GBZ CONTROL MANUAL

VERSION 1.0.2

This document details system functionality and use for the above version of GBZ Control. GBZ Control version can be found at the top right of the header bar inside of the application.

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SAFETY

WARNING – ELECTRIC SHOCK

This equipment may present a risk to electric shock. Ensure that precautions are taken and that appropriate precautions are made when configuring cabling of components. Ensure the equipment is unplugged prior to moving or configuring the equipment.

WARNING – MOVING PARTS

This machine contains moving parts. Keep loose clothing, hair, and jewelry away and use caution when operating the equipment.

SAFETY CHECKLIST

- ☐ Ensure close toed shoes are worn.
- ☐ Secure all loose garments, sleeves, hoods, etc.
- ☐ Remove jewelry.
- ☐ Restrain hair including beards.
- ☐ Dawn gloves, safety glasses, and any other safety equipment as instructed by supervisors.

SAFETY FEATURES

EMERGENCY STOPS

The Emergency Stop located on either the M1 Dry Trimmer or the Rise Conveyor will secure power to the motors of both machines. The Emergency Stop is a locking pushbutton, requiring the operator to rotate clockwise to release. The Emergency Stops will illuminate when either is depressed. Pressing the Emergency Stop will **not** secure power to the tablet or PLC. This button is for use in an emergency and should not be used for routine operation.

VARIABLE BUD DOOR

The Variable Bud Door is equipped with a stepper motor encoder that will stop and disable if resistance (0.2 inch variance in desired position) is encountered during any movement. The Variable Bud Door is disabled after any movement to reduce the risk of injury.

LOCKING CASTERS

Each caster on both the M1 Dry Trimmer and Rise Conveyor are equipped with a locking lever. Ensure all casters are locked and equipment is fully stable prior to operation.

PRODUCT DETAILS

SPECIFICATIONS

Motor

1/2 HP, 0-20 RPMv

Power

Amperage 1.3Amp / 1.5Amp
Voltage: 110/230, Single Phase
Hertz: 60Hz / 50Hz

Dimensions

M1 Dry Trimmer
51in X 37.25in X 41.25in (129.54cm X 94.61cm X 104.77cm)
Rise Conveyor 66in x 34in x 82in (167cm x 84cm x 208cm)

Weight

M1 Dry Trimmer 150Lbs
Rise Conveyor 200Lbs
Control Box 20Lbs

OVERVIEW

The GBZ Control software is the communication hub for all connected GreenBroz equipment, allowing full control and data collection from a remote workstation. Its primary role is an automation platform with reporting functionality, but it may also be used for individual equipment operation. The automation aspect is achieved by creating recipes and fine tuning for your specific needs. The system does not require an internet connection during use, but it can be utilized for support and updates.

SOFTWARE

UPDATES

Updating your system to the latest version requires an internet connection to the system. Contact technical support for information on new versions of GBZ Control.

FEEDBACK

Customer feedback is encouraged, and community input is necessary to make a quality product. Please email technical support with all version feedback and feature requests.

CHANGE LOG

1.0.2 - Current

Updates

- Increased reporting tab functionality
- Updated GBZ Control App for more clear loading information
- Updated logging diagnosis details
- Updated error clearing function

Known Issues

Initialization period greater then 3 minutes
First time loading a recipe after a reboot does not load into memory.
-This can be fixed by hitting start then stopping and re-loading the recipe.
Door does not halt on non-homing.
- This causes some confusion as the door does not report that needs to be homed.

