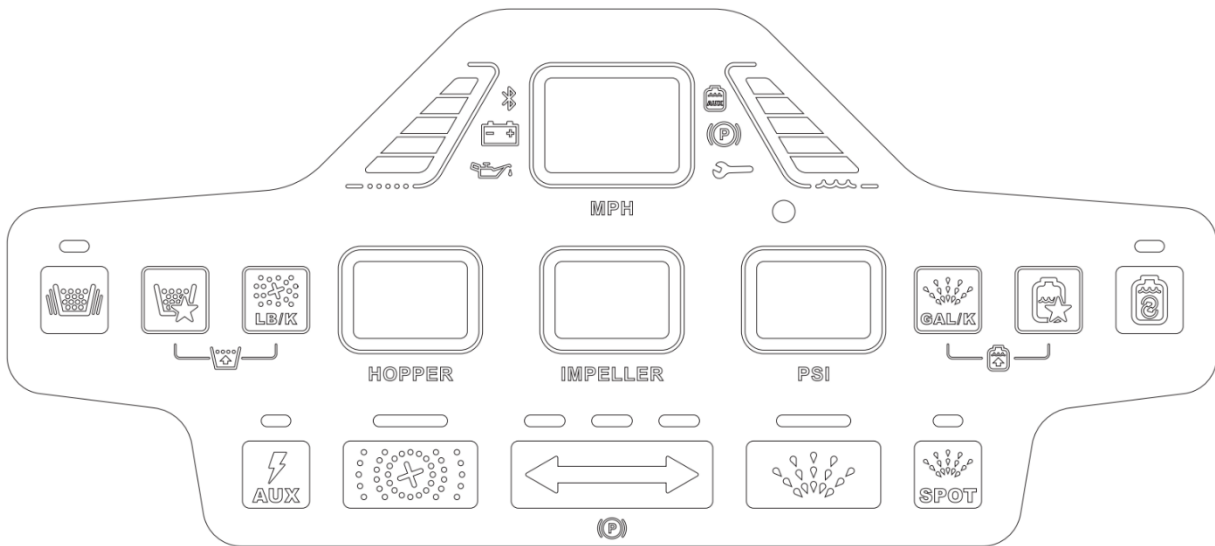


Stinger Equipment

OneTouch Connect

App Instructions

V 1.0



Release Date November 2023

Overview

The Stinger OneTouch App unleashes the power of the OneTouch applicator control system. OneTouch was created to simplify operations and greatly reduce or eliminate operator errors. The OneTouch App gives service managers and owners total control over how machines are set up and what the operators are allowed to change. The intent is to minimize user inputs and allow speed, position, and direction sensing technology match the spray and spread rates to the exact ground speed resulting in >99% accuracy regardless of the operator.

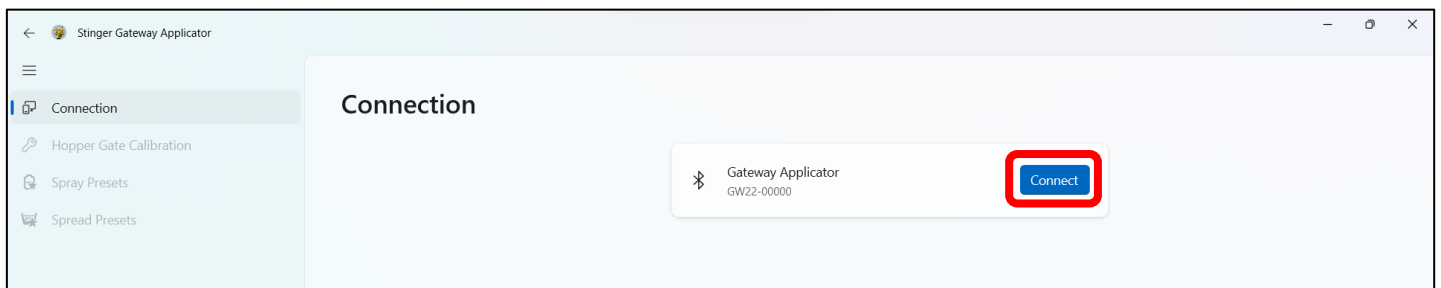
Not only does OneTouch regulate all material being applied to match the ground speed, but OneTouch also provides turn compensation to both the Spreader and the Sprayer. When spreading or spraying through a turn, the material flow decreases to the inside of the turn and increases on the outside of the turn reducing or eliminating hotspots. The spreader will shift the spread pattern to match the turn and the spray tips will increase or decrease pulses to match the spray with the speed and degree of turn. OneTouch also makes it impossible for a user to accidentally apply products without the machine in motion.

Installing Software

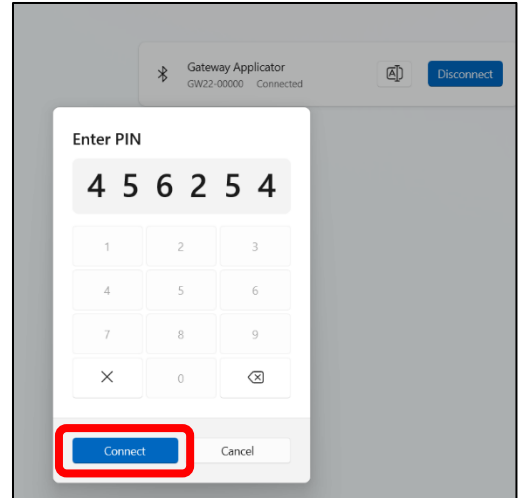
Download software from the Microsoft App Store or download from the Stinger Equipment website. The OneTouch App will run on Windows based tablets or computers with Bluetooth capabilities.

Connecting

When opening the App, the connection screen will be displayed. The screen will show any applicator currently “On” and in range of Bluetooth. This can be more than 300 feet away. In the presence of several applicators, it can be confusing which applicator you’re trying to connect. It is recommended to first start the App and then turn on the machine you’re trying to connect. The last applicator to turn on will be shown at the bottom of the list.

