



# BINMANAGER<sup>®</sup>



Part of the online software solution  
AGI SURETRACK



AGI SURETRACK

QUESTIONS? Call 855.678.6971



## AGI BINMANAGER<sup>®</sup>

# USER GUIDE

BINMANAGER<sup>®</sup>  
COMPLETE GRAIN MANAGEMENT



GROW FOR A PURPOSE



**DANGER!**  
LIVE WIRES  
BEHIND  
THIS PANEL



Do not touch wires evenly to remove panel

AGISURETRACK.COM

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Congratulations on the purchase of your new AGI BinManager®, the industry's leading grain bin management solution. With this purchase, you are taking your grain management to the next level. Gain peace of mind knowing that your grain is safe in the bin. The system will alert you to any issues that arise and give you 24/7 access to your grain bin data.

Since 2007, AGI BinManager has been installed in bins in 48 states and 5 countries. We continuously hear stories about how AGI BinManager has improved our customers' storage operations, and we are excited to hear how it improves yours.

**IMPORTANT Customer Service : 855-293-5607**

### YOUR DEDICATED AGI SURETRACK™ COACH:

**Name:**

**Phone:**

**Email:**

# WHY AGI BINMANAGER?

## AGI BINMANAGER IS DESIGNED AND BUILT TO:

- Run fans and heaters at optimal times conditioning grain to precise targets
- Detect progress and refine operations based on readings within the grain
- Use measurements of outside air and plenum air to refine operation
- Allow 24/7 access to your grain bin data through your AGI SureTrack FARM™ account and the AGI SureTrack mobile app
- Easily set target goals and view results along the way
- Sound alarms to warn of hotspots or faults in operation

## HOTSPOT ALERTS

AGI BinManager is always measuring grain temperature to check for existing or developing hotspots. It identifies hotspots in two ways:

1. **If a sensor is really hot - over a set temperature threshold**
2. **If it detects a consistent temperature increase in an area of the grain**

If a hotspot is detected, AGI BinManager notifies you with a text and/or email alert. It then begins to treat the hotspot by starting the fans to push cooler air over the grain. Even if it is currently set in a “drying” mode, it will refocus to a “cooling” mode until the cool air from the fans treat the hotspot.

## ACTUAL IN-GRAIN DATA

Unlike other management systems, AGI BinManager operates as a “closed loop” control system. It measures and reports actual grain moisture which is used to determine when and how long to run the fans and/or heaters.

With this closed loop system, AGI BinManager is able to accurately and reliably condition grain to precise moisture and temperature targets. AGI BinManager uses data about the grain to continually fine-tune the process. It will get increasingly discriminate about the air going through the grain as moisture content across the grain mass gets closer and closer to target.

## IN-GRAIN SENSOR DETECTION

AGI BinManager automatically detects the number of sensors covered in grain, which helps manage the whole grain mass precisely and uniformly. Sensors measuring highly varying temperatures over the course of time are identified as out of grain and in the headspace. Sensors measuring consistent temperature patterns over time are identified as in-grain.

It takes a period of time for AGI BinManager to determine which sensors are in-grain and which are not. Therefore, when you first load the bin, you'll want to assign the number of sensors covered in-grain in the specific bin settings page. (NOTE: If you are unsure of the number of sensors in-grain, it is best to select fewer sensors so the headspace temperature and moisture doesn't affect the data captured from the in-grain sensors.) This will “kickstart” AGI BinManager to run the fans right away. You'll also want to set the Sensor Level Detection setting to “Auto.” In “Auto” AGI BinManager will detect changes in grain level, which will help it precisely manage the grain mass. If AGI BinManager sensor level detection is not set to Auto, please reach out to customer support to have this function enabled.

## TRANSFER DATA RELIABLY

AGI BinManager was designed to communicate large quantities of data. It communicates within its components to ensure that it runs correctly. It is also constantly communicating data to your AGI SureTrack FARM™ account so that you can view its progress and make setting changes. AGI SureTrack goes to great lengths to ensure that the data collected from your AGI BinManager is secure. Data is stored on a number of servers across the country to prevent loss, and it is password-protected to prevent unauthorized access. AGI SureTrack' policy is to never share data without authorization from the owner of that AGI BinManager.

Data from AGI BinManager is transferred via a cell network to the AGI SureTrack' servers. When your AGI BinManager system is installed, the installer selects the best, most reliable cell network in your area. However, should there ever be a period of unreliability (like you would experience with a dropped call), don't worry! AGI BinManager does not need the cell network to do its job. The computer programs that run it are on-site at the bin, running all the time. Even if AGI BinManager is “offline” and you're not seeing new data, it's still operating correctly. AGI SureTrack will work with you to get it back online quickly so you can keep monitoring the progress of your grain.

# SAFETY

## SAFETY IS #1

Grain storage management comes with particular dangers and hazards that we, at AGI SureTrack, want to make sure you avoid. Please carefully read all safety precautions below. If you have any questions or doubts at any time regarding safety, immediately contact your AGI SureTrack Coach.

## ZERO ENTRY BINS



Our strict policy at AGI SureTrack is to make grain-filled bins zero-entry to avoid risk of grain entrapment. AGI BinManager is designed to avoid entry into the bin by removing the need to manually probe grain or climb the bin for any reason. **No part of our system requires entry for maintenance.**

## DO NOT COMPLETE YOUR OWN INSTALLATION!



AGI SureTrack supplies its own trained installation team to install your AGI BinManager system. Installation includes work around and on top of bins, and our installation team abides by strict safety protocol and uses appropriate safety equipment at all times. Should you recognize an issue with AGI BinManager that would require scaling the bin to assess components on the roof, please first contact your AGI SureTrack Coach to discuss the problem; the issue could be remedied in another manner.

## FANS MAY TURN ON AT ANYTIME!



When the AGI BinManager system is on, it continually assesses conditions and evaluates when to run fans or heaters. Fans and heaters could start at anytime and without warning.

If manual work on fans and/or heaters is needed:

1. **Turn off the AGI BinManager system using the On/Off switch on the Control Box**
2. **Cut all power to the breakers connected to the fans/heaters**

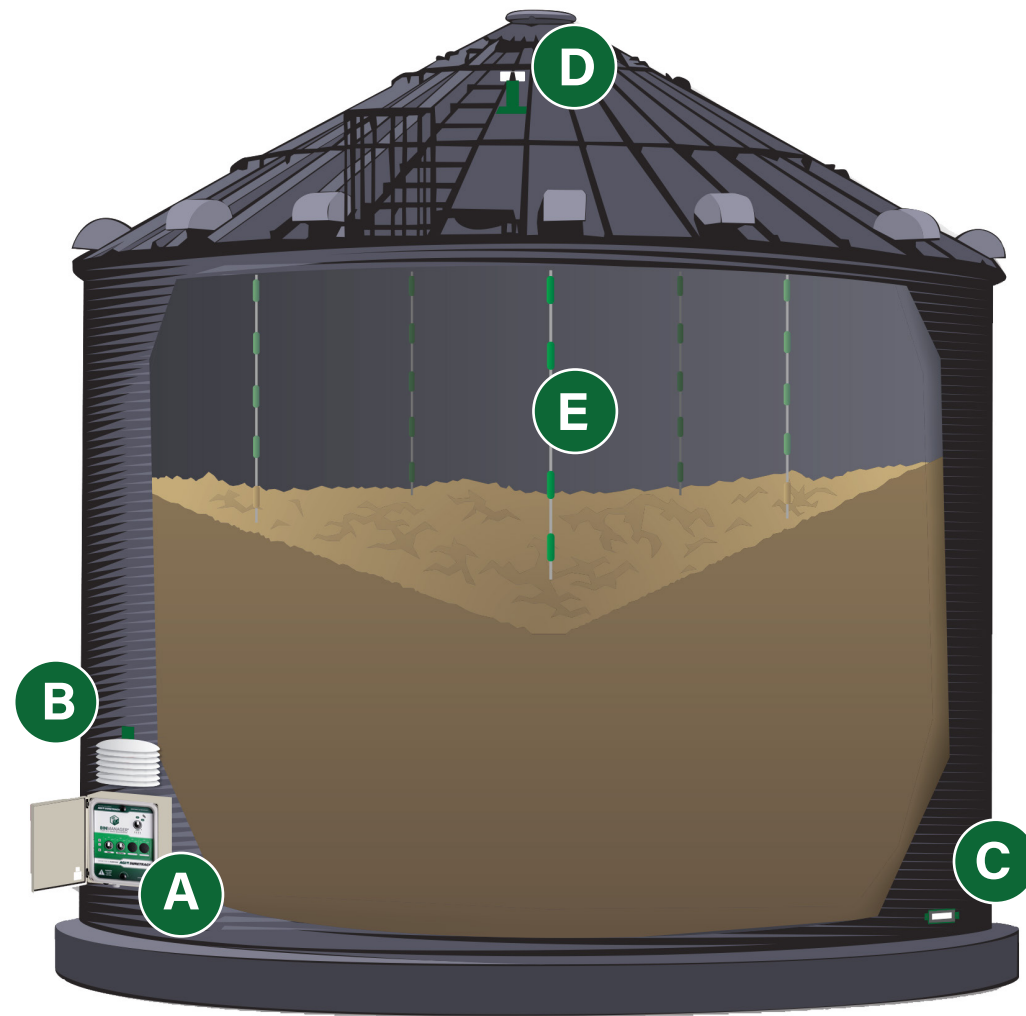
## DO NOT TOUCH HIGH-VOLTAGE WIRES BEHIND THE SWITCH PANEL

AGI BinManager connects directly to the same high-voltage that runs the bin fans and heaters. There is exposed wiring behind the panel inside the Control Box. If you remove the Switch Panel, please note the wiring on the Relay Switch Module (RSM) and Power Switch Module (PSM) are high-voltage. Please use extreme caution, these wires and connectors present an electrocution hazard which can cause injury or death.