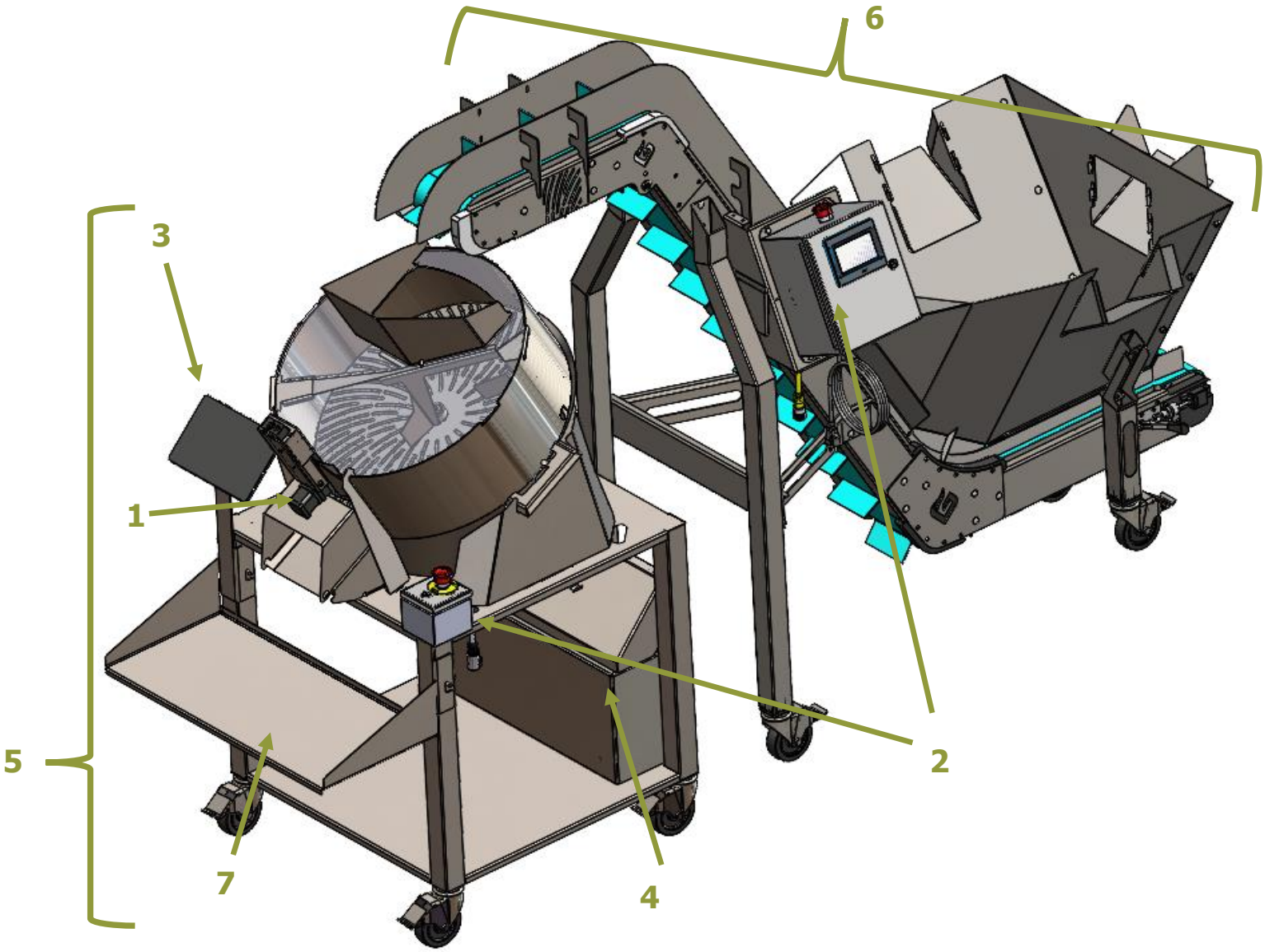
1.0.0

- First major release of GBZ Control

PRIMARY COMPONENTS

The M1 plus GBZ Control consists of two primary machines connected through the Control Box: the M1 Dry Trimmer and the Rise Conveyor. Please see the M1 Dry Trimmer and Rise Conveyor manuals for more detailed understanding of equipment components.

1. **Variable Bud Door** – The belt driven variable door controlled by the interface
2. **Emergency Stops** – One located on the M1 Dry Trimmer, and one located on the Rise Conveyor.
    1. **NOTE -**The E-Stop on the Rise Conveyor shown in the image is larger then actual size. Location is the same.
3. **Touch Tablet Interface** – The primary control interface for the M1 Dry Trimmer and Rise Conveyor
    1. **NOTE** – The tablet can be removed from the stand, and location of stand can bed swapped with the E-Stop on the M1 Dry Trimmer
4. **Electrical Box** – Primary electrical box affixed to the base of the M1 Dry Trimmer
5. **M1 Dry Trimmer** – Primary trimmer with the Variable Bud Door at the front and Electrical Box at the base
6. **Rise Conveyor** – The primary feeding conveyor which is driven by a connection to the Electrical Box
7. **Removable Shelf** – The shelf on the M1 can be removed or flipped upside-down for storage.



