

# Sensor Gateway Module Quick Reference Guide

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# INITIAL CALIBRATION WIZARD



NOTE: Touch the Previous  and Next  buttons at the bottom of the screen to navigate between pages.

FIGURE 1. Name Profile Page



1. Type the desired name in the Profile Name field.
2. Select the desired option from the Application Type drop-down menu.

NOTE: Currently only Planter is available. There may be more options in the future.

3. If desired, select the Rate Controller Communication check box to allow section control, rate, and speed information from the Rate Controller. This feature is only compatible with the Raven Rate Control Module (RCM).
4. Touch the Next button The *System Setup* page will open.

FIGURE 2. System Setup Page



5. Select the corresponding ECU number from the ECU # drop-down for each ECU serial number.

NOTE: Currently only ECU #1 is available. There may be more options in the future.

6. Touch Next. The *Section Setup* page will open. Skip to step 10 if the Rate Controller Communication box was checked in step 3. Otherwise, continue to step 7.

FIGURE 3. Section Setup without Rate Controller Communication Page



7. Enter the distance between each row in the Row Spacing field. Use centimeters if the system is set to metric units. Use inches if the system is set to US units.
8. Enter the total number of sensors in the Number of Rows field. The maximum is 26.
9. Touch Next. The *Setup Summary* page will open.

FIGURE 4. Setup Summary without Rate Controller Communication Page

**Setup Summary**

Profile Name  
16 row

Application Type  
Planter

ECU Mode  
Stand Alone

Sections: 0      Application Width: 40.0 (ft)

Rows: 16      Row Spacing: 30.0 (in)

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FIGURE 5. Section Setup with Rate Controller Communication Page

**Section Setup**

Enter the number of sections, row spacing, and number of rows. Once complete, press the "Next" button to continue setup. ?

Number of Sections: 16

Row Spacing (in): 30.0

Number of Rows: 16

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NOTE: The above figure and following steps apply when the Rate Controller Communication check box is selected in step 3.

10. Enter the number of sections that are controlled by the RCM in the Number of Sections field.
11. Enter the distance between each row in centimeters or inches in the Row Spacing field.
12. Enter the total number of sensors in the Number of Rows field. The maximum is 26.
13. Touch Next. The *Setup Summary* page will open.

FIGURE 6. Setup Summary with Rate Controller Communication Page

The screenshot displays the 'Setup Summary' interface. At the top, the title 'Setup Summary' is centered in a blue header. Below this, the 'Profile Name' field contains '16 row'. The 'Application Type' field is set to 'Planter'. The 'ECU Mode' field is set to 'Rate Controller Communication'. Below these are four numeric input fields: 'Sections' (16), 'Application Width' (40.0 ft), 'Rows' (16), and 'Row Spacing' (30.0 in). At the bottom, there is a 'RAVEN' logo, a progress bar, and two navigation buttons with left and right arrows.

Field	Value	Unit
Profile Name	16 row	
Application Type	Planter	
ECU Mode	Rate Controller Communication	
Sections	16	
Application Width	40.0	(ft)
Rows	16	
Row Spacing	30.0	(in)

# MAIN RUN SCREEN


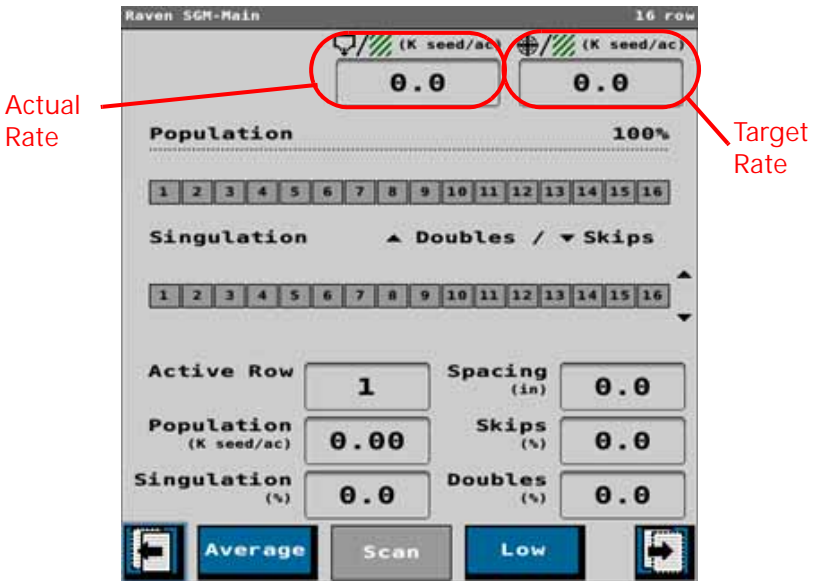
1. Touch the Home  icon. The *SGM-Main* screen will open.