All other connections to AGI BinManager components, such as the Weather Station, Wireless Controller, Cables and APS are low-voltage connections of 24VDC or less.

# AGI BINMANAGER COMPONENTS

## SYSTEM DIAGRAM



- A** Control Box
- B** Weather Station
- C** Air Properties Sensor (APS)
- D** Communications Box
- E** Sensor Cables

### **A** CONTROL BOX

The Control Box is the part of the AGI BinManager system that controls the fans and heaters by assessing data from other pieces of the system. It is also the power source for all other components. It is mounted on the bin wall, close to a fan. Each Control Box can manage four devices (fans or heaters). *For larger bins, there may be multiple Control Boxes, customized to your bin with the correct number of switch modules needed. All Control Boxes are equipped with Bluetooth connection.*

#### **IMPORTANT**

The Control Box is designed with a waterproof seal and should be latched shut after every use.

### **B** WEATHER STATION

The Weather Station provides accurate and reliable information about the temperature and relative humidity of the outside air. This information is used to determine optimal times to run fans and heaters. The Weather Station may be mounted on the side of the bin close to the Control Box. If there are multiple AGI BinManagers in a grain bin area ("cluster"), some will not have weather stations; they will run off information from the AGI BinManagers that do have weather stations.

### **C** AIR PROPERTIES SENSOR (APS)

The APS measures the temperature and relative humidity of the air in the plenum. It also measures air pressure to check fan operation. Some APS are equipped to measure CO<sub>2</sub>. The APS is installed on the side of the bin in the plenum space between the ground and the bin floor. There can be an additional APS installed on the roof.

#### **IMPORTANT**

Percentage values shown for both the weather station and APS Plenum reflect EMC%, Equilibrium Moisture Content Percentage. This number is not the same as relative humidity.

### **D** COMMUNICATIONS BOX

The Communications Box processes data from the Sensor Cables, delivers commands to the Control Box(es) and transmits data from your bins to your secure AGI SureTrack FARM™ account. The Communication Box is mounted on the bin roof.

### **E** SENSOR CABLES

All Sensor Cables have sensors that are spaced between 4 foot and 2 foot increments to simultaneously measure moisture and temperature within the grain. The data captured is used to automatically condition grain to your precise targets. The cables are mounted from the outside of the roof and down through the bin and anchored to the floor.



AGI BinManager Control Box

### CONTROL BOX COMPONENTS

The Control Box is very customizable and configurable based on the needs and goals of your operation. No matter the given configuration of your Control Box, the following parts are included in every system:

#### SWITCH PANEL

The Switch Panel is the cover inside the Control Box, containing labels and LED lights to direct you to the correct knobs and alerts. The Switch Panel is held in place by magnets making it easy to remove and place on the bin for safe keeping while you work on the inside of the box.

#### POWER SUPPLY MODULE (PSM)

The PSM is located behind the Switch Panel and takes input power (90VAC to 480VAC) and converts it to a low 24VDC in order for the system to operate.

#### RELAY SWITCH MODULE (RSM)

Directly behind the Switch Panel is the connection to the power source (120VAC to 480VAC). The fan and heater connections are also located here (contactors up to 480VAC standard). A Control Box may contain up to four RSMs. Each one is a switch for a fan, heater or generator. Each can handle up to 2A and 90 to 480VAC.

#### BLUETOOTH CAPABILITY

Each AGI BinManager Control Box comes with built-in Bluetooth connectivity to allow for on-site readings via the AGI SureTrack mobile app. (See Appendix E for more information on Bluetooth connectivity.)

# BEFORE YOU FILL YOUR BINS

## WHAT YOU NEED TO KNOW BEFORE YOU FILL YOUR BIN(S) FOR THE FIRST TIME

A certified, safety-trained AGI SureTrack installer should have already installed your AGI BinManager, which is customized to the specifications of your bin. Once your system has been installed, there are a few things you need to do to get AGI BinManager ready for use.

### 1. BRING POWER TO YOUR BIN



ELECTRICIAN  
NEEDED!

An electrician is needed, AGI SureTrack' installers are not electricians. The installer made all the connections between the pieces of the system. However, your electrician will need to make a permanent power connection to a high-voltage source (90V to 480V). This connection is to the AGI BinManager Power Switch Module. No earth ground or protective ground connection is needed or provided for.

### 2. WIRE YOUR FAN AND HEATER CONTROL LINES



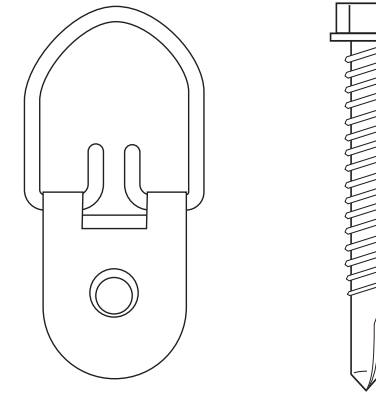
ELECTRICIAN  
NEEDED!

Your electrician must wire the control lines from the AGI BinManager Relay Switch Modules to the existing fan and heater controls. It is important that wiring match the labeling on the Control Box panel. Please contact your AGI SureTrack Coach with questions.

For reference, see Electrician's Reference Card inside the Control Box.

### 3. TIE DOWN YOUR SENSOR CABLES

Double check that the Sensor Cables in the interior of the bin are tied down to the bin floor. The installer will typically do this, if possible. It is important that the cables are securely tied down before loading the bin. This will prevent cables from being pushed to the side of the bin instead of accurately placed within the grain for crucial temperature and moisture readings. Cables can easily be secured using fishing line and a fastener (provided). For maximum support, ensure you use braided fishing line that is at least 100# weight and doubled up on each cable. We recommend this is done every season to insure cables are in the proper placement before filling the bin.



Cable fastener rings and screws are included.

### 4. SET THE CONTROL BOX SWITCHES TO THE CORRECT POSITIONS

- A. Set the Control Box power switch to the "On" position. The lights will confirm that it has power and is on.
- B. AGI SureTrack recommends that fan and heater switches be placed in the "Auto" position. If a switch is in the "Off" position, the fan will not run, even if directed to by AGI BinManager. If it is in the "On" position, it will run continuously, without direction from AGI BinManager, which could be counterproductive to your goals.

**NOTE** Electrician's Reference Card information can also be found in Appendix D (page 39) of this manual.

### INITIAL SETUP OF YOUR AGI SURETRACK FARM™ ACCOUNT

Now that AGI BinManager is physically installed at your bin(s), you must activate your AGI SureTrack FARM™ subscription and setup your secure online account. This setup will only need to be done once. The following steps will walk you through the process.

Before you get started, have the following available:

- Username/password information (provided at time of installation)
- Access to a web browser from a smartphone, tablet or computer (Google Chrome, Firefox, Safari or Microsoft Internet Explorer)

#### AGI SureTrack FARM™ Account: Step-by-step guide to activating and setting up your account

1. Before accessing the online account, verify all AGI BinManager power switches are in the "On" position. The LED lights in the Control Box will confirm power is on.
2. Gather Location Serial Numbers (LSN) for each AGI BinManager, found on the outside of the Control Box.