INSTALLATION AND EXPLANATION

FIRST TIME SETUP

The **Electrical Box, M1 Dry Trimmer and Rise Conveyor** will need to be properly wired to each electrical component prior to functioning properly. Further instruction on the M1 Dry Trimmer and Rise Conveyor can be found in there respective manuals.

ELECTRICAL BOX

CAUTION – Possible Equipment Damage

The following describes wiring your M1 plus GBZ Control system. It involves electrical connections that may be threaded and keyed and push pin connections. Miss wiring the connections may cause permanent damage to the equipment.

EXPLANATION

The ***Electrical Box*** houses electronics needed to control each component of the M1 Dry Trimmer and Rise Conveyor. It has a green LED power button that will stay lit when powered and nine (9) cable receptacles for each component. From left to right the ***Electrical Box*** interface is explained as follows:

- Green LED Power Button
- ***3 Pin Female*** - Primary power input – **Required – PORT 1**
- USB 5v power to tablet interface – **PORT 2**
- ***3 Pin Male*** - M1 Dry Trimmer E-Stop – **Required – PORT 3**
- ***4 Pin Male*** - M1 Dry Trimmer motor – **Required – PORT 4**
- **Bundled Connections:**
    - ***2 Pin Male*** – Variable Bud Door limit switch – **Required – PORT 5**
    - ***5 Pin Male*** – Variable Bud Door motor drive – **Required – PORT 6**
    - ***8 Pin Male*** – Variable Bud Door encoder – **Required – PORT 7**
- ***7 Pin Male*** – Rise Conveyor E-Stop and motor – **Required – PORT 8**
- Ethernet port for service and updates – **PORT 9**

Each of the **Required** ports must be properly configured prior to powering on the system.

TO INSTALL

1. **IMPORTANT:** Ensure the power button is not depressed and that the M1 Dry Trimmer and Rise Conveyor have their casters in the locked position.
2. Plug the USB 5v power supply into the ***Electrical Box*** and run the USB Type-C cable to the tablet. Although connection is not required to function, the tablet is required to be on to control the system.
3. M1 Dry Trimmer E-Stop, this cable runs from the E-Stop located at the front of the M1 Dry Trimmer along the side. The cable has a **3 Pin Female** connector on each side. Seat the cable until it clicks into the E-Stop on the M1 Dry Trimmer and trace it back to **PORT 3** on the ***Electrical Box***.
4. Plug the cable that runs from the M1 Dry Trimmer motor, located underneath the trimming blades, into **PORT 4**.
5. Plug the **2 Pin Female** Variable Bud Door limit switch cable that is bundled with the **5 Pin Female** Variable Bud Door motor drive and **8 Pin Female** Variable Bud Door motor encoder cable in.
    - **Note:** The opposite ends of the Variable Bud Door cables are **Threaded** and **Keyed** connectors, DO NOT over tighten or force these connections.
6. Plug in the rest of the bundled cables.
7. Plug the green **8 Pin Female** Rise Conveyor cable that runs from the E-Stop on the Rise Conveyor to **PORT 8** and the E-Stop on the Rise Conveyor.
8. Plug in the **3 Pin Male** power cable into **PORT 1**.

STANDARD OPERATING PROCEDURES

IMPORTANT

It is recommended to clean the system before and after each use to reduce material build up. This will reduce the likelihood of components becoming to sticky to operate properly. Please see the GreenBroz Cleaning Manual for a more in-depth guide on recommended cleaning supplies and techniques.