FIGURE 7. SGM-Main Screen



2. Enter the target rate value in the Target Rate field if Rate Controller Communication is not enabled.

**NOTE:** The Target Rate value comes automatically from the Rate Controller Communication when the Rate Controller Communication is enabled.

The Actual Rate value is the actual rate based on the seed tube sensor reading working width and speed.

**NOTE:** The Population Bar Graph shows the percent (%) of population for each row.

The Singulation Bar Graph shows the percent (%) of skips and doubles on each row.



FIGURE 8. Footer Bar

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NOTE: This footer bar is at the bottom of the Main screen.

Touch the Average button to show the average information for all rows.

Touch the Scan button to scan through all the rows one at a time showing detailed information.

Touch the Low button to show the information for the row with the lowest performance.

FIGURE 9. Alternate Footer Bar

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NOTE: Touch the Left and Right buttons to scroll between the two footer bars.

## SETUP SCREEN


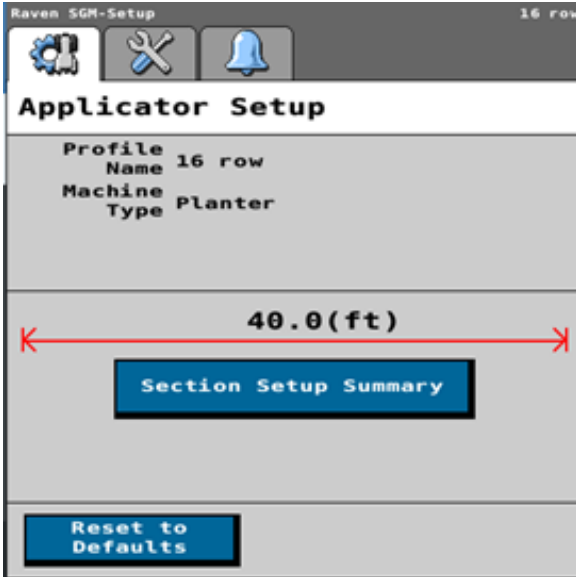
1. Touch the Settings  button. The *SGM-Setup* screen will open.

FIGURE 10. Applicator Setup Window



NOTE: The Section Setup Summary button in the middle of the screen shows details of how the rows and sections are configured.

The Reset to Defaults button in the bottom left of the screen resets the profile completely and take the operator back to the initial calibration wizard.


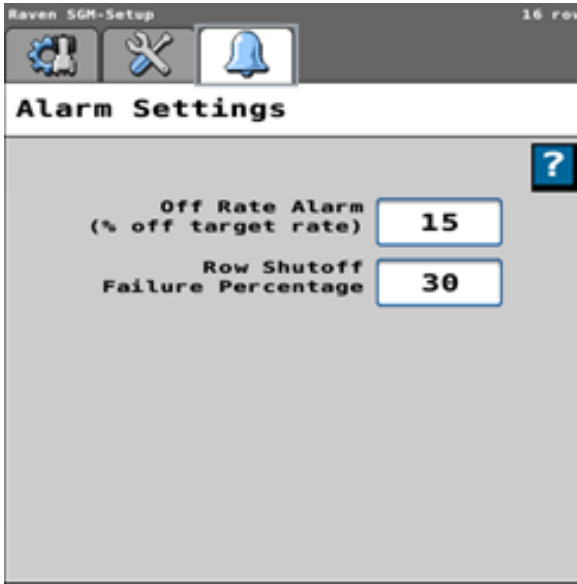
2. Touch the Alarm  tab at the top of the screen. The *Alarm Settings* window will open.