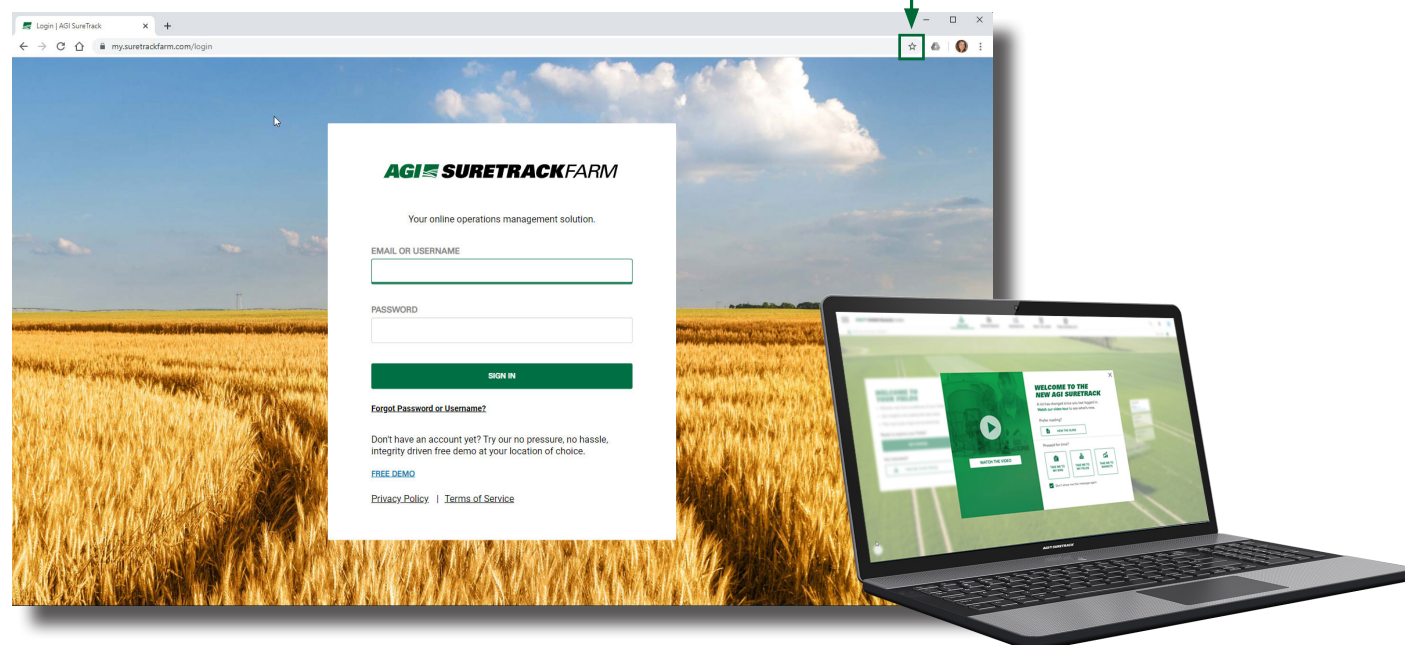
### IMPORTANT

If more than one AGI BinManager system has been installed, you will need to verify that correct settings are entered for each system.

3. Login to your AGI SureTrack FARM™ account. To access, go directly to [my.suretrackfarm.com](http://my.suretrackfarm.com). Or navigate to [www.agisuretrack.com](http://www.agisuretrack.com) and click the "LOGIN" button in the upper right corner of the page.

### HINT

Before you login, bookmark this login screen for easy access in the future or download a desktop app for instant access.



4. On the login screen, enter your username and password. If you are accessing your account for the first time use the username and password provided to you by the installer.

### NOTE

For your online security, you will be prompted to change your password the first time you access your account.

### HINT

Record the new password in a safe location for future use.

If you cannot find your username and password, contact your AGI SureTrack Coach (Customer Service Representative) at 855-293-5607 or email [support.digital@aggrowth.com](mailto:support.digital@aggrowth.com) or contact your dealer.

5. Once you login, you will see a message to redeem your SureTrack FARM™ subscription or logout. If you are ready to begin your subscription, click **REDEEM**.
6. You will automatically be taken to the Account Preferences page for a quick walk-through tutorial.
7. Once the tutorial is complete, you will need to review the account settings tabs to ensure all information is correct and up-to-date (Account, Address, Users, Subscriptions, Data Sharing.)
8. Once you complete the review of the Account Preferences page, click the Account icon in the lower left hand corner for the User Menu, select "**EDIT USER PROFILE**."

# ACCOUNT SETUP

- In the Account section, update all contact information including: address, billing, market access, users, trusted advisors, and unit preferences. In users, be sure to set an alternate phone number and email for additional security.

**NOTE** This information will be used for alert notifications and customer service contact.

The screenshot shows the 'Account' section of the AGI SureTrack Farm dashboard. The 'Address' tab is selected, and the 'BILLING ADDRESS & SHIPPING ADDRESS' section is active. A checkbox for 'Billing Address Same as Shipping' is checked. Below this, there are input fields for Street, City, Country, State/Province, and Zip/Postal code. A green 'SUBMIT' button is located at the bottom right of the form. The left sidebar contains navigation links for Account, Address, Billing, Farms, Commodities, Users, Connections, and Assets. The top navigation bar includes 'AGI SURETRACK FARM', 'DASHBOARD', and 'EQUIPMENT'.

- Once you are done with user profile updates, click the red bar "SUBMIT" to save your updates.

# ALERT PREFERENCES

GETTING STARTED

## SETTING ALERT PREFERENCES:

The first screenshot shows the 'Profile' section of the AGI SureTrack Farm dashboard. The 'Alerts' tab is selected, and the 'CONTACT INFORMATION' section is active. It contains input fields for First Name, Last Name, Email, Alternative Email, Primary Phone Number, and Alternative Phone Number. Below this is the 'ADDITIONAL OPTIONS' section with a 'Unit Preference' dropdown menu and a 'Username' input field. A 'SEND ALERT TESTS' button is visible. The second screenshot shows the 'Alerts' section of the dashboard. The 'GENERAL' tab is selected, and the 'DO NOT DISTURB' section is active. It includes radio buttons for 'Default (9PM - 7AM)', 'Custom Time Frame', and 'Alert me anytime!'. There are also checkboxes for 'Receive Text Alerts' and 'Receive Email Alerts'. An 'UPDATE SETTINGS' button is at the bottom.

- Still within the User Profile section, click on the second sidebar entry entitled "ALERTS." In the first tab (General), you can control your Do Not Disturb hours. All accounts are initially set to the default times of 9PM - 7AM. You can set your own custom time frame or deactivate the Do Not Disturb feature and receive notifications as they occur. Any notifications that occur during your selected Do Not Disturb hours will be sent as soon as those hours are over.

You have additional tabs of alerts by pillars. Under the Equipment tab you will see a list of notifications specific to AGI BinManager. All notifications are pre-selected, AGI SureTrack strongly encourages you to keep them all selected. However, you have the option to deselect any you do not wish to be notified of. Save changes by clicking the "UPDATE SETTINGS" button at the bottom of the page.

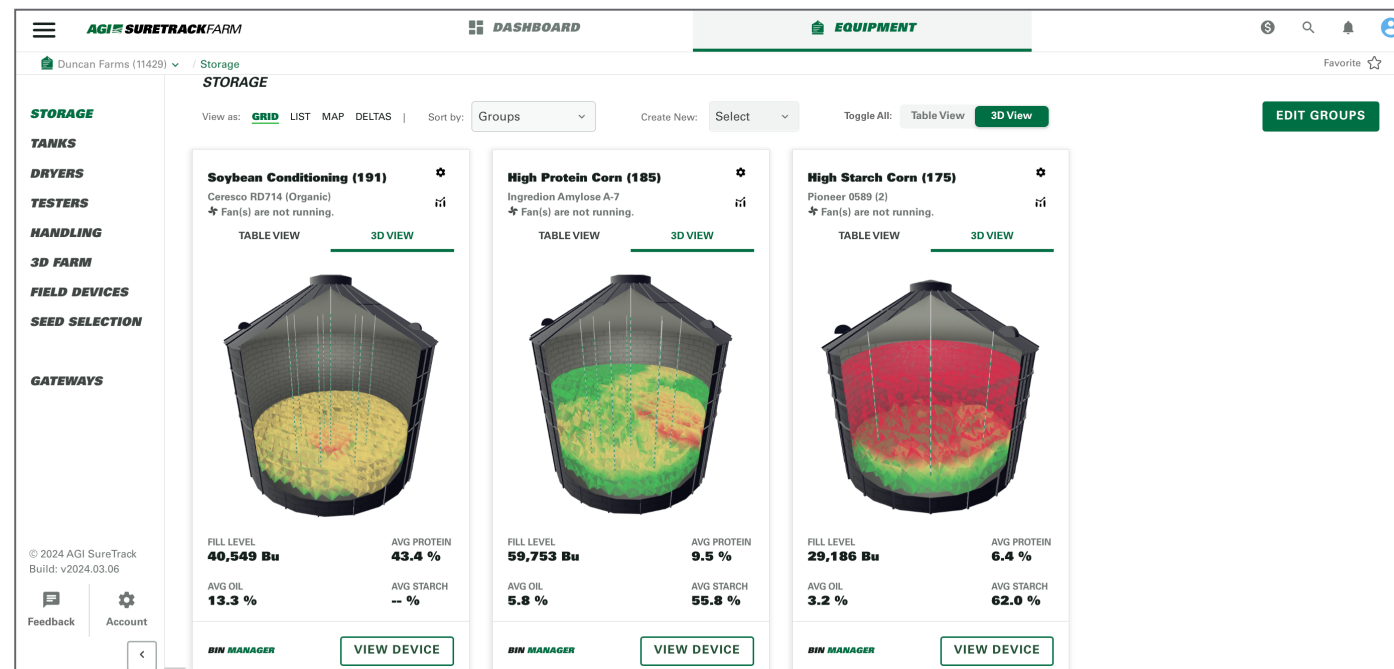
- Once you have viewed or updated your Alert Preferences, go back to the top profile tab on the left and click the "SEND ALERT TESTS" button. This will ensure your alerts are working appropriately and being sent to your email and phone. If you do not receive alerts after sending the test, please contact your AGI SureTrack Coach at 855-678-6971.