OPERATION

1. Position equipment for operation and lock castors to prevent movement.
2. Ensure the blade and conveyor belt is clean to desired levels.
3. Ensure trim catch is in place.
4. Ensure all cables are plugged in and dust cover in place.
5. Check Emergency Stops, and rotate clockwise if locked.
6. **IMPORTANT:** Ensure that all cables are fully connected and E-Stops are de-activated; unconnected cables and activated E-Stops will not allow the system to initialize properly.
7. Power the system by depressing the green power button, verify if illuminated.
8. Wait for system to initialize 5 – 10 minutes.
9. Ensure tablet connected to the GBZ Control network.
    - **Note:** To verify this ensure the tablet has wifi turned on by swiping down at the top right and the connection is to the GBZ Control network.
10. Open the GBZ Control App on the tablet and press connect.
11. Wait for system components to show a status of *Healthy*.
12. Home the Variable Bud Door by pressing the reset then home button.
13. Verify Variable Bud Door function by pressing the open then close button and checking for movement.
14. Verify M1 Dry Trimmer blade speed and direction are functioning.
15. Verify Rise Conveyor speed and enable is functioning.
16. **IMPORTANT:** Ensure there is no excessive sounds, vibration or heat coming from the system.
17. Load the desired recipe from the recipe screen and begin.

POST OPERATION

Stop all running recipes.

1. Return speeds to 0 and disabled state.
2. Power off the system by pressing the green power button.
    - **Note:** Activating E-Stops will not power off system.
3. Clean system.

RETURNING FUNCTION AFTER EMERGENCY STOP

IMPORTANT

After E-Stop activation of the M1 Dry Trimmer and Rise Conveyor, you may need to re-enable the motor drivers and clear the errors by following these steps:

M1 DRY TRIMMER & RISE CONVEYOR

1. Click the Red Stop button.
2. Click the Green Forward/Enable direction button.
3. Click the Red Stop button.
4. Motor driver is now enabled.

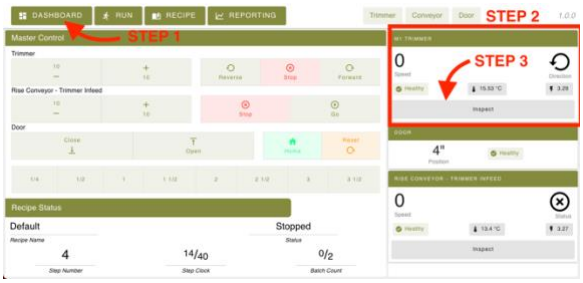
CLEARING ERRORS

Errors will occur normally after activating an E-Stop or if the door becomes stuck, usually from material build up. An error outside of E-Stop activation may require troubleshooting for the affected component.

M1 DRY TRIMMER OR RISE CONVEYOR ERROR

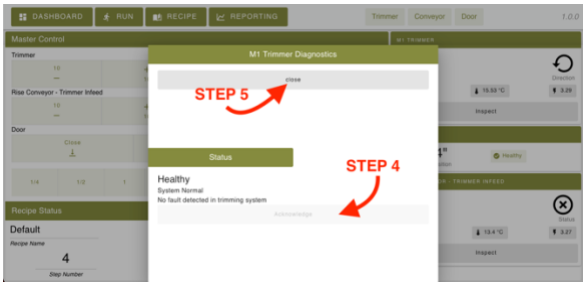
- If Error occurred after pressing an E-Stop:

1. Tap Dashboard **STEP 1**
2. Inspect which component is in an error state **STEP 2**
3. Tap Inspect for the affected component **STEP 3**
4. Tap acknowledge error in the popup **STEP 4**
5. Tap Close **STEP 5**
6. Else see **TROUBLESHOOTING – ERROR WITHOUT E-STOP ACTIVATION**



VARIABLE BUD DOOR

1. Tap dashboard.
2. Tap Reset in the door control section.
3. Tap Home.
4. If function does not return, see **TROUBLESHOOTING – VARIABLE BUD DOOR**.



TROUBLESHOOTING

TECHNICAL SUPPORT

For any issue concerning any aspect of the system contact GreenBroz immediately.
support@greenbroz.com , 619-455-8052

OVERVIEW

The system reports errors to the GBZ Control software from any of the three system components. Errors must be cleared prior to function returning to the component. An error state of any component will be shown in the right section of the *Header Bar*. An error dialog will display when an error occurs. An error during an active running recipe will cause that recipe to stop and restart.

TABLET CONNECTION

UCM is Down – (current) Error Getting Status Code – (old)

"UCM is Down" or "Error getting status code" status code indicates the tablet is unable to connect to the PLC.

