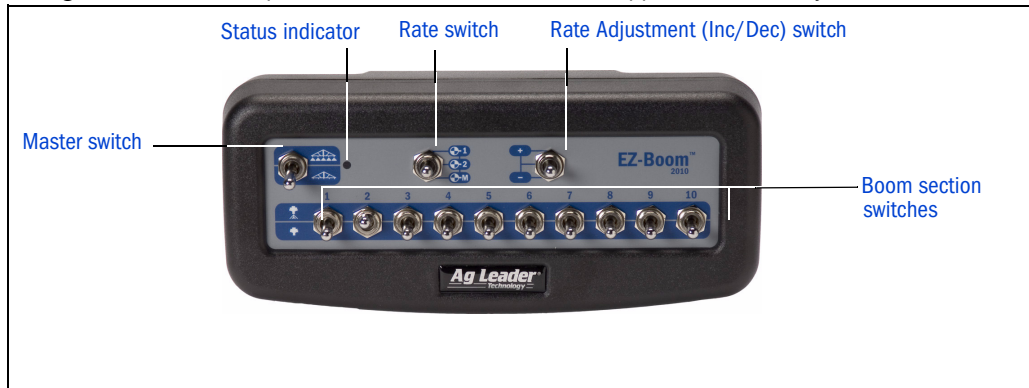


EZ-Boom™ Automated Application Control System Quick Reference Card

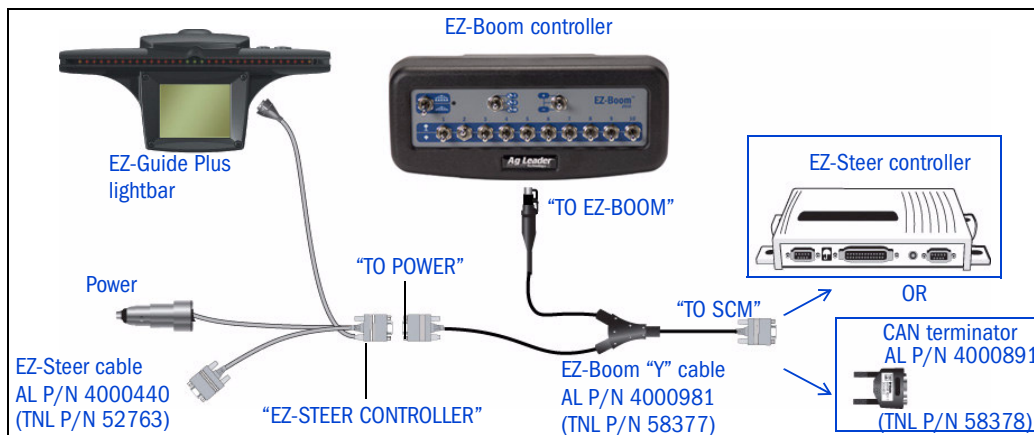
INTRODUCTION

This figure shows the front panel of the EZ-Boom™ automated application control system.



CONNECTING

This figure shows how to connect the EZ-Boom controller to the other system components.



1. On the EZ-Steer® system power cable (AL P/N 4000440, TNL P/N 52763), disconnect the female DE9 connector (“EZ-STEER CONTROLLER”) from the EZ-Steer controller (if fitted).
2. On the EZ-Boom “Y” cable (AL P/N 4000981, TNL P/N 58377):
 - a. Connect the male DE9 connector marked “TO POWER” to the female DE9 connector marked “EZ-STEER CONTROLLER” on the EZ-Steer power cable (AL P/N 4000440, TNL P/N 52763).
 - b. Connect the female DE9 connector marked “TO SCM” to:
 - the EZ-Steer controller (if an EZ-Steer system is installed)
 - the CAN terminating connector (if an EZ-Steer system is not installed)
3. Connect the Deutsch connector (“TO EZ-BOOM”) to the socket on the back of the EZ-Boom controller.

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CONFIGURATION PROCESS

1. Install and connect the hardware.
See [CONNECTING](#).

2. Set up the boom.

Boom Setup	
Swath Width	58' 0"
Boom Width	60' 0"
Fence Nozzles	None
Number Of Sections	10
Section 1 Width	72"

3. Set up the antenna/implement offset.

Antenna is	
	201" Ahead Of implement

4. Set up automatic boom switching.

Swath Control	
Boom Control	Auto
Lead In	1.0s
Off Delay	-1.0s
	Minimize Skip
	Exit

5. Set up the application.

Application Setup	
Rate Control	On
Rate 1	20.0g/a
Rate 2	18.0g/a
Allowable Error	2%
Min Flow	12.4g/m

6. Set up the flow control valve.

Ctrl. Valve Setup	
Type	Inline Servo
Response1	100%
Response2	24%
Threshold	3
	Exit

7. Set up the tank.

Tank Setup	
Capacity	500.0g
Curr Volume	500.0g
Low Limit	50.0g
	Exit

8. Calibrate the pressure sensor (if fitted).

Pressure Cal	
Sensor	On
Slope	16.0mV/psi
Set Point	0.0psi
Pressure	0.0psi
	Calibrate

9. Calibrate the flow meter.

Flow Calibration	
Flow M Cal	3500
Target Rate	20.0g/a
Speed	10.0mph
Total Nozzles	20
	Calibrate

For a detailed description of these steps, see the following pages.