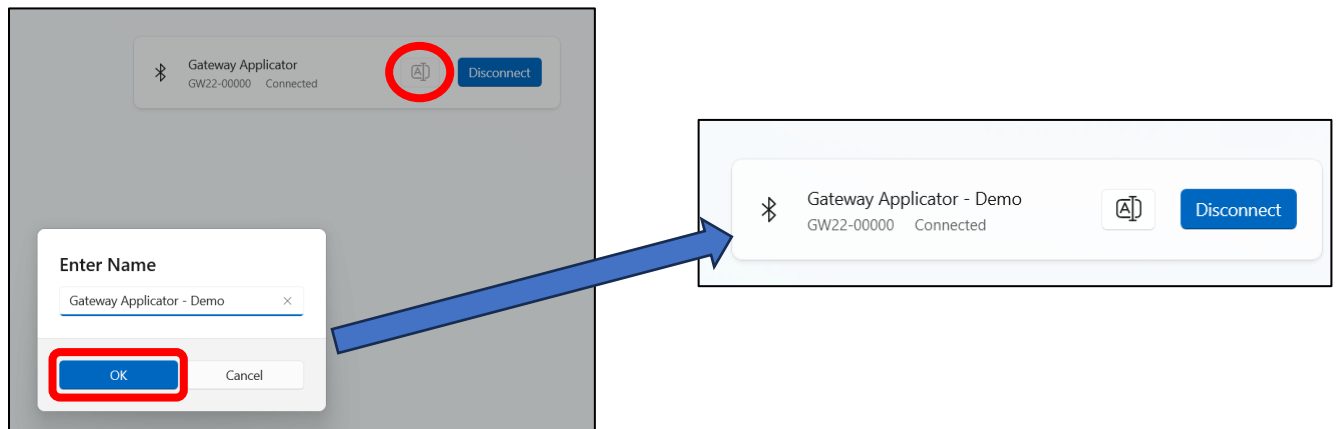


Select "Connect". A screen will prompt for the 6-digit security pin. The pin to be entered is displayed on the applicator control panel. This pin changes randomly each time you connect to a machine. Enter the 6 digits on the App and select "Connect". The App is now connected.



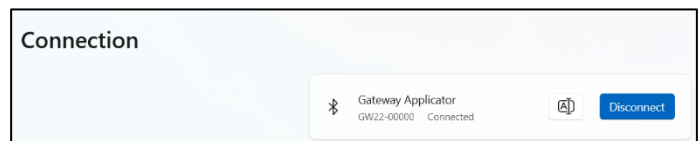
Renaming the Applicator

Once connected, you have the option of providing the applicator with a custom name to make it easier to identify from the list of other Bluetooth applicators within range. Click the icon circled in RED below and the window will open to "Enter Name". Type in your new name and then select "OK".



Disconnecting Bluetooth

Disconnect from the applicator on the Connections page when you're done prior to closing the App. Failure to do so can create issues reconnecting the next time to this machine. If you having issues connecting, remove any applicators shown in your Bluetooth devices in Windows to clear the connection, restart the App and applicator.



