KINZE ISOBUS ELECTRONICS PACKAGE
(Models 3200/3600/3660/3700/3800 Planters)
(Model 4900 Mechanical Planter)

OPERATOR MANUAL

M0246 Rev. 5/16

This manual is applicable to: Kinze ISOBUS Planter Monitoring/Control System
Firmware Version: 3.0

Record the serial numbers of your planter control system and the purchase date:

Planter Monitor Module Serial Number