1. Ensure tablet is on the GBZ Control wifi network.
2. Wait for 5 minutes.
3. If UCM is Still down after verifying wifi connection to GBZ Control network and waiting, contact support.

NodeRed is Down – (current) - Status Code 502 – (old)

"NodeRed Down" or "Status Code 502" reports after connecting to the UCM. It is expected in GBZ Control versions < 1.0.2 that the NodeRed initialization period is > 3 minutes.

1. Wait 5 minutes.
2. Press connect, if UCM is Up is reported but NodeRed is Down is still reported after 10 minutes since original boot time restart the system.

M1 DRY TRIMMER

TRIMMER BLADE NOT ROTATING

Ensure there is not an error displayed on the dashboard.
If in error state see ***TROUBLESHOOTING – CLEARING ERRORS***
Ensure motor connection is fully connected to **PORT 4**

1. Press Stop -> Press Forward -> Press stop -> Press Forward
2. Decrease speed to 0 then back up to 50
3. If movement does not return contact support.

RISE CONVEYOR

CONVEYOR WILL NOT RUN

- Ensure there is not an error displayed on the dashboard.

If in error state see **TROUBLESHOOTING – CLEARING ERRORS**

- Ensure cable connection is fully connected to **PORT 8**

1. Press Stop -> Press Enable- -> Press Stop -> Press Forward
2. Decrease speed to 0 then back up to 50
3. If movement does not return, contact support.

VARIABLE BUD DOOR

DOOR CLUTCH/CLICK SOUND

The door motor will attempt to move to a desired location but will become stuck or blocked causing a loud clicking sound.

1. Reset door and deactivate trimming blades.
2. Inspect the door slide actuator components for foreign objects.
3. Inspect the door frame for kief buildup.
4. While door is not active manually move the door up and down by hand there should be low constant resistance only from the slide and motor for the door.
5. Clean the door slide and door frame and other door components.
6. Reset the door and home it.

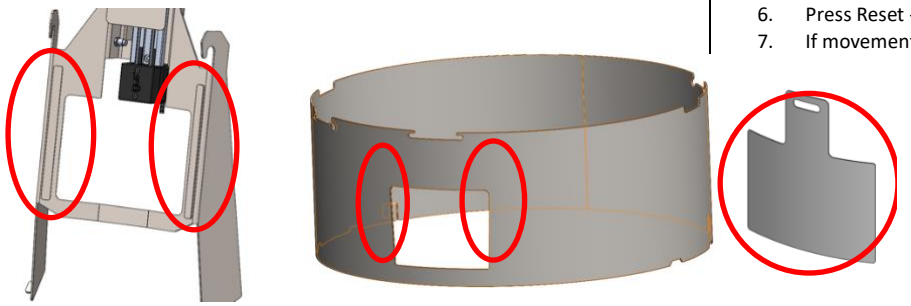
DOOR WILL NOT OPEN

Ensure there is not an error displayed on the dashboard.
If in error state see ***TROUBLESHOOTING – CLEARING ERRORS***
Ensure all **Bundled** cables are plugged into **PORTS 5,6,7**

1. Press Reset -> Press Home -> Press Close

If movement has not returned:

2. Press Reset
3. Manually move the actuator by hand down to the close position.
4. **IMPORTANT:** Ensure there is very little resistance.
5. If there is resistance, verify the following that the black door slide mount is not rubbing against any components, the slide actuator is free of foreign objects, the door is not being obstructed by foreign objects.
6. Press Reset -> Press Home ->Press Close
7. If movement does not return, contact support.



Ensure the circled areas are clear and the door can easily slide through the gap created. Ensure that the door radius is the same as the barrels.

NON-FUNCTION OUT OF E-STOP ACTIVATION

If the M1 Dry Trimmer or Rise Conveyor are in an error state without E-Stop activation it is likely from loss of communication from a disconnection of a required cable or starting the system with an E-Stop active.