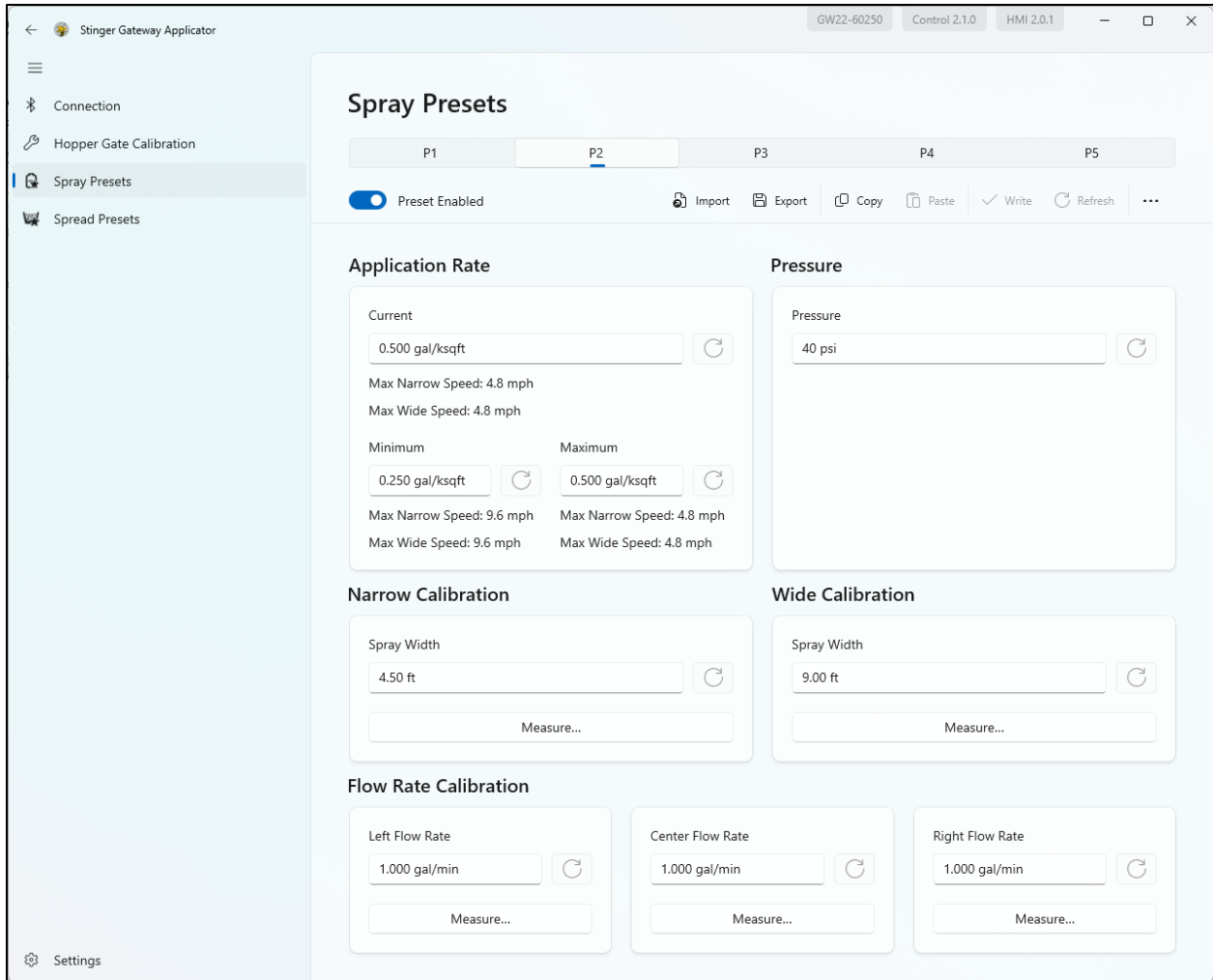
Using Presets

Presets are used to store custom calibrations. There are 5 presets for spraying and 5 presets for spreading. Presets can be exported and saved from one machine and electronically transferred to another machine via Bluetooth or sent to another person via email. Presets can be saved to your computer and installed again later. The best practice is to only setup or install presets for what the operator will be using. If applying one product, use one preset or possibly 2 presets of the same product with different application rates.

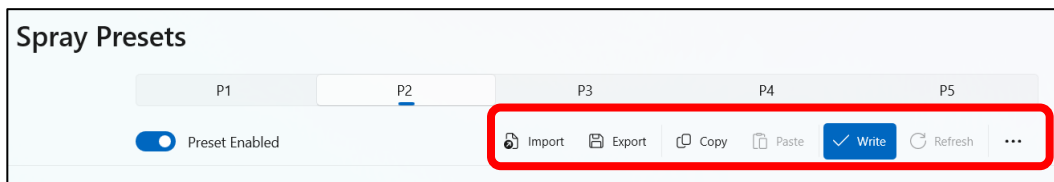
Presets are intended to limit user options or inputs and allow operators to only select from preset options. Ideally, no matter what the operator selects, it results in a product applied correctly per the label. For example, if spraying a post-emergent herbicide with a label rate of 1.1 – 1.8 oz / 1,000 sqft, users normally apply at 1.5 oz / 1,000 sqft to provide a margin of error for going too slow or too fast, or errors with calibration. With the OneTouch, you know your applying at >99% accuracy, so now you can setup one calibration at 1.3 oz / 1,000 sqft with a spray rate of 0.4 gal / 1,000 sqft. Save this 1st setup as (Preset 1). You can then set a 2nd setup (Preset 2) and with the same setup except set the spray rate to 0.5 gal / 1,000 sqft. This is a 25% increase in material applied and will now put down 1.625 oz / 1,000 sqft of herbicide. Both options will provide excellent results. Both options are correct and within the direction of the herbicide label. One option will save 25% on chemicals applied and great for common easy to control weeds, and the 2nd will apply a hotter mix for new customers with heavily weed infested lawns or stubborn weeds.

Spray Calibration & Presets

Select the “Spray Presets” tab on the left menu. Select the tabs P1 thru P5 to access the 5 available presets. As you move through the different tabs (Presets), the values currently stored on your Applicator are loaded into the App. If you want to remove a preset so it can’t be viewed on the applicator, you can turn “Preset Enable” on/off. When “off”, the preset will not be visible on the applicator control. When turned “on”, you will have to reenter the application rate. Turning a Preset off changes the application rate to Zero.



Just under the row of presets you have a row of icons:



- Import – used to import a saved calibration. This is a single preset.
- Export – used to export the current active preset to be used later or sent to another person.
- Copy – used to copy a current preset quickly for pasting into another tab or preset.
- Paste – used to paste a copied preset into another tab for quick editing for a 2nd product with a different application rate.

- Write – used to save changes to the control. Changes are only saved to the control after selecting the “Write” icon. The icon turns blue with changes are present, and changes back to normal after changes have been saved to the applicator.
- Refresh – this will reload all values from the applicator for the current preset.
- ... This allows the user to reload calibration back to the factory defaults.

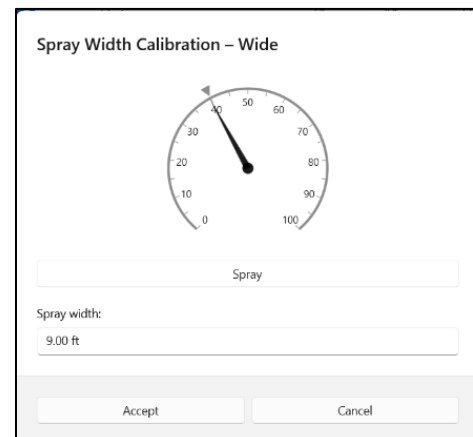
Application Rate – set the desired spray rate. This will set the rate the sprayer will apply the solution from the tank. You can set a minimum and maximum rate to limit what the operator can adjust. Setting the Rate Min, and Rate Max to the same value prevents operators from changing the rate.

Pressure – set the spray pressure. Use this to adjust the width of spray. With the standard Blue TeeJet TTI Spray tips that come standard on the Gateway, the wide spray width changes as follows:

- 50 psi – 10.5’ spray width
- 40 psi – 9’ spray width (recommended spray pressure)
- 30 psi – 8’ spray width

Changing spray pressure will effect the spray tip flow rate and the spray width.

Narrow and Width Calibration – you need to verify the spray width for wide and narrow spray at the selected spray pressure. The value entered here is what the computer used to regulate flow rate for the ground speed. Use a tape measure to measure the “wetted” area of usable spray on the ground. The wide value entered here should be your spacing for each pass. Normally 9 ft at 40 psi is used with the standard spray tips, but verify your spray width. You can select the “Measure” button to manually turn on the spray tips when the unit is stationary during calibration. It is recommended to spray a hard surface with water making multiple passes over the same area to visually the wide spray width. Measure the wettest area and not the area where it starts to fade on the edges. You can wait a couple minutes as the water evaporates from the edges and then measure the wet area remaining. The spray pattern should evaporate uniformly. Additionally, in grass, the spray area is 6-12” narrower than on a hard surface due to the height of the grass.