FIGURE 11. Alarm Settings Window



NOTE: The Off Rate Alarm value is the percent that any individual row population reading can be off before it triggers an alarm.

The Row Shutoff Failure Percentage value is the percent of target population that will trigger a row shut off failure.

# ROW DETAILS SCREEN




1. Touch the Row Details  button. The *SGM-Row Details* screen will open.

FIGURE 12. Row Details Screen

Row Number

Raven SGM-Row Details						16 row
Row Details						
Row	Population (K seed/ac)	Singulation (%)	Spacing (in)	Skips (%)	Doubles (%)	
1	0.0	0.0	0.0	0.0	0.0	
2	0.0	0.0	0.0	0.0	0.0	
3	0.0	0.0	0.0	0.0	0.0	
4	0.0	0.0	0.0	0.0	0.0	
5	0.0	0.0	0.0	0.0	0.0	
6	0.0	0.0	0.0	0.0	0.0	
7	0.0	0.0	0.0	0.0	0.0	
8	0.0	0.0	0.0	0.0	0.0	
9	0.0	0.0	0.0	0.0	0.0	
10	0.0	0.0	0.0	0.0	0.0	
11	0.0	0.0	0.0	0.0	0.0	
12	0.0	0.0	0.0	0.0	0.0	

NOTE: The leftmost Row column is the row number.

# DIAGNOSTICS SCREEN


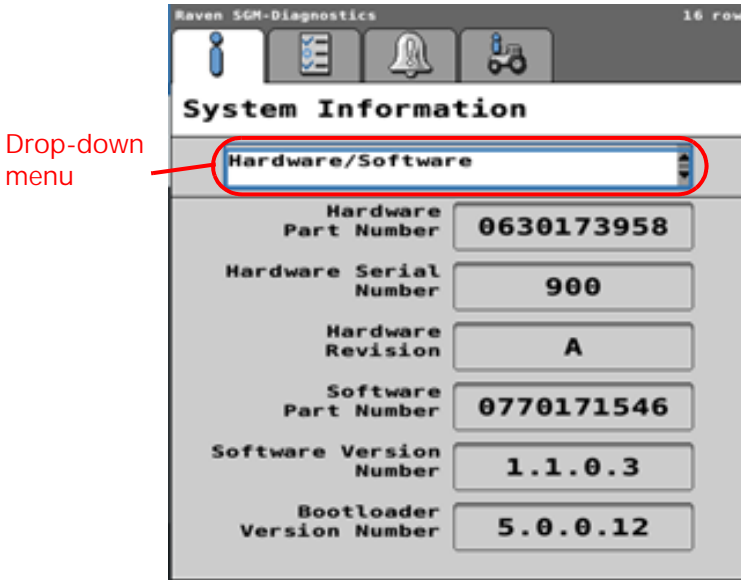
1. Touch the Diagnostics  button. The *SGM-Diagnostics* screen will open.

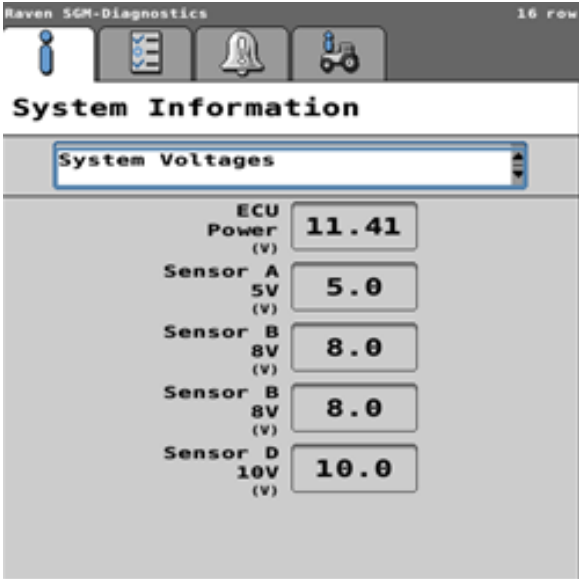
FIGURE 13. System Information-Hardware/Software Window



NOTE: The drop-down menu on the screen has the following options: Hardware/Software, System Voltages, and Working parameters.