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STEP 2. BOOM SETUP

1. From the configuration menu, select EZ-Boom / Boom. The Boom Setup screen appears.
2. Press the ▲ and ▼ keys to set the Swath Width spacing and Boom Width (coverage width) and then press OK. To create overlap, use a swath width that is narrower than the boom width.
3. Enable any fence nozzles. Fence nozzles are at the far ends of the boom and point out to the sides to cover any fence lines. Switch 1 controls the left fence nozzle, and the first switch after the boom section switches controls the right nozzle. With two fence nozzles, the system supports up to eight boom sections. Fence nozzles are always manually controlled. They must be activated with the corresponding switch.
4. Press the ▲ and ▼ keys to set the Number of Sections value and then press OK. This is the number of sections in the boom. The section widths will automatically adjust to a default that is calculated by dividing the Swath Width value by the Number of Sections value.
5. Press ▲ or ▼ to adjust the section width values and then press OK. As you adjust each section width, the later section widths are adjusted so the specified Boom Width is maintained.
6. Select Exit and then press OK.

Boom Setup	
Swath Width	58' 0" ▲
Boom Width	60' 0"
Fence Nozzles	None
Number Of Sections	10
Section 1 Width	72" ▼

Boom Setup	
Section 7 Width	72" ▲
Section 8 Width	72"
Section 9 Width	72"
Section 10 Width	72" ▼
Exit ↕	

STEP 3. SET THE ANTENNA/IMPL OFFSET

1. From the configuration menu, select EZ-Boom/Ant/Impl Offset. The antenna/impl offset screen appears.
2. Press ▲ or ▼ to adjust the distance the antenna is from the spray boom. You can set the antenna to ahead of, or behind, the implement.
3. Select Exit and then press OK.

STEP 4. AUTOMATIC BOOM SWITCHING SETUP

1. From the configuration menu, select EZ-Boom / Swath Control. The Swath Control screen appears.
2. Set the Boom Control option to Auto or Manual switching and then press OK.
3. Set the Lead In time and then press OK. This is the number of seconds before leaving a sprayed area and entering an unsprayed area that the boom sections will turn on.
4. Set the Off Delay time and then press OK. This represents the amount of time before or after you enter a previously sprayed area that you want the boom sections to turn off. For example, if you want the boom sections to turn off 1 second before you cross into a headland, set the Off Delay time to -1.0 seconds.
5. Select either Minimize Skip or Minimize Overlap.
6. Select Exit and then press OK.

Swath Control	
Boom Control	Auto
Lead In	1.0s
Off Delay	- 1.0s
Minimize Skip	
Exit ↕	

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STEP 5. APPLICATION SETUP

1. From the configuration menu, select EZ-Boom / Application. The Application Setup screen appears.
2. Set the Rate Control option to On or Off and then press **OK**.

Note - If you want the EZ-Boom system to control boom switching only, set Rate Control to Off.

3. If you set the Rate Control option to On:
 - a. Set the Rate 1 value and then press **OK**.
 - b. Set the Rate 2 value and then press **OK**.
 - c. Set the Allowable Error percentage. This is the percentage of allowable Rate1 or Rate2 error before the flow control valve adjusts.
 - d. Set the Min Flow value. If this point is reached, the flow control valve will not reduce the application rate any further.
 - e. Set the Step value. This is the amount that each operation of the Rate Adjustment (Inc/Dec) switch will increase or decrease the current application rate when the Rate switch is in the Rate 1 or Rate 2 position.

Note - In the Manual position, Step does not apply. The Rate Adjustment (Inc/Dec) switch actuates the valve directly (hold the switch to increase/decrease).

4. Select Exit and then press **OK**.

Application Setup	
Rate Control	On
Rate 1	20.0g/a
Rate 2	18.0g/a
Allowable Error	2%
Min Flow	12.4g/m
Step	1.0g/a
Exit	

STEP 6. FLOW CONTROL VALVE SETUP

1. From the configuration menu, select EZ-Boom / Control Valve. The Ctrl. Valve Setup screen appears.
2. In the Type field, select the type of control valve: Inline Servo, Bypass Servo, Pump Servo, or PWM.
3. If the valve type is Inline Servo, Bypass Servo, or Pump Servo:

- a. Set the Response1 value to the desired adjustment speed of the valve when the application rate is outside the Threshold.
- b. Set the Response2 value to the desired adjustment speed of the valve when the application rate is within the Threshold.
- c. Set the Threshold. This is the point at which the application rate is close enough to the target rate for the adjustment speed of the valve to switch from Response1 to Response2.

If the valve type is PWM:

- a. In the Frequency field, select the operating frequency of the valve.
 - b. Set the Gain value. This determines the adjustment speed of the valve.
 - c. Set the 0 Flow Offset. This is the shut-off point of the PWM valve.
4. Select Exit when done.