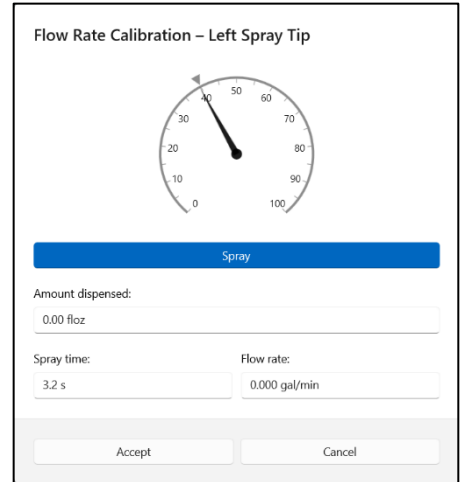


Flow Rate Calibration – This is where you calculate the flow rate for each spray tip. The values entered from the factory are the flow rates of a new TeeJet Blue TTI Spray tip (factory default values). These values change with pressure along with the effective spray width. These values will also increase as spray tips wear so recalibrating flow rates is a best practice for the most accurate applications.

Each spray tip is regulated and controlled independently. Additionally, each spray tip has its own independent calibration. As spray tips wear, the flow rate increases. The OneTouch control system regulates each spray tip individually and can compensate for tip wear automatically. Calibrating each spray tip for the most accurate applications.

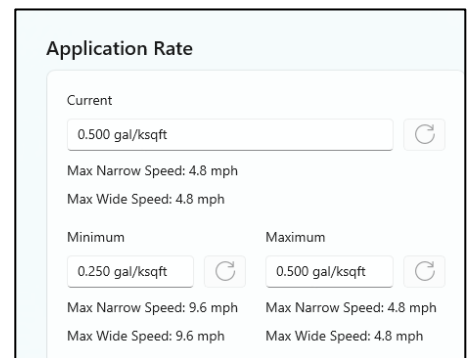
To calibrate a spray tip, select the “Measure” button for the spray tip you are calibrating. In this example, the left spray tip was selected. Insert the clear calibration cone, from your calibration kit, over the spray tip to capture the spray. Place the calibration pitcher under the spray tip. Reposition or hold the pitcher if needed depending on spray pressure.

To start the calibration, select “Spray” and the single spray tip will spray at the set spray pressure automatically. Select “Spray” again and the flow will stop. Fill the pitcher at least ½ way for a more accurate calibration. Enter the amount of liquid collected in fluid ounces and the App will calculate the flow rate automatically. The Flow Rate will be shown in gallons / minute. If this value is acceptable, click the “Accept” button and the value will be transferred to the previous spray calibration screen.



To save the changes, you must select the “Write” button at the top right. Repeat this process for all spray tips and your calibration is complete. The blue “Write” button will change to the default color once changes are saved. Also review values to make sure they make sense for the spray tip and pressure calibrated. All spray tips have known flow rates based on pressure.

For best results, the maximum spray application rate should be set so that the Max Application Speed (shown to the right) is equal or a little greater than the overall maximum speed of the applicator. In this example, the spray rate is 0.5 gal / 1,000 sqft. The maximum speed the spray tips can apply this rate at the width setup is 4.8 mph. Since the machine can go 5.5 mph it would be recommended to change the rate to 0.45 gal / 1,000 sqft or recalibrate with a larger spray tip. The Max Speed shown is affected by the spray tip flow rate, width of application, and application rate desired. You can change any of these values to see the effect on speed.



The recommended minimum application rate should be no less than 70% of maximum application rate. In this example the maximum application rate is 0.5 gal / 1,000 sqft. The recommended minimum application rate for this setup should be no less than 0.35 gal / 1,000 sqft. We find the best spray results between 0.35 and 0.50 gal / 1000 sqft for post emergent weed control.

Current available spray tip sizes available from Stinger:

Flow rates tested with water

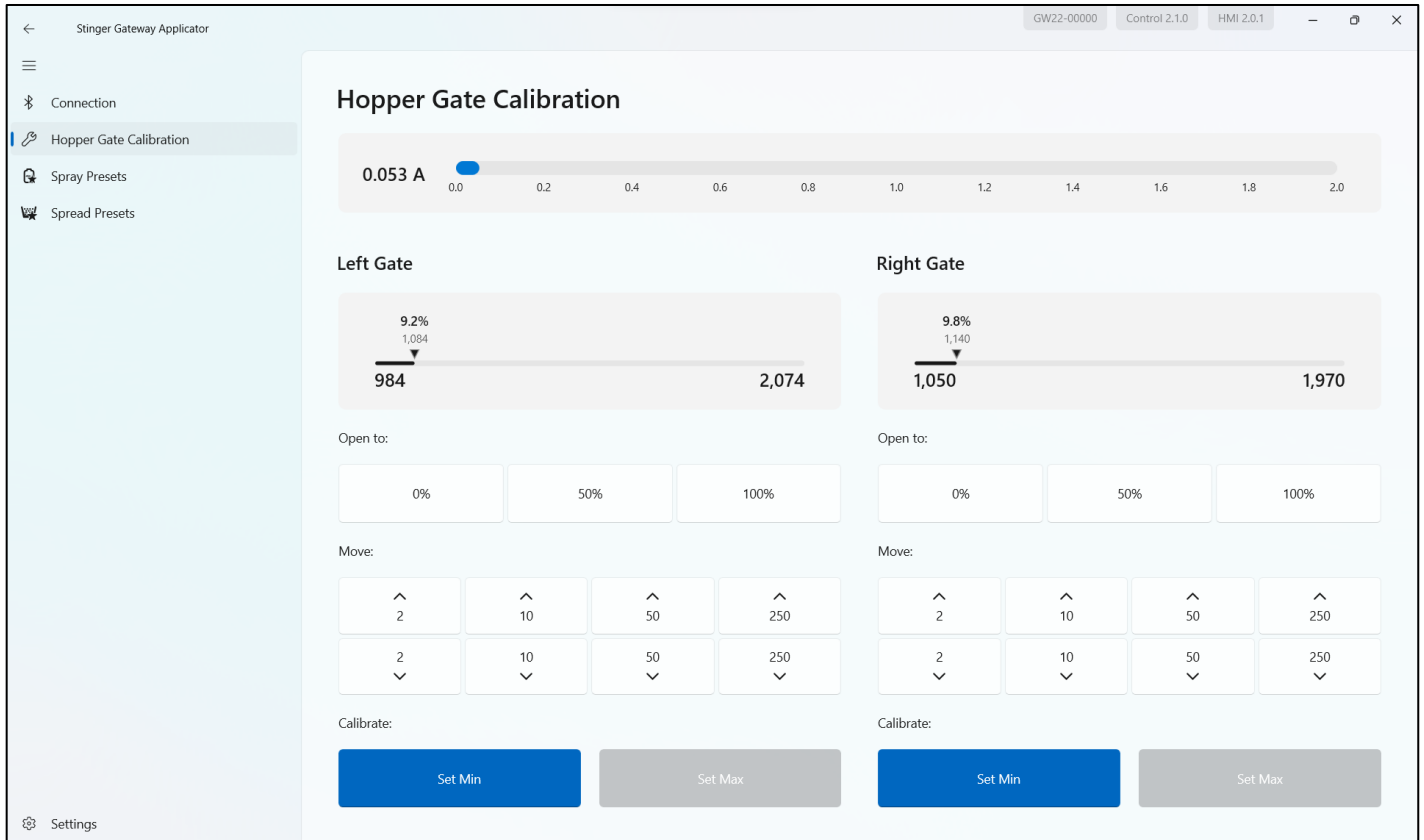
Available Spray Tips	PSI	Flow	PSI	Flow	PSI	Flow
Red 10-3845-R	30	0.92	40	1.07	50	1.21
Blue 10-3845-B	30	0.82	40	0.96	50	1.07
White 10-3845-R	30	0.69	40	0.8	50	0.89