Your initial AGI SureTrack FARM™ account is now complete, this is a one-time setup that can be modified at any time.

### ESTABLISHING AGI BINMANAGER SETTINGS

**IMPORTANT** This section illustrates how to establish bin settings and **MUST** be done every time you store a new product in the bin.

Navigate back to your dashboard, by clicking the **EQUIPMENT** pillar on the top of the page. Click **STORAGE** at left. Find the device you would like to set-up and click **VIEW DEVICE**.

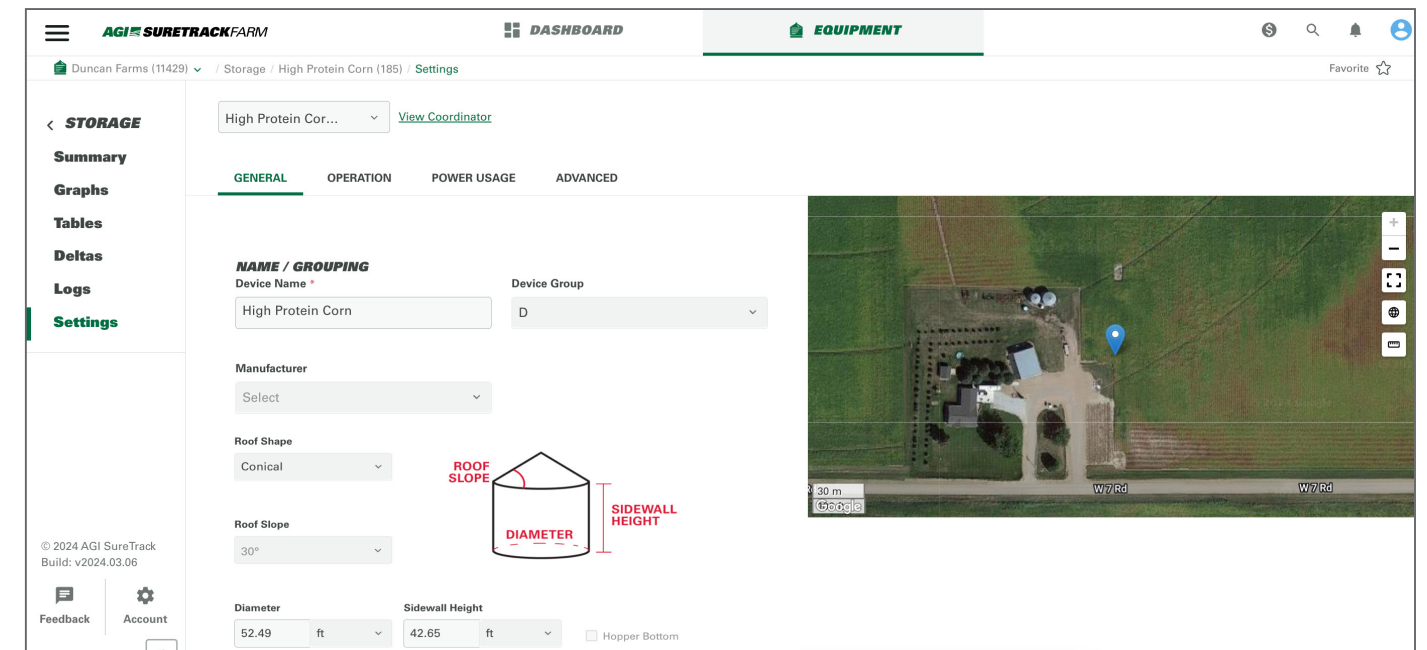


**HINT** Have your bin identifiers (LSN) available for this section the first time you login.

All bins connected to a AGI BinManager will appear in grid format, pre-populated according to the LSN.

**HINT** Name your bins in a way that you know where they are and what they are holding by clicking Settings and entering under **DEVICE NAME**

You will need to establish settings for each bin individually. To edit, click the **SETTINGS** on the left sidebar.



There are 4 tabs across the top of the settings page:

- **GENERAL SETTINGS**
- **OPERATION**
- **POWER USAGE**
- **ADVANCED**

### GENERAL SETTINGS

The most crucial tab is **GENERAL SETTINGS**. The information in this tab controls how AGI BinManager runs in order to hit your targets.

#### 1. Set Product under **OPERATION** tab

Select commodity type and variety that will be going into this particular bin.

**NOTE:** If bin is empty, set this as **EMPTY**.

### IMPORTANT

Selecting the right commodity is crucial, it will manage for that specific grain characteristics by using Equilibrium Moisture Content (EMC) curves.

### RECOMMENDED

AGI SureTrack recommends you submit a sample of your grain to the AGI SureTrack Grain Lab to determine its Equilibrium Moisture Content (EMC) curve. This will provide AGI BinManager the precise data needed to dry down/rehydrate your grain to its target levels. Once you have an EMC curve custom to your grain, it will be available for you to select in the Variety drop-down menu in the Commodity section.

**Don't know your specific variety?** Choose the option from the "**GENERIC**" section of the drop down that is closest your commodity. Then send in a sample to the SureTrack Grain Lab.

#### 2. Set Sensor Level Detection

Sensor level detection should be set to Auto so that the system can detect grain when filling or emptying the bin. If the system reflects Manual sensor level detection, please reach out to customer support to have this adjusted.

#### Importance of selecting the correct number of sensors in-grain:

- If you select too few, the system will not use sensors that are in the top part of the grain mass.
- If you select too many, you will enable sensors in the headspace. Those headspace sensors will measure the temperature and moisture of the headspace and may create some false hotspot alarms.
- If you have multiple cables and your grain is unlevel, one cable may have fewer sensors covered than another. If this is the case, it is best to use the cable with fewest sensors covered. Select the number of sensors in-grain on that cable.

#### 3. Set Heater Availability

Let the system know if there is a heater available or not. If you have an electric heater, please call customer support to make adjustments to the system so that the heaters will operate properly.

#### 4. Select Your Operation Mode

Select the Operation Mode then select your temperature and/or moisture targets in the next drop downs. Please work with your AGI SureTrack Coach to select the best mode for your needs.

### NOTE

There are several potential operating modes, all serving different functions. See Appendix A for more detail on each mode. In most cases, AGI SureTrack suggests leaving in Auto Dry/Cool mode.

#### 5. Save Settings

Once all settings have been set, click "**UPDATE SETTINGS**" at the bottom of the page.

Your first bin is now setup and ready to go!

### NOTE

There are additional tabs available, such as Remote Commands, Power Share Settings, Blackout Settings and more. Information on these additional tabs can be found in Appendix A.

### MAINTAINING YOUR AGI BINMANAGER

AGI BinManager is designed and manufactured at the AGI SureTrack headquarters in Lenexa, KS. Before being delivered to our customers, each system undergoes extensive product quality assurance testing to ensure ease of use and durability. As a result, maintenance needs are minimal.

### KEEP THE CONTROL BOX DRY

The most important thing for your AGI BinManager is to keep the door of your Control Box firmly latched when you are not using it. This keeps moisture clear of the electronic controls behind the Switch Panel.

### REPLACE FUSES AS NECESSARY

You may need to replace a fuse if one opens. Replacement fuses are attached to the backside of the Switch Panel in your Control Box. Simply pull out the panel, which is held in place by magnets, flip it over and you'll see spare fuses held in place. Remove blown fuse with the fuse puller, replace old fuse and then return fuse puller with new fuse to original spot.

You can get additional replacement fuses from AGI SureTrack. If you buy elsewhere, use this guide:

- **RSM fuse:** 600V 3.15A slo blow5x20mm Littlefuse PN 04773.15MXP
- **PSM fuse:** 600V 3.15A slo blow5x20mm Littlefuse PN 04773.15MXP

## CAUTION

Power should be shut off anytime you work with fuses, wires and electrical components of AGI BinManager.

### SOFTWARE UPGRADES

You will never need to manually upgrade the software for AGI BinManager, it is a wireless-based system. AGI SureTrack is able to automatically update software on a regular basis. Your AGI SureTrack Coach will notify you of any software or hardware overhauls that will impact your usage of AGI BinManager.

### CUSTOMER SERVICE AND SUPPORT

AGI SureTrack customer support staff is ready to answer questions and help you work through any necessary troubleshooting. Simply call **855-293-5607** and request to speak to your personal AGI SureTrack Coach. For prompt service, have the bin name or LSN information on-hand.