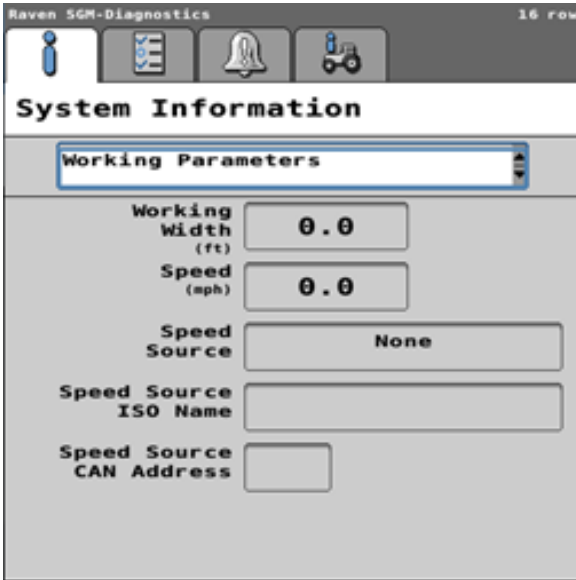
The *Hardware/Software* window shows hardware and software information.

FIGURE 14. System Information-System Voltages Window



NOTE: The *System Voltages* window shows the system voltages of the ECU.

FIGURE 15. System Information-Working Parameters Window



NOTE: The *Working Parameters* window gives some basic data about the current system.

The Working Width is the width of the sections that are turned on and applying product.

The Speed is the speed that the ECU is receiving.

The Speed Source is the speed source that the ECU is using.

The Speed Source CAN Address is the CAN address of the speed source that is being used by the ECU.


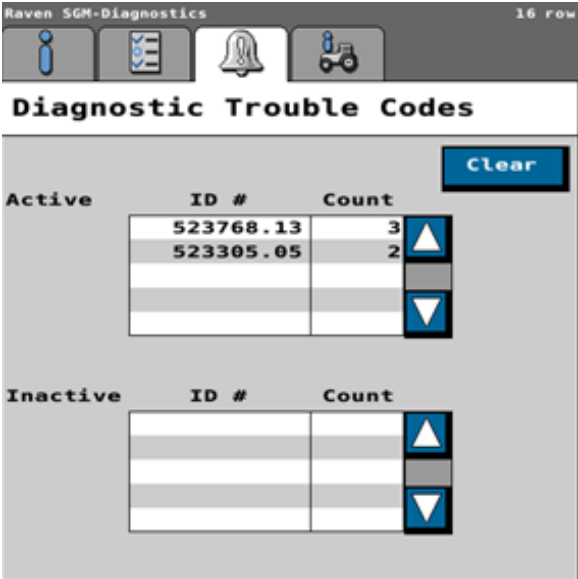
2. Touch the Alarm  tab at the top of the screen. The *Diagnostic Trouble Codes* window will open.

FIGURE 16. Diagnostic Trouble Codes Window



NOTE: The *Diagnostic Trouble Codes* window shows the ID and count of both active and previously active trouble codes.


- 3. Touch the System Information  tab. The *System Summary* window will open.



FIGURE 17. System Summary



NOTE: The *System Summary* window gives an overview of the configuration.