To calculate the amount of chemical to mix in your spray tank for the desired application rate, divide the tank volume by the application rate in gal / 1,000 sqft to get the area that can be covered. For an example 20 (gal) / 0.4 (gal / 1,000 sqft rate) = 50 thousand sqft. If you want to apply 1.3 oz of product per 1,000 sqft, you multiply 1.3 x 50 and get 65 oz of chemical should be mixed in with the 20 gallons of water. If you set a high and low rate, make sure your high rate does not exceed the recommended application rate for the product being applied. If your high rate in this example is 0.5 gal / 1000 sqft this is a 25% increase from the 0.4 rate. Since you mixed for 1.3 oz to be applied at the lower 0.4 rate; switching to 0.5 would be 1.3 oz x 1.25 (25% increase) and result in 1.625 oz of product applied per 1,000 sqft.

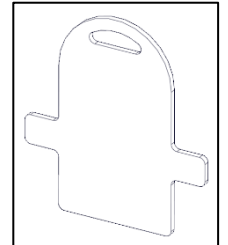
Hopper Gate Calibration

WARNING – Keep fingers away from servo gates during calibration. Only the calibration key should be placed inside the gate opening. Servo controls (Left and Right) are based on the position of the operator.

Hopper gate calibrations are to be completed regularly. The frequency of this calibration is dependent on usage and user preference. The hopper gate calibration sets a low and high known position to make all fertilizer hoppers spread the same. It is like setting the valve timing on an engine. This process is quick and easy and will provide the most accurate application possible.

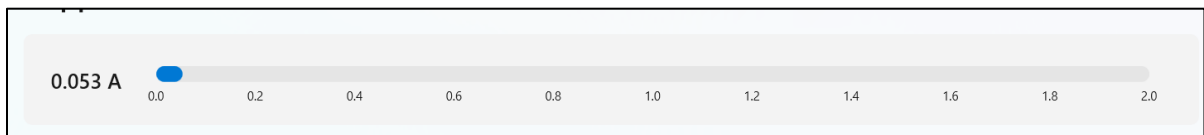


Above is the Hopper Gate Calibration screen. To the right is the calibration key used to set the min and max positions during the calibration process.

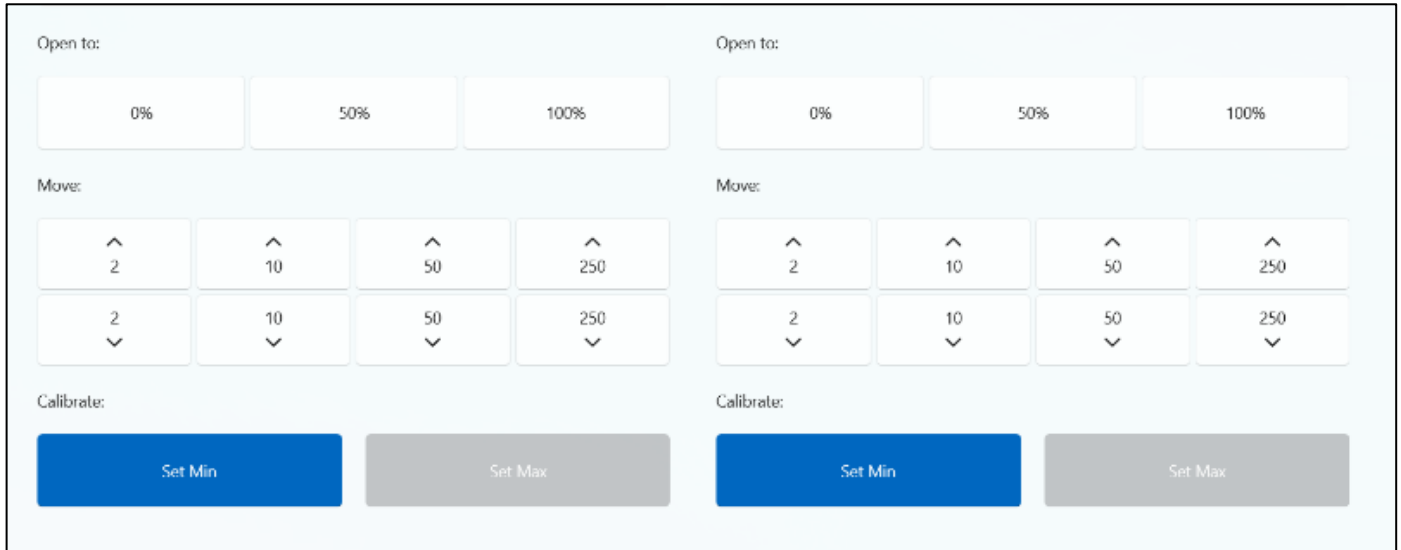


Calibration Key

At the top of the Hopper Gate Calibration screen is a bar graph that shows the amount of power or Amps used by the servo to make a movement. This is used to ensure you are not squeezing the calibration key which will provide an inaccurate calibration. After any movement, the current should go back to ~0.05 Amps as shown. During movements, the current increase to 0.6 Amps and can go much higher when stalling the servo. Do not stall the servo for extended periods of time.