1. Follow steps for clearing errors.
2. Inspect for proper connection the Rise Conveyor Cable and **PORT 8**.
3. Inspect for proper connection the M1 Dry Trimmer E-Stop cable and **PORT 3**.
4. Ensure both E-Stops are not active.
5. Power cycle the system after re-connecting the cables.
6. If unable to clear error after ensuring cable connection and restarting the system, contact support.

DASHBOARD OVERVIEW

The Dashboard provides key information about the system and recipe statuses. It is divided into four main sections:

1. Header Bar
2. Master Control
3. System Component Status
4. Recipe Status

HEADER BAR

The Header Bar contains navigation buttons and system component indicators.

NAVIGATION BUTTONS – INFO 1

- **Dashboard**: Navigates to the Dashboard screen.
- **Run**: Opens the Recipe Loading and Running screen.
- **Recipes**: Opens the Recipe Editing and Step Editing screen.

SYSTEM STATUS INDICATORS – INFO 2

- **Red**: Indicates an error in the component.
- **Orange**: Indicates error other components are in error state.
- **Green**: Indicates the component is running.

SYSTEM COMPONENT STATUS – INFO 3

Displays the status of three system components. Clicking the inspect button for the M1 Dry Trimmer or Rise Conveyor will allow you to view errors and clear them.

1. **M1 Dry Trimmer**
2. **Variable Bud Door**
3. **Rise Conveyor**

DISPLAYED INFORMATION

- **Current Status**: Initialization, Healthy, or Error.
- **Speed and Direction/Activation**: Active components are highlighted in green.
- **Maintenance Metrics**: Includes readouts of motor drivers to monitor functionality.

MASTER CONTROL – INFO 4

Manual control inputs.

M1 DRY TRIMMER

- Speed control, 10-unit steps, max 100
- Directional control and stop.
- ***Note:*** Stop does not reset the desired speed to 0

RISE CONVEYOR

- Speed control, 10-unit steps, max 100
- Start and stop.
- ***Note:*** Stop does not reset the desired speed to 0

VARIABLE BUD DOOR

- Position control, fully open, fully closed, and incremental.
- Home to initialize the door.
- Reset to clear any door errors.

RECIPE STATUS – INFO 5

This section shows the status of the current recipe, including:

Recipe Name

Status:

- **Stopped**: Recipe is inactive, stopped manually, or due to an error.
- **Running**: Recipe is in progress.
- **Done**: Recipe has completed successfully.

Step Number: Indicates the current step in progress.

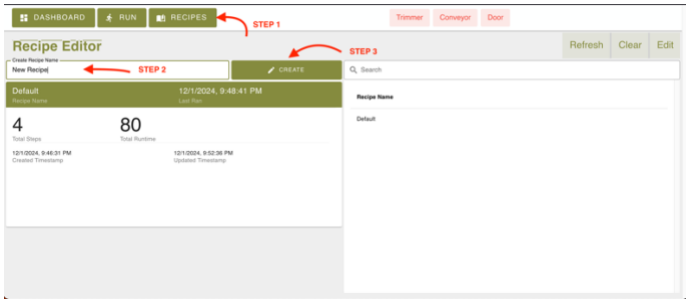
Step Clock: Displays elapsed time for the current step.

Batch Count: Shows the completed and total batch counts.

RECIPE MANAGEMENT

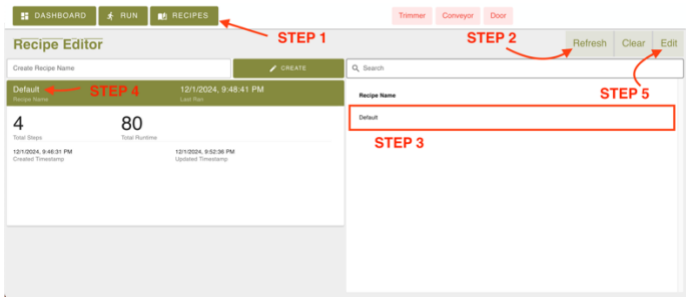
Recipes can be created, edited, and run from the **Recipes** section. Access this section by clicking the **Recipes** button in the navigation bar.

CREATING A RECIPE



1. Click the **Recipes** button in the navigation bar.
2. Click the **Create New Recipe** field and enter a unique recipe name.
3. Click the **Create** button to save the recipe.