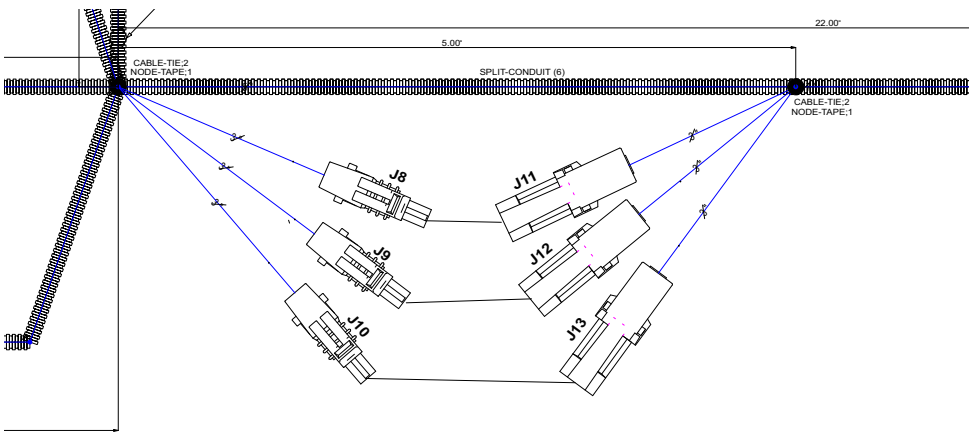
The Reset to Defaults button resets the ECU to factory settings and deletes the profile. It will also take the operator back to the initial calibration wizard. Profiles cannot be saved.

# APPENDIX: WIRING INSTRUCTIONS

The below connections are located 5 in [12.7 cm] to the right of the branch-off ECU.

The following drawing shows the supplied configuration for use with a Raven or John Deere seed tube sensor harness.

FIGURE 18. Supplied Configuration



J8	
COLOR	LABEL
BLK/WHT	ROW SENSOR 24

J11	
COLOR	LABEL
BLK/WHT	RAVEN/DEERE SENSOR 24/DJ PWR

J9	
COLOR	LABEL
BLK	SENSOR GND

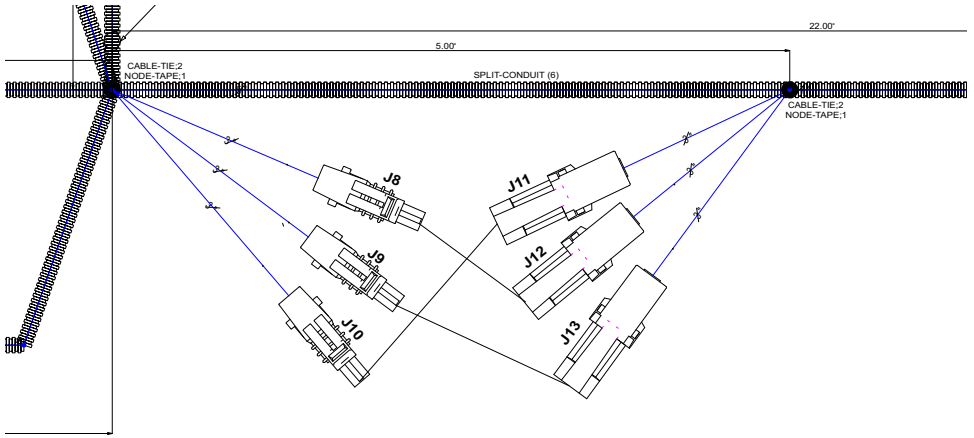
J12	
COLOR	LABEL
BLK	RAVEN/DEERE SENSOR GND/DJ SENSOR 24

J10	
COLOR	LABEL
RED/WHT	SNR B/ PWR

J13	
COLOR	LABEL
RED/WHT	RAVEN/DEERE B/ PWR/DJ SENSOR GND

The following drawing shows the change in harness wiring when installing a Sensor Gateway Module ECU Harness in conjunction with a Dickey-John seed tube sensor harness.

FIGURE 19. Dickey John Configuration



J8	
COLOR	LABEL
BLK/WHT	ROW SENSOR 24

J11	
COLOR	LABEL
BLK/WHT	RAVENDEERE SENSOR 24/DJ BY PWR

J9	
COLOR	LABEL
BLK	SENSOR GND

J12	
COLOR	LABEL
BLK	RAVENDEERE SENSOR GND/DJ SENSOR 24

J10	
COLOR	LABEL
RED/WHT	SNR BY PWR

J13	
COLOR	LABEL
RED/WHT	RAVENDEERE BY PWR/DJ SENSOR GND

1. Connect the J8 to the J12.
2. Connect the J9 to the J13.
3. Connect the J10 to the J11.

# LIMITED WARRANTY

## WHAT DOES THIS WARRANTY COVER?

This warranty covers all defects in workmanship or materials in your Raven Applied Technology Division product under normal use, maintenance, and service when used for intended purpose.