### AGI SURETRACK FARM™ MOBILE APP

Whether you are on-site at your bins, or out to dinner, quickly connect with your AGI BinManager unit(s) and get real-time readings with the free AGI SureTrack FARM™ mobile app. It is easy to find and install for both iPhone and Androids.

Access the most up-to-date instructions on AGI BinManager anywhere you need, go to [www.agisuretrack.com](http://www.agisuretrack.com) then Click **COMMUNITY** and **RESOURCES**.

## APPENDIX A: INDIVIDUAL BIN SETTING OPTIONS

Below is information on the capabilities available within the **ACCOUNT SETTINGS** tabs:

### OPERATIONS

This section is crucial for how AGI BinManager functions to meet your specific target goals. You will set your commodity and variety, set sensor levels, denote if a heater is available and set your operating mode.

## IMPORTANT

This section **MUST** be updated every time you store a new crop in the bin.

## HINT

See pages 25-32 for specific information on "Operating Mode Settings."

# INDIVIDUAL BIN SETTINGS

## REMOTE COMMANDS

Request a report from the bin at any given time.

## POWER SHARE SETTINGS

If you have a cluster of bins that are sharing power sources, you may face certain power limitations or have need to share the power to a certain degree. Within the Power Share Settings, you can enable a staggered start, load sharing or generator sharing for certain bins and also define the fan start delay (in number of seconds). Once you save your changes, your AGI SureTrack Coach will be notified. AGI will contact you to confirm changes, as these are vital components for AGI BinManager's performance.

## BLACKOUT SETTINGS

This setting allows you to indicate time periods when you do not want the fans to run. This setting will stop fan activity during those times. This is typically used to keep peak power usage down during specified times that your power company may have increased costs. Please consult your power company and your AGI SureTrack Coach before administering this change.

Click "ENABLE" at the bottom of the page to make changes. It is recommended to set start time(s) a minimum of 5 minutes before the expected peak power usage. Leave all values for Blackout Period B as "0" to enable only Blackout Period A. Click the save checkmark in the bottom right hand corner.

## LOAD CONTROL SETTINGS

Assign your devices to a local electric utility's remote control system to allow them to automatically prevent your fans from running during high load periods.

## SWITCH ASSIGNMENT

Switches on your Control Box are assigned to control a particular fan or heater on your bin; this ensures AGI BinManager calls the correct equipment to run.

Edits can be made to this configuration to match any changes at your bin. Use the Switch Configuration Options reference guide to request switch assignment changes. Please note switch assignment changes can only be made by your personal AGI SureTrack Coach. Changes are made remotely, however no settings will be made until confirmed by phone.

## LOCATION/DETAILS

Update and view details of your device, including location, name and bin dimensions. Create and update groups for easier organization and management.

## SELECTING YOUR OPERATING MODE (GENERAL SETTINGS TAB)

This section provides a comprehensive picture of each Operating Mode for guidance on which to use. Please always consult with your AGI SureTrack Coach regarding your selected Operating Mode to ensure the correct mode is used for your goals.



When **MONITOR ONLY** is selected, AGI BinManager will not automatically run your fans and heaters, even if a hotspot is present fans will not automatically run.

- **When to run:**  
Use this mode if you only want to monitor the sensors, such as temperature or moisture in-grain, or the Weather Station and APS.
- **Usage notes:**  
If you select **MONITOR ONLY**, the only other settings to make would be **COMMODITY** and **SENSOR LEVEL DETECTION**.

## IMPORTANT

Establishing your settings correctly is crucial to ensure the success of AGI BinManager and your storage goals. If you have any questions, please contact your AGI SureTrack Coach at 855-293-5607.

### OPERATION MODE: AUTO DRY/COOL

This operating mode is the usual mode for AGI BinManager when there are Sensor Cables included. In this mode, AGI BinManager will automatically condition the grain in two phases: first, AGI BinManager will dry the grain; second, AGI BinManager will cool the grain to the desired temperature, only after the grain has reached the desired moisture level.

This is the recommended operating mode for all systems.

- **When to run:**  
In the **AUTO DRY/COOL** mode, the fans will run as long as the incoming air, measured by the APS, is dry enough and/or cool enough. If a heater is enabled, the AGI BinManager may use the heater to dry the incoming air to an ideal moisture.

In addition to selecting **COMMODITY** and **SENSOR LEVEL DETECTION**, also select the following settings:

#### DESIRED TEMPERATURE

The ideal temperature AGI BinManager will cool to, after the grain has been dried.

#### DESIRED MOISTURE

The ideal moisture AGI BinManager will dry to.

#### HEATER AVAILABILITY

- **DRY THEN COOL without a heater**  
When the settings are made and the **HEATER** option is set to **UNAVAILABLE**, AGI BinManager will run the fans when the outside air will dry the grain, but not severely over-dry the bottom. After the grain has been dried to the **DESIRED MOISTURE**, AGI BinManager will run the fans to cool the grain to the **DESIRED TEMPERATURE** without adding moisture to the grain.
- **DRY THEN COOL with a heater**  
When the **HEATER** option is marked as **AVAILABLE**, AGI BinManager will cycle the heater **ON** and **OFF** to hold the incoming air near the **DESIRED MOISTURE** to condition the grain. After the grain has reached the desired moisture, AGI BinManager will run the fans to cool the grain to the **DESIRED TEMPERATURE**.

### AUTO DRY/COOL EXAMPLES:

- **Example #1 of AUTO DRY/COOL without a heater**  
You have corn in the bin and you want it to be dried to about 15%. You believe the corn is about 18% right now. After it is dried, you want the grain to cool to 40°F.

You make the following settings:

**DESIRED MOISTURE** - 15%

**DESIRED TEMP** - 40°F

- **Example #2 of AUTO DRY/COOL without a heater**  
You have corn in the bin and you want it to be dried to about 15%. AGI BinManager is measuring 14% at the bottom and 20% near the top. You are concerned about drying the top more than you are concerned about over-drying the bottom. After it is dried, you want the grain to cool to 40°F.

You make the following settings:

**DESIRED MOISTURE** - 13%

**DESIRED TEMP** - 40°F

Later, when the top has dried to about 16%, you modify the settings to:

**DESIRED MOISTURE** - 15%

**DESIRED TEMP** - 40°F

- **Example of AUTO DRY/COOL with a heater**  
You have corn in the bin and you want it to be dried to about 15%. You make the following settings:

**DESIRED MOISTURE** - 15%

**HEATER** - Available

**DESIRED TEMP** - 40°F

With these settings, AGI BinManager uses outside air without a heater if that air is drier than 15%, and cycles the heater if the outside air is greater than 15%.

- **AUTO/DRY COOL operation below freezing**  
AGI BinManager will use heaters to warm air up above freezing for the drying portion of the auto dry/cool operation. Auto dry/cool will NOT freeze grain. Running fans when it's below freezing requires selection of below freezing operation within the AGI SureTrack FARM™ settings. You must check the box to accept all risk.

**NOTE** Heaters are required for below freezing operation.

# INDIVIDUAL BIN SETTINGS

## OPERATION MODE: AUTO HYDRATE

You must have Sensor Cables to use this operation mode. AGI BinManager uses the measurements from the Sensor Cables to automatically set the limits of the incoming air, depending on the state of the grain. In the **AUTO HYDRATE** mode, the fans will run as long as the incoming air, as measured by the APS, will condition the grain toward the **DESIRED MOISTURE**.

- **When to run:**  
**AUTO HYDRATE** should only be used when you want to hydrate some or all of the grain in your bin. Use **AUTO DRY/COOL** if you only want to dry the grain.
- **Usage notes:**  
In addition to selecting **COMMODITY** and **SENSOR LEVEL DETECTION**, also select the setting: **DESIRED MOISTURE**. This is the ideal moisture level that AGI BinManager will dry to. AGI BinManager will not automatically run a heater in this mode.

### AUTO HYDRATE EXAMPLES:

- **Example of AUTO HYDRATE without a heater**  
You have soybeans in the bin and you want the moisture content to be 13%. By reviewing the measurements of the Sensor Cables you see that the lowest readings are 10% and the highest are 13%.

You make the following setting:

**DESIRED MOISTURE** - 13%

With these settings, AGI BinManager will run the fans at times when the outside air will add moisture to the driest grain, but not when the outside air is so humid that it will add moisture to the grain already at 13%.

## IMPORTANT

When using Auto Hydrate, if any sensors are above the target moisture set, the system will dry those sensors down before hydrating the bin. We recommend using auto hydrate if all sensors are at or below the target moisture desired.

## OPERATION MODE: AUTO COOL

In this mode, AGI BinManager will automatically run the fans to bring the temperature down to the target you specify. In **AUTO COOL** mode, moisture is NOT a primary consideration, so AGI BinManager will run the fans as long as the Weather Station is indicating moisture is 19% or below. As in any operating mode, AGI BinManager will not run the fans if the Weather Station measures a temperature below 32°F unless you have selected below freezing operation within the AGI SureTrack FARM™ settings and you have checked the box to accept all risk.

