b>	<ol style="list-style-type: none"> <li>1. Main disconnect is off</li> <li>2. LED in left hand corner is not functioning</li> </ol>	<ul style="list-style-type: none"> <li>-Make sure power is on.</li> <li>-Check to see that the 24 VDC power supply is on</li> <li>-Check the LED on the power supply in the high voltage cabinet</li> <li>-Confirm that the 24 VDC breakers are on.</li> </ul>
<b>Screen shows yellow triangles by one or more data values</b>	<ol style="list-style-type: none"> <li>1. Communication with the PLC has failed.</li> <li>2. PLC is not on.</li> <li>3. Main disconnect is not on.</li> <li>4. LED in the left hand corner of the HMI is not on.</li> <li>5. The PLC is not on.</li> </ol>	<ul style="list-style-type: none"> <li>-Check that the Ethernet cable to the high voltage cabinet is connected.</li> <li>-Check inside the remote cabinet and verify the Ethernet switch is on. This will be indicated with a red LED power light.</li> <li>-Check that the PLC in the high voltage cabinet is on.</li> </ul>
<b>Discharge jam fault</b>	<ol style="list-style-type: none"> <li>1. Too much wet material in the metering rolls.</li> <li>2. Proximity switch is not detecting movement.</li> <li>3. VFD is not programmed correctly.</li> </ol>	<ul style="list-style-type: none"> <li>-Clear out wet grain.</li> <li>-Check the I/O screen when the metering rolls start to see if the LED turns on and off. This can also be monitored by observing the proximity switch.</li> <li>-Make sure VFD parameters are programmed correctly. Contact dealer or factory for assistance.</li> </ul>



Section 5

Section 5: Notes

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