EDITING A RECIPE



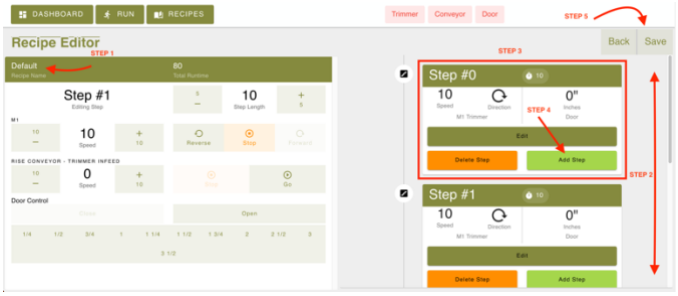
1. Click the **Recipes** button in the navigation bar.
2. Click the **Refresh** button to load all saved recipes.
3. Select the desired recipe.
4. Verify recipe details (name, runtime, total steps, timestamps).
5. Click the **Edit** button to begin editing.

EDITING A STEP

1. Verify the recipe name at the top left.
2. Scroll to locate the step to edit.
3. Locate desired step to edit.
4. Click the **Edit** button for the step.
5. Verify correct step is being edited.
6. Adjust the step length (minimum 5 seconds).
7. Configure M1 Dry Trimmer actions (speed, direction, or disable).
8. Set Rise Conveyor speed and activation.
9. Adjust Variable Bud Door position (increments up to fully open).
10. Review step details in the overview section.
11. Save changes.

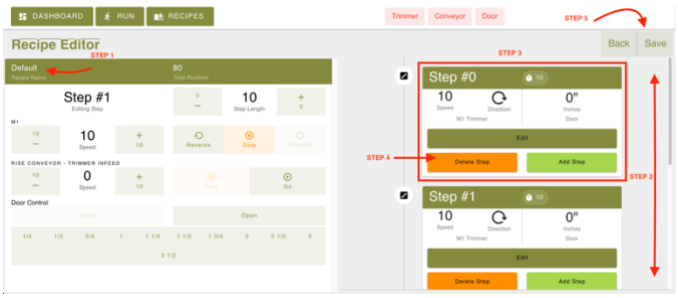
ADDING A STEP

Recipes can have up to 25 steps.



1. Verify recipe name is correct.
2. Scroll up to find desired step.
3. Locate the step you want to add a new step after.
4. Click the **Add Step** button.
5. Save the recipe.

DELETING A STEP

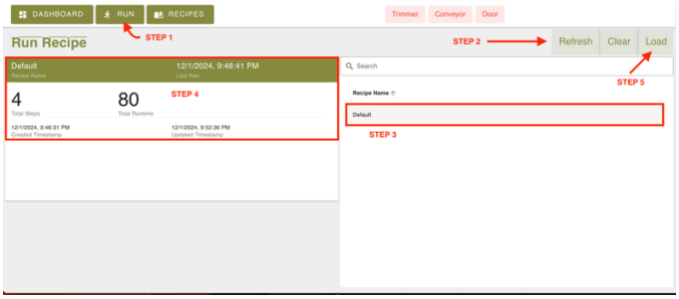


- Recipes must contain at least one step.

1. Verify recipe name is correct.
2. Scroll up to find desired step.
3. Locate desired step.
4. Click the **Delete** button.
5. Save changes.

RUNNING A RECIPE

1. Click the **Run** button in the navigation bar.
2. Refresh the recipe list.
3. Select the desired recipe by scrolling or searching for by name.
4. Verify all configurations.
5. Click **Load Recipe**.



STARTING THE RECIPE

1. Verify the loaded recipe details.
2. Check and adjust the batch count which will determines how many times the recipe repeats.
3. Click **Start** to begin.

REPORTING

OVERVIEW

The system reports and logs actions taken through GBZ Control. A detailed report on recipes ran can be found in the Reporting section in GBZ Control. Temperature, voltage, and current are reported from the motor driver cards of both the M1 Dry Trimmer and Rise Conveyor. Time stamps are shown in UTC time. The Reporting section currently shows:

- What recipes were ran
- Whether or not they ran to completion
- The start and end times
- The desired number of batches and the completed number of batches
- A detailed view of each step that was ran