## HOW LONG IS THE COVERAGE PERIOD?

Raven Applied Technology products are covered by this warranty for 12 months from the date of retail sale. In no case will the Limited Warranty period exceed 24 months from the date the product was issued by Raven Industries Applied Technology Division. This warranty coverage applies only to the original owner and is non-transferable.

## HOW CAN I GET SERVICE?

Bring the defective part and proof of purchase to your Raven dealer. If the dealer approves the warranty claim, the dealer will process the claim and send it to Raven Industries for final approval. The freight cost to Raven Industries will be the customer's responsibility. The Return Materials Authorization (RMA) number must appear on the box and all documentation (including proof of purchase) must be included inside the box to be sent to Raven Industries.

## WHAT WILL RAVEN INDUSTRIES DO?

Upon confirmation of the warranty claim, Raven Industries will (at our discretion) repair or replace the defective product and pay for the standard return freight, regardless of the inbound shipping method. Expedited freight is available at the customer's expense.

## WHAT IS NOT COVERED BY THIS WARRANTY?

Raven Industries will not assume any expense or liability for repairs made outside our facilities without written consent. Raven Industries is not responsible for damage to any associated equipment or products and will not be liable for loss of profit, labor, or other damages. The obligation of this warranty is in lieu of all other warranties, expressed or implied, and no person or organization is authorized to assume any liability for Raven Industries.

**Damages caused by normal wear and tear, misuse, abuse, neglect, accident, or improper installation and maintenance are not covered by this warranty.**

# EXTENDED WARRANTY

## WHAT DOES THIS WARRANTY COVER?

This warranty covers all defects in workmanship or materials in your Raven Applied Technology Division product under normal use, maintenance, and service when used for intended purpose.

## DO I NEED TO REGISTER MY PRODUCT TO QUALIFY FOR THE EXTENDED WARRANTY?

Yes. Products/systems must be registered within 30 days of retail sale to receive coverage under the Extended Warranty. If the component does not have a serial tag, the kit it came in must be registered instead.

## WHERE CAN I REGISTER MY PRODUCT FOR THE EXTENDED WARRANTY?

To register, go online to [www.ravenhelp.com](http://www.ravenhelp.com) and select Product Registration.

## HOW LONG IS THE EXTENDED WARRANTY COVERAGE PERIOD?

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## HOW CAN I GET SERVICE?

Bring the defective part and proof of purchase to your Raven dealer. If the dealer approves the warranty claim, the dealer will process the claim and send it to Raven Industries for final approval. The freight cost to Raven Industries will be the customer's responsibility. The Return Materials Authorization (RMA) number must appear on the box and all documentation (including proof of purchase) must be included inside the box to be sent to Raven Industries. In addition, the words "Extended Warranty" must appear on the box and all documentation if the failure is between 12 and 24 months from the retail sale.

## WHAT WILL RAVEN INDUSTRIES DO?

Upon confirmation of the product's registration for the Extended Warranty and the claim itself, Raven Industries will (at our discretion) repair or replace the defective product and pay for the standard return freight, regardless of the inbound shipping method. Expedited freight is available at the customer's expense.

## WHAT IS NOT COVERED BY THE EXTENDED WARRANTY?

Raven Industries will not assume any expense or liability for repairs made outside our facilities without written consent. Raven Industries is not responsible for damage to any associated equipment or products and will not be liable for loss of profit, labor, or other damages. Cables, hoses, software enhancements, and remanufactured items are not covered by this Extended Warranty. The obligation of this warranty is in lieu of all other warranties, expressed or implied, and no person or organization is authorized to assume any liability for Raven Industries.

**Damages caused by normal wear and tear, misuse, abuse, neglect, accident, or improper installation and maintenance are not covered by this warranty.**