- **When to run:**  
**AUTO COOL** mode is generally used when warm grain is put in the bin.
- **Usage notes:**  
In addition to selecting **COMMODITY** and **SENSOR LEVEL DETECTION**, you will also need to set **DESIRED TEMPERATURE**. AGI BinManager will run fans until the grain is cooler than the selected temperature.

### AUTO COOL EXAMPLE:

Assume you have put your grain through a dryer to bring the moisture down to 14%. The dryer has heated the grain to about 120°F. You want the fans to run until they cool the grain to 80°F. To do this, set the operating mode to **AUTO COOL**, and set the **DESIRED TEMPERATURE** to 80°F.

## OPERATION MODE: USER CONTROLLED CONDITIONING (UCC)

The UCC mode gives you full control over the air that is used to condition the grain. In UCC mode, a moisture cable is not used as part of the decision-making process of AGI BinManager.

## IMPORTANT

This setting is NOT recommended by AGI SureTrack.

- **When to run:**  
In **UCC** mode, fans will run as long as the incoming air (as measured by the APS) is between the maximum and minimum **MOISTURE** and in between the maximum and minimum **TEMPERATURE**.
- **Usage notes:**  
In addition to selecting **COMMODITY** and **SENSOR LEVEL DETECTION**, also set the following targets:  
**MINIMUM TEMPERATURE**  
**MAXIMUM TEMPERATURE**  
**MINIMUM EMC%**  
**TARGET EMC%**  
**MAXIMUM EMC%**  
**HEATER AVAILABILITY**

### UCC WITHOUT A HEATER:

When the settings are made, and the **HEATER** option is set to **UNAVAILABLE**, then AGI BinManager will run the fans when air is between the maximum and the minimum temperature AND between the maximum and minimum moisture.

### UCC WITH A HEATER:

When the **HEATER** option is marked as **AVAILABLE**, it will cycle the heater **ON** and **OFF** to hold the incoming air to the moisture level you select. This selection is called the **TARGET EMC%**.

# INDIVIDUAL BIN SETTINGS

## UCC EXAMPLES:

### ▪ Example of UCC without a heater

You have corn in the bin and you want it to be dried to about 15%. You believe the corn is about 18% right now. You are not too concerned about cooling at the moment, that will come later.

Make the following settings:

**MAXIMUM EMC%** - 16%

**MINIMUM EMC%** - 13%

**MAXIMUM TEMP** - 80°F

**MINIMUM TEMP** - 40°F

Later, when you believe the corn is at about 16%, you modify the **MAXIMUM EMC%** setting to 15%.

Finally, when the corn is about 15%, you want to cool the grain so you modify the settings to:

**MAXIMUM EMC%** - 16%

**MINIMUM EMC%** - 14%

**MAXIMUM TEMP** - 50°F

**MINIMUM TEMP** - 40°F

### ▪ Example of UCC with a heater

You have corn in the bin and you want it to be dried to about 15%. You believe the corn is about 18% right now. You are not too concerned about cooling at the moment, that will come later. You make the following settings:

**MAXIMUM EMC%** - 16%

**MINIMUM EMC%** - 13%

**MAXIMUM TEMP** - 80°F

**MINIMUM TEMP** - 40°F

**TARGET EMC%** - 14.5%

With these settings, AGI BinManager uses the outside air without a heater if that air is between the MINIMUM and MAXIMUM temperatures when between 13% to 14.5% moisture. When the moisture is ABOVE 14.5%, the heater will turn ON and OFF to maintain an average of 14.5% moisture in the plenum.

 **OPERATION MODE:** THAW OUT

This mode is only to be used when grain is frozen. It allows the grain to thaw gently to avoid condensation, frost pockets or refreezing. If you have questions with this mode please call your AGI SureTrack Coach; this mode should not be activated until certain weather conditions are met.

**IMPORTANT** Thaw out is best utilized in the spring when temperatures are consistently warmer.

## WEATHER CONDITIONS:

- Temperature must be above 32F, both day and night, for at least five days. If no weather pattern fits please wait to contact support to have the system set to Thaw Out.
- A decimal average will need to be calculated and compared to dew point. Please reach out to customer support to make sure that all weather requirements are met before using Thaw Out.

# SYSTEM ALERTS

## APPENDIX B: SYSTEM ALERT NOTIFICATIONS

Each User assigned to an account will have the ability to receive all or some system alerts. Alerts are sent via text message and email to primary and alternate phone numbers and email addresses.

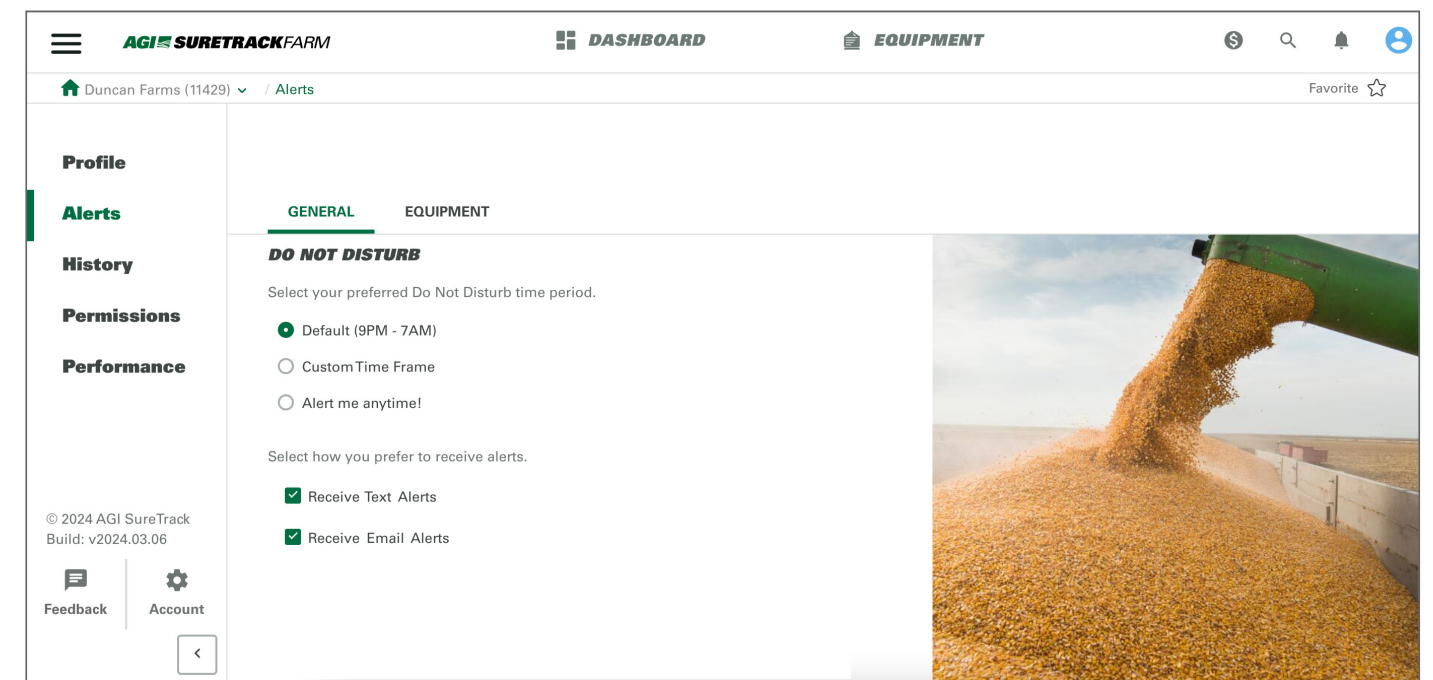
All AGI BinManager alerts are selected for each user by default. Users can modify selected alerts by clicking the Account icon in the lower left hand corner, then Users and select to **CREATE NEW USER** or Edit User. Then select the **"ALERTS"** tab on the left. Deselect any alert the user does not wish to receive.