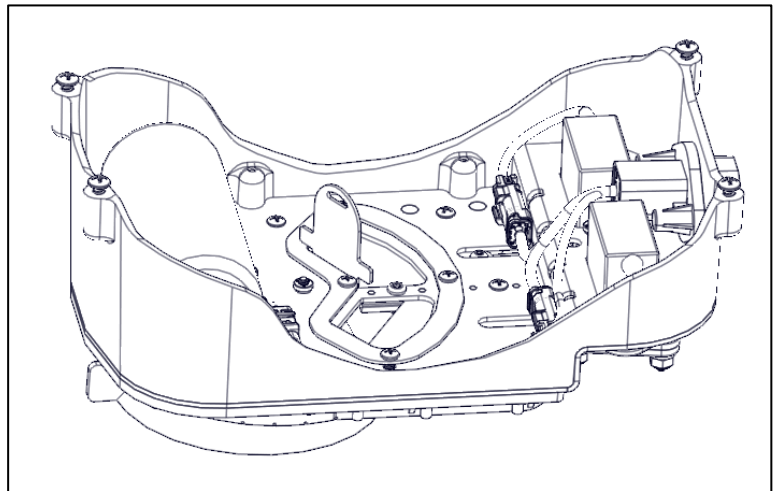


Below is the section of the screen used to move and calibrate the servos. The first row of buttons are used to move the servos quickly to the closed, middle, and fully open positions. After the calibration, you can use this to verify servo alignment visually by setting both gates to 50% or 100%.

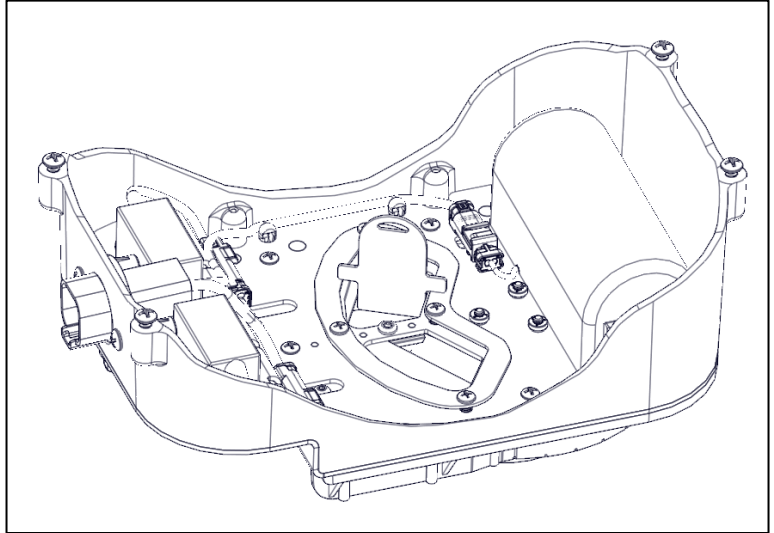


The “Move” section of the of the previous window is the movements based on steps. There are 1000 steps from open to closed for each servo. The number on the button indicates the number of steps the servo will move with each button press.

To set the Minimum position, open the servo gate using the “50-Step” movement button. Press Up to Open and the Down to close. Press “Step-50” up 3-4 times until the gate is open enough to insert the calibration tool as shown to the right. Use the “10-Step” button (down arrow) to slowly close the gate until the calibration key is squeezed where it is aligned vertically as shown. Put light pressure on the top of the calibration key in the direction of the front of the machine. With the gate open the key will tilt toward the front. As the gate starts to close with micro movements, the calibration key will start to move to a vertical position. If the gate is closed too much, the key will tilt toward the back of the machine. Get the position close with “Step-10” movements and then dial it in with the “Step-2” movement button. Once this position is set, you can select the “Set Min” button to set the minimum positions.