Ctrl. Valve Setup	
Type	Inline Servo
Response1	100%
Response2	24%
Threshold	3
Exit	

Ctrl. Valve Setup	
Type	PWM
Frequency	100Hz
Gain	100
0 Flow Offset	30%
Exit	

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STEP 7. TANK SETUP

1. From the configuration menu, select EZ-Boom / Tank Setup. The Tank Setup screen appears.
2. Set the Capacity value to the capacity of the tank when full.
3. Set the Curr Volume value to the current volume of the tank. This value will decrease as you use the spray solution.
4. Set the Low Limit value. A warning appears when the volume reaches this level, to warn you that the tank is nearly empty.
5. Select Exit when done.

Tank Setup	
Capacity	500.0g
Curr Volume	500.0g
Low Limit	50.0g
Exit	

STEP 8. PRESSURE CALIBRATION

1. From the configuration menu, select EZ-Boom / Pressure Calibration. The Pressure Calibration screen appears.
2. Set the Slope value. Slope is the relationship between pressure and the output of the sensor. The default of 16 mV/psi is recommended for a Raven pressure sensor. Slope is measured in mV/kPa or mV/psi.
3. Set the Set Point value. The Set Point is the actual pressure at the time of calibration.

Pressure Cal	
Sensor	On
Slope	16.0mV/psi
Set Point	0.0psi
Pressure	0.0psi
Calibrate	

- The Pressure value shows the pressure that the sensor is reporting and will update, based on the Slope and Set Point entered.
4. Select Calibrate to send the new Slope and Set Point values to the EZ-Boom controller. After calibrating, check that the Pressure value is correct.
 5. Select Exit when done.

STEP 9. FLOW METER CALIBRATION

1. From the configuration menu, select EZ-Boom / Flow Calibration. The Flow Calibration screen appears.
2. Enter the flowmeter calibration number. You can find the number on the flow meter, or by contacting the flow meter manufacturer. The number you enter will be either pulses per gallon (US) or pulses per litre (metric).
3. For a Raven flow meter, enter the calibration number as it is written on the tag. For other brands of flow meter, add a 0 to the number when you enter it (for example, if the number is 75, enter 750).

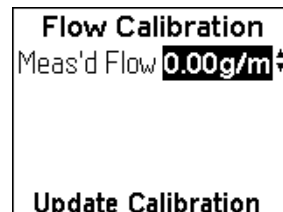
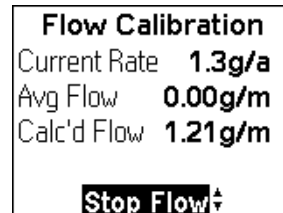
Flow Calibration	
Flow M Cal	3500
Target Rate	20.0g/a
Speed	10.0mph
Total Nozzles	20
Calibrate	

- Note** - At this point you can choose to use the flow meter calibration number by exiting the screen, or you can fine tune the calibration by following the steps below.
4. In the Target Rate field, set the desired application rate.
 5. In the Speed field, set the desired speed.
 6. In the Total Nozzles field, specify the number of boom nozzles that will be turned on during the calibration. Do not count the fence nozzles. *(Continued on following page)*

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Note – For correct calibration, all the boom (but not fence) nozzles must be operational and turned on.

7. Select Calibrate, read the information screen, and then select Start Flow to start the flow.
8. Measure the volume from 2 or 3 nozzles for 1 minute each.
9. Press **OK** to stop the flow.
10. Calculate the volume per minute/per nozzle of your sprayer by dividing the total volume measured by the number of nozzles that you took measurements from.
11. In the Meas'd Flow field, set the actual volume that you calculated in Step 10. The system will calculate the difference between the measured flow/nozzle and the averaged flow/nozzle.
12. Select Update Calibration to continue. The flowmeter calibration will be adjusted.



DIAGNOSTICS


To view the diagnostics information, from the configuration menu select EZ-Boom / Diagnostics. This information may be useful for troubleshooting or if you need support help.

FAULT HISTORY

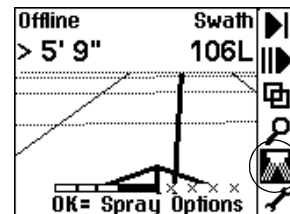
To view previous system faults, from the configuration menu select EZ-Boom / Fault History. The EZ-Boom Faults screen shows the four most recent EZ-Boom system faults. The most recent appears at the top.

Note – Faults shown on this screen are not necessarily still active.

NAVIGATION SCREEN: SPRAY ICON

When the EZ-Boom system is connected to the EZ-Guide® Plus lightbar guidance system, the spray icon  appears among the action icons on the right of the lightbar display. The spray icon provides quick-access to some of the most common EZ-Boom system settings. The sprayer bar at the base of the screen indicates the state of the spray sections:

Appearance	Description
x	The boom section is disabled (the switch is off)
Empty box	The boom section is on, but not spraying
Solid box	The boom section is currently spraying



For more info, refer to the EZ-Boom Automated Application Control System Getting Started Guide.

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AL P/N 2005854 (TNL 72100-80-ENG), Rev B 