### HINT

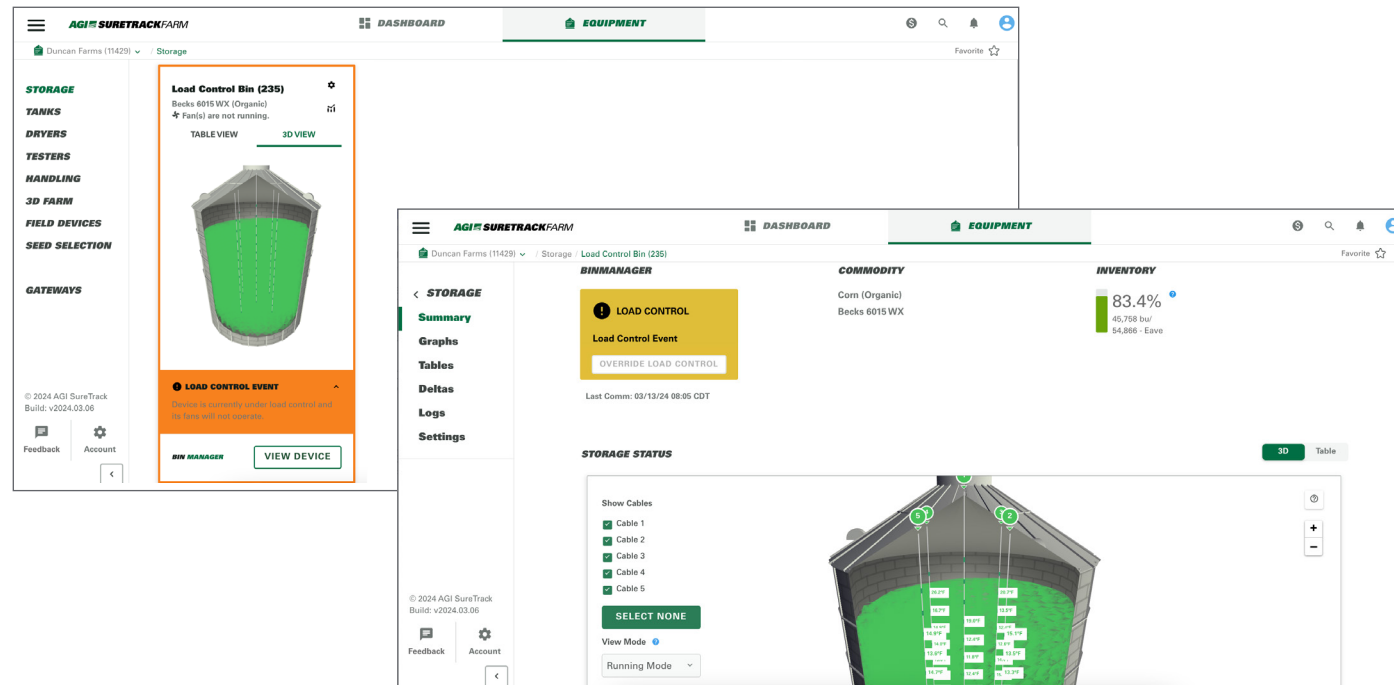
AGI SureTrack recommends keeping all alerts checked, if possible.

In addition to receiving text and/or email alerts, you will also be notified of a system alert when you go to your AGI SureTrack FARM™ account and see a red alert for one of your bins on your dashboard page. In the grid view of the Dashboard page, the bin experiencing an alert will have a warning symbol over it, and the box it is within will be shaded in red. Scroll over the alert status to see the source of the alert.

Remember to set your Do Not Disturb hours. You can keep them at the default times of 9PM - 7AM, create a custom time frame or deactivate the feature to receive notifications as they happen.



In your **STORAGE** Dashboard, a noticeable “Alarm” will be present on the bin deck and when you click device.



When the issues causing the alert have been cleared or resolved, the alert status for the bin will return to “Normal Operation” and you will be sent a Normal Operation alert via text and/or email. In the table view, no alert buttons will appear in the “Alert” column if all is running normally.

### AGI BINMANAGER® SYSTEM ALERTS:

- **Normal Operation**

Notice that the bin has returned to standard working operation after being in an alert state.

- **Hotspot**

AGI BinManager has observed a warming trend on a sensor(s) that is in-grain. Message sent out and displayed is:

*Hotspot detected on cable X sensor X at X degrees. AGI BinManager will attempt to run the fan(s) to clear the hotspot. If the hotspot continues without clearing, AGI SureTrack recommends that you contact your AGI SureTrack Coach to identify the cause and possible remedy of the hotspot.*

- **Data Expiration Warning**

A month out from the expiration date of your data plan or your SureTrack FARM™ subscription, you will be sent notifications of the impending expiration date. You will be given the option to renew your Data Services plan or purchase/renew a SureTrack FARM subscription.

- **WS/APS Sensor Failure**

AGI BinManager has detected a sensor failure in the Weather Station or Air Properties Sensor. Notify your AGI SureTrack Coach about this to diagnose the cause of the problem and for next steps to address the issue.

- **Missed Communication**

This AGI BinManager is not currently communicating with the AGI SureTrack server. This may be due to an electrical problem at the bin or bin power may have been shut off. If there is power to the bin, please contact your AGI SureTrack Coach to discuss the issue.

- **Heater Failure**

AGI BinManager has attempted to cycle the available heaters but did not see a significant increase in temperature in the plenum. This alert can be an indicator that the fuel is empty for the heaters or there is an issue with ignition on the heater. It is recommended that you verify the heater is able to operate prior to contacting your AGI SureTrack Coach.

- **Low Static Pressure**

AGI BinManager has attempted to turn ON fan(s) but did not observe sufficient static pressure. This alert can also indicate a problem with the fan or breaker. It is recommended that you ensure your fan is fully operational prior to contacting your AGI SureTrack Coach.

- **Node Loss Alert**

If you have multiple bins in a cluster, there is one bin that all other bins report to and that bin feeds data back to the centralized AGI SureTrack FARM™ account. A Node Loss Alert will be issued if that central controller bin does not receive regular hourly communication from one or more of the bins within the cluster.

- **Load Control Event**

AGI BinManager has shut down fans and/or heaters due to a load control event activated by the electric company. This alert will only happen if you have specified load control designations for any or all of your bins.

- **Switch Notices**

AGI BinManager has detected that a switch is in the OFF position while attempting to run fans and/or heaters. This notice will only be sent if AGI BinManager is in the ON position AND all fan(s) and/or heater(s) are powered OFF.

- **Thaw Mode Finished**

AGI BinManager has detected that grain is now thawed. This alert will only be sent when a bin is set to Thaw Out Mode AND the system detects the grain is no longer frozen.

- **External Fan Warning**

The system has detected that there is insufficient power conditions to run fan(s).

**NOTE** This alert requires a line voltage monitor which is sold separately.

- **Pressure Increase**

AGI BinManager detected an increase in pressure that may be caused by frozen exhaust vents. Fan(s) and heater(s) function(s) will be suspended until the alert is cleared within the AGI SureTrack FARM™ system.

**NOTE** Pressure Alerts will need to be cleared after checking exhaust vents so fans can continue to run for automation.

If at any time you have questions regarding interpretation or troubleshooting of alerts, please contact AGI SureTrack Coach at **855-293-5607** or [support.digital@aggrowth.com](mailto:support.digital@aggrowth.com).

# ADJUSTING PREFERENCES

## APPENDIX C: HOW TO ADJUST ACCOUNT PREFERENCES AFTER INITIAL SETUP

1. Click on the Account icon in the lower left corner to go to your dashboard.
2. Options, shown at left, are Address, Billing, Market Access, Users, Connections.
3. Within your Account Preferences section, you will see 5 tabs along the top that you are able to update and customize.

### A. ACCOUNT SETTINGS:

Update the name of the account, the associated company (if applicable) and the unit of measurement type (°F or °C). Also update the "Contact Settings" information with the primary user of the account. Then click the "Update Settings" button at the bottom of the page to save changes.

### B. ADDRESS SETTINGS:

Update the shipping and billing address associated with this account. The shipping address should reflect the exact place that any future parts or equipment should be shipped to for this account. Click the "Update Settings" button to save your changes.

### C. USERS:

You have the ability to add users to your account. These are individuals you want to give access to this account and/or receive AGI BinManager® alerts. Current users with access will be listed for your review.

- **How to Create a New User**  
Click the "Create New User" link. Complete and submit the form for each user, including: username, first name, last name, phone number and email address. Select the level of access you want to give them to the account, view only or full access. You will need to set up a temporary password for them to login to my.agisuretrack.com.

**View Only:** Ability to view the account, not modify settings

**Full Access:** Comprehensive access to modify account and bin settings

Click the check mark in the bottom right corner to save.

**NOTE** All users will automatically be set to receive all alerts. They can manually change alert preferences within their User Profile section.

### D. SUBSCRIPTION:

View past statements and subscription expiration dates. You can renew your subscription automatically and also purchase other product packages available.

### E. DATA SHARING:

AGI SureTrack FARM™ is now connecting you with processors, merchandisers and grain buyers who are buying quality grain. AGI SureTrack FARM™ is creating new opportunities to market your grain, but you must agree to share your data. Enable Data Sharing at the bottom of the page to ensure grain buyers can connect with you.

# ELECTRICIAN'S GUIDE

## APPENDIX D: ELECTRICIAN'S REFERENCE GUIDE

### AGI BinManager Electrician's Reference Card

The information on this drawing is intended to be used by qualified electricians to make electrical connections between AGI BinManager and the Fan and Heater Control units.

#### Caution: Risk of Electrical Shock

AGI BinManager switches DO NOT de-energize its input or output connections.

Other outside disconnect switches must be used to deenergize the wire connections to AGI BinManager before servicing.

#### General Notes

- The diagrams on this drawing are for reference only. The specific connections outside of AGI BinManager depend on the fan, heater and other power equipment.
- This drawing shows **BLUE** wires for Fan Control Connections, **RED** wires for Heater Control Connections, and **PURPLE** wires for Power Connections. The actual color is arbitrary and may not be the wire insulation colors used by the equipment installer.
- AGI recommends using at least 22AWG wire with appropriate insulation (ex. 600V insulation for 480V systems).
- Always defer to NEC and/or other appropriate codes.

### Control Box Wiring

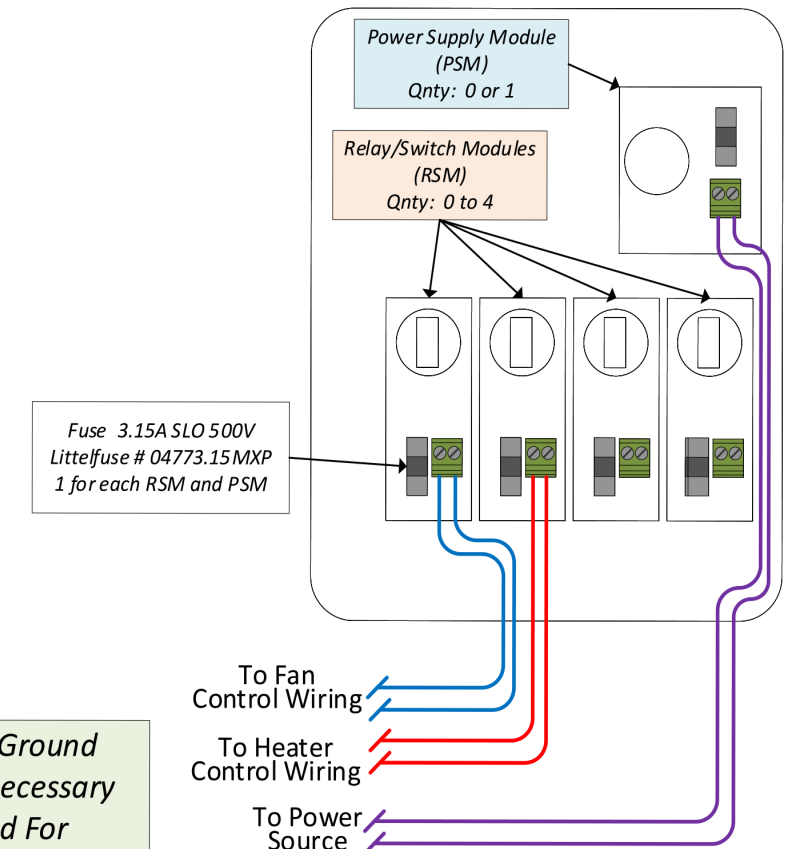
- All High Voltage Wiring is behind the Front Panel.
- All High Voltage Wiring is connected to RSM or PSM modules.

#### Relay/Switch Module (RSM)

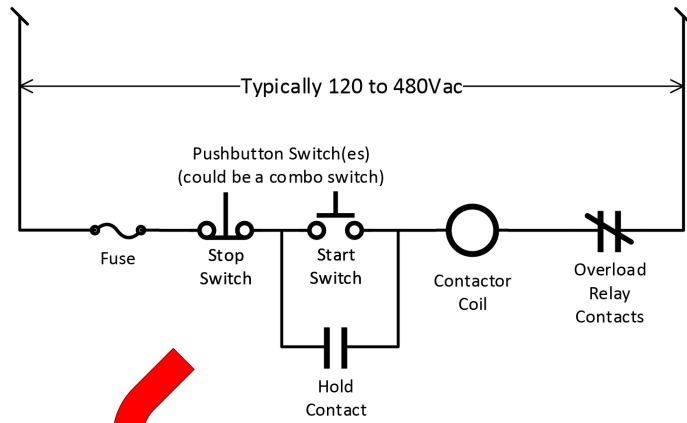
- RSM does not supply power, it is a "switch" to the Fan or Heater controls.
- RSM can handle up to 520Vac at 2A. RSM-DC
- There is one RSM for each controlled Fan, Heater, or Generator.

#### Power Supply Module (PSM)

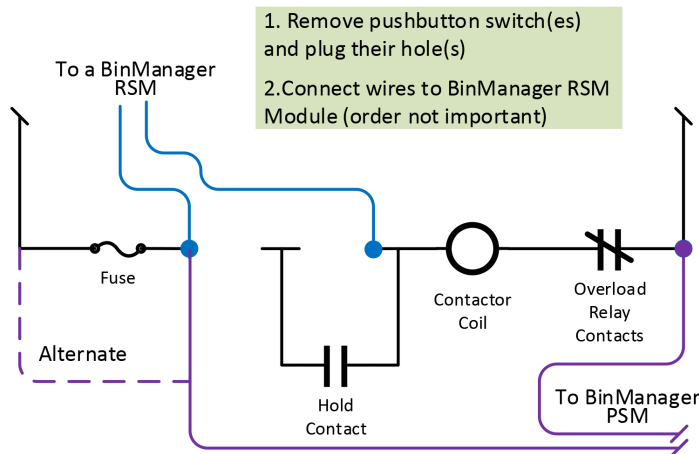
- One PSM per BinManager System provides 24DC for entire system.
- Vin: 100Vac to 520Vac



## Typical Fan Control Wiring



## Adding BinManager



## Heater Control Wiring

- Heater controls have interlocks with the fan controls and also contain temperature limit switches for safety. DO NOT MODIFY THIS SAFETY CRITICAL WIRING WHEN CONNECTING TO BINMANAGER.
- Many heater controls have a pair of terminals for a bin-mounted thermostat. These are the perfect terminals to connect to the BinManager RSM module.
- DO NOT DISCONNECT a High-Limit switch on the transition. This is part of the safety system.
- If a system has a "Cycle Interlock" and a "Hi-Limit Interlock", such as on some GSI models, use the Hi-Limit Interlock.
- Some simple systems do not have a Bin Thermostat connection. It is acceptable to connect in series with the power, or ON-OFF switch. BE SURE TO LEAVE THE FAN CONTROL INTERLOCK IN PLACE AND OPERATIONAL.

## Power Source

- BinManager must obtain its power from a source of 100 to 520Vac.
- The recommended source is one of the Fan Control Circuits. SEE SUGGESTION TO LEFT
- Be sure the power source is constant.
- BinManager should be left powered all year. When not running fans, it draws less than 2W.

## Appendix E: Bluetooth Operation

Once your AGI BinManager® system has been installed and wired, you have the ability to get on-site readings via the AGI SureTrack FARM™ mobile app. The mobile app can be helpful if there is limited cellular service to your Smartphone or tablet on-site, or if you want immediate assurance that changes you've made have gone into effect.

### INSTALL THE AGI SURETRACK FARM™ MOBILE APP

The mobile app is available for Android and iPhone devices and is a free app. Download the app in either Google Play or the Apple Store.



### SYNC YOUR ACCOUNT

Tap on the "Open/Sync AGI SureTrack FARM™" button at the bottom of the app to update your device with new products and set custom products via bluetooth. You can also apply bin names to each bin for easy identification later. The account sync feature does require an internet connection.

### CONNECT YOUR PHONE OR TABLET TO AGI BINMANAGER BLUETOOTH

On your AGI SureTrack™ mobile app, scan for devices by tapping the search button on the top right side of the screen. A list of available devices will populate. Tap the bin that you wish to connect to. If your account is synced, you will see the custom name you created for each bin.

### MONITORING YOUR BIN CONDITIONS ON THE APP

Once you are connected, the menu will display. From here you can select the following screens:

- **AGI BinManager Info**  
Displays the current settings of the bin.
- **Cable Readings**  
Displays the cables within the bin. For individual sensor readings, tap on the cable you want to review. The sensors start with #1 at the bottom of the bin and increase with grain height. Scroll up to look at all the sensors for the cable.
- **AGI BinManager Settings**  
AGI BinManager will display serial number, switch positions, commodity and operation settings.
- **App Settings**  
Change how the app displays information by default. You can select imperial or metric units, show cable sensor list from top or bottom and select whether or not to display the menu when first connecting to devices.
- **Disconnect**  
End your session with the current device and move to the next one.
- **Weather Station / Plenum Readings**  
Displays the current temperature and moisture readings in the plenum, weather station and headspace sensor.



AGI is a global leader in supplying farm and commercial customers with the manufacturing, planning, and engineering of full equipment solutions for grain, seed, fertilizer, feed, and food. AGI's expertise enables the storage, blending, mixing, conveying, conditioning, processing, and protection of agricultural products and inputs worldwide.

**Your safety is our highest priority.**

Please read and understand the operator's manual and safety decals before using. Use and maintain products properly, and do not modify. Keep guards in place when operating and follow all product manuals and safety decals. For all AGI products, if guards, safety decals, or manuals are damaged or missing, contact your AGI sales or dealer representative for replacements. Images and information contained in this brochure are presented for general information.

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8040 Bond St, Lenexa, KS 66214

P 855.293.5607 | [aggrowth.com/digital](http://aggrowth.com/digital)

     @aggrowthintl

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