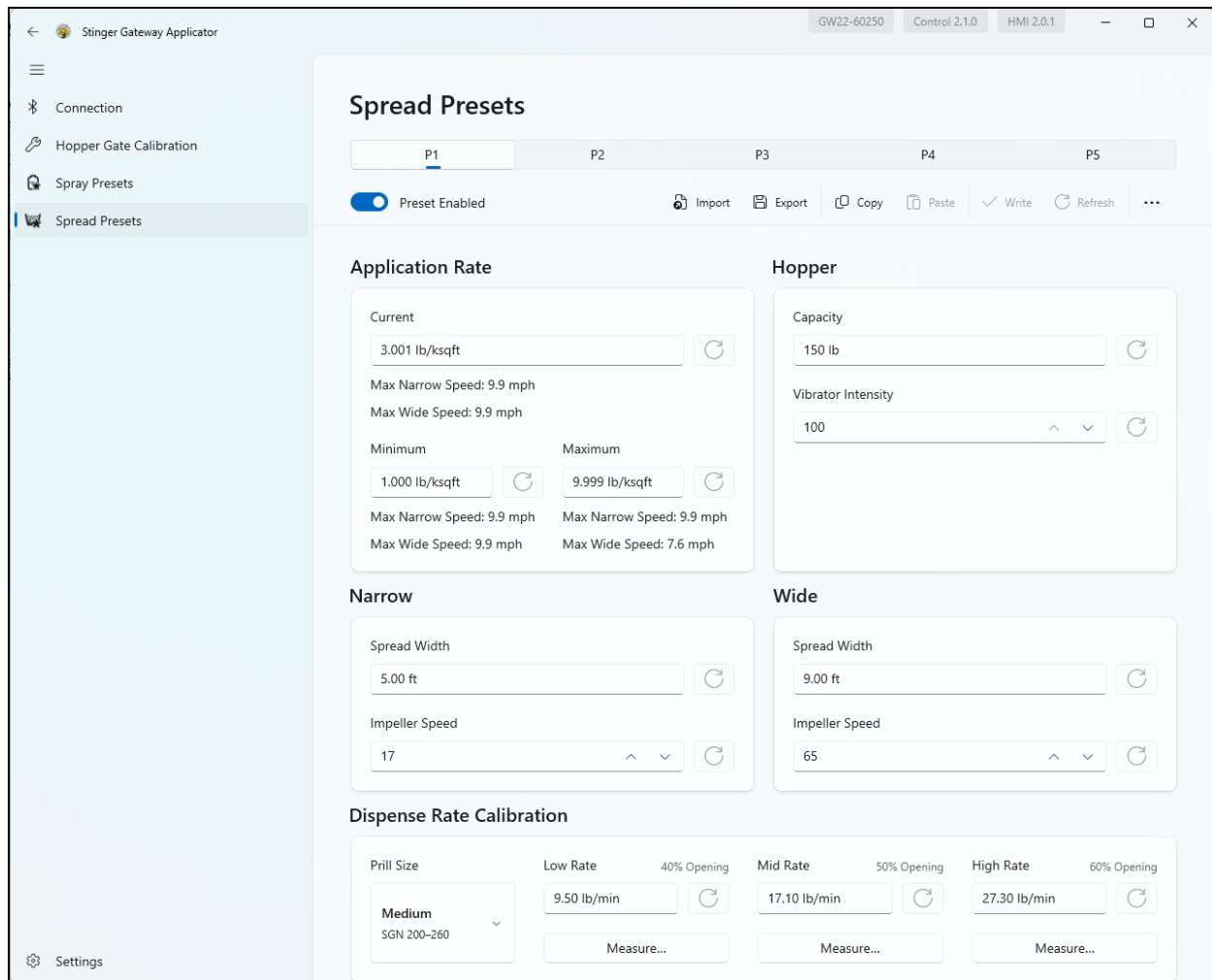
With the Minimum position set, move the servo gate to the 100% position. The “Set Max” button should turn blue. Orient the calibration key as shown to the right. Use the “Step-10” button to get close to where the gate is touching each side of the key as shown. Use the “Step-2 buttons to dial it in. The servo gate should rub on the key but not squeeze it where the power usage graph at the top indicates an increase in power. You will also hear the servo making a humming sound when this happens. This means the servo is too tight and should be opened slightly. Once this position is set, select the “Set Max” button and you’re done.



Repeat the process for the other side. You can verify the servo gate alignment visually by moving the servos to the 50% position and looking down. They should be perfectly aligned.

Spread Calibration and Presets

Select the “Spread Presets” tab on the left menu. Select the tabs P1 thru P5 to access the 5 available presets. As you move through the different tabs (Presets), the values currently stored on your Applicator are loaded into the App. If you want to remove a preset so it can’t be viewed on the applicator, you can turn “Preset Enable” on/off. When “off”, the preset will not be visible on the applicator control. When turned “on”, you will have to reenter the application rate. Turning a Preset off changes the application rate to Zero.



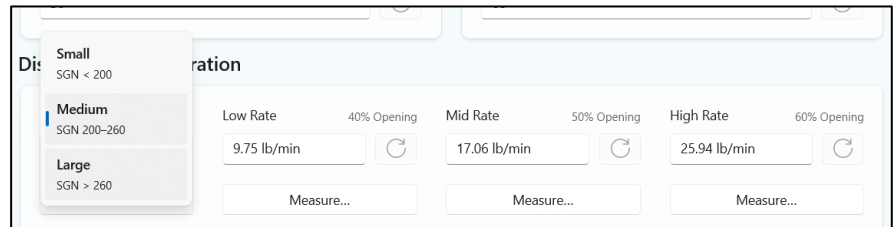
Above is the Spreader Preset and Calibration page. The process for the spreader is similar to the Spray Presets. You can set the application rate along with a minimum and maximum setting. Set the minimum and maximum to the same as the “Current” setting and the operator cannot change the rate.

The Hopper field allows you to set the hopper capacity and it will be used in future software releases. The Vibrator intensity should be left at 100%. This allows you to reduce the vibrator intensity when spreading. The vibrator comes on automatically but only when the spreader is spreading material. Running the vibrator continuously can compact the material and lead to material bridging in the hopper.

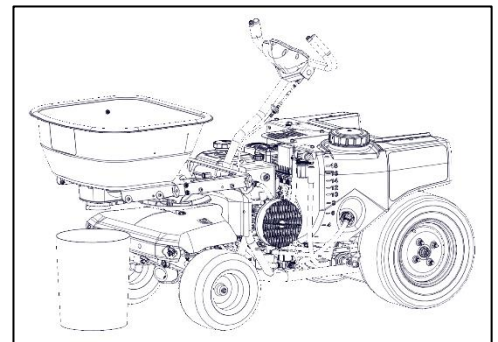
The Narrow and Wide section is where you set the width of the spread pattern. The computer uses this value to match the material flow rate needed to match the desired width with the ground speed. You need to set this Impeller speed here to match this desired width. Normally the “Narrow” is set to 5’ so the spread is approximately 12” past the width of the front tire. It is recommended to use Narrow for the trim pass so the user can see the spread pattern and not spread material on hard surfaces which waste time and material. Trim using the right side for the sharpest edge possible. This trim pass will put down full rate (100%) in a single

pass. For the Wide spread, it is recommended to spread material 2x the spread width number, so you are putting down ½ rate (50%) of the rated material. In this example, you would set the impeller speed to spread material 18’ wide. When doing this, you would spread back the center of your last pass for accurate spacing. This also ensures an even application by covering the area 2x with ½ rate. The initial setting of the impeller speed is an educated guess. This should be tweaked, outside in the grass where you can accurately measure the width. It is recommended to set 2 cones the distance desired so you can accurately set the Wide spread width. The narrow can be done visually by spreading 12” past the front tire. Save these values back in the App if you intend to Export and save the calibration for later use on other machines.

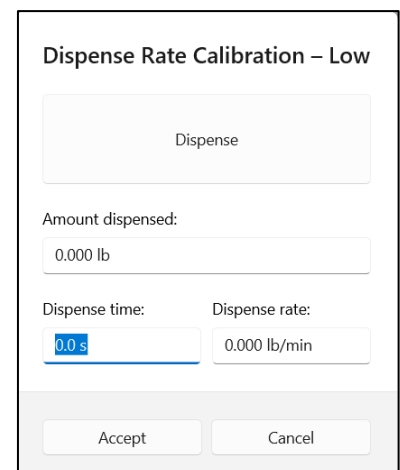
To calibrate the material flow rate, select the prill size based on the SGN number. Medium is the most common size. This sets the low, mid, and high rate calibration points automatically based on the size of material applied.



Next you need to calibrate the Low, Mid, and High rate settings. These 3 points are used to calculate the flow rate at any opening and how the computer matches material flow to ground speed with >99% accuracy. Using the hopper extensions provided in your calibration kit, move the hopper forward as shown and place the calibration bucket under the hopper as shown. Turn the cone under the hopper that is used to shift the spread pattern to the right so all material can land in the bucket. Fill the hopper with approximately ½ bag of material (25 lbs). **Do not fill the hopper when using hopper extensions. You can damage the frame.**



To set the Low Rate data point, place the calibration bucket under the hopper as shown and select “Measure”. The Dispense Rate Calibration window will open. Select “Dispense” and material will start to flow. Allow the material to flow to collect 3-5 lbs of material in the hopper and then select “Dispense” again and the flow will stop. **Weigh just the material dispensed.** The scale should be zeroed with the bucket or remove the weight of the bucket from each run. Enter the pounds in the Amount Dispensed field and the Dispense Rate will be calculated. If your scale measures in lbs. and oz., divide the oz by 16 to get the ounces in a decimal format to enter into the App. For example, if the scale reads 3 lbs 4.3 oz., this would be 3.269 lbs. (4.3 oz / 16 = .269 lbs) Select Accept and the value will be sent to the calibration menu. Repeat this process for the Mid and High Rate data points. Select “Write” at the top right of the page to save the values to the applicator. To verify the values were saved to the

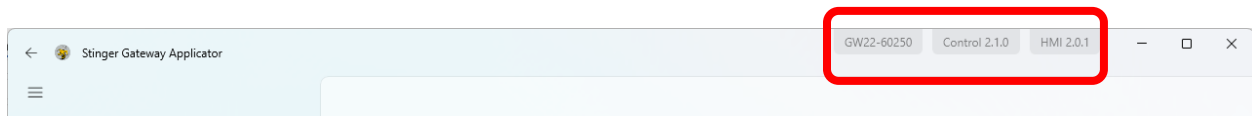


controller, select another preset and then come back to the preset you just complete and verify the values saved correctly. Your calibration is now completed.

You can save or export your calibration to be used later or email your calibration to another person. Make sure to verify the impeller speeds match the spread widths (wide and narrow) when saving a spread calibration.

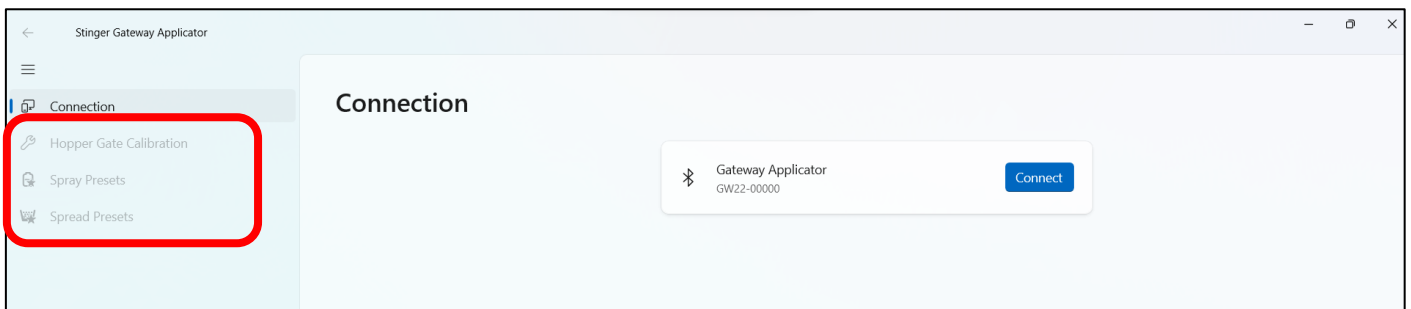
Software Versions

Once the App is connected to a machine. The software versions and serial numbers are shown at the top right. The “Control” is the main controller on the front of the tanks, the HMI is the display on the control panel. With software updates these will change. For all control features to work correctly, the 1st digit of the software version must be the same. In this example, both the Control and HMI are running version 2 software.



Trouble Shooting (Software version 2.X)

1. Bluetooth data transfer can lose connection or pause due to Bluetooth data band width limitations. The Stinger Bluetooth bandwidth will be increased 50x in the next release of firmware. Sometimes the App may lose connection and not update when changing screens in the App. When this happens, the menu shown in red below will be grayed out due to a loss of connection.



Try reconnecting. If a simple reconnect does not work, restart the App and the applicator. It may also be necessary to clear all Gateway Applicators connections from your Bluetooth devices and restart your computer to reestablish the Bluetooth connection. When finished using the App, go back to connections and select Disconnect before closing the program.

2. Sometimes you can select the “Write” button to save changes but due to limited band width the blue “Write” button stays blue which means it didn’t verify the saved changes

with the machine. You can select another window from the left menu shown in red above and go back to where you were working and try it again. It is also recommended to change Preset tabs and come back to where you just saved your changes to ensure your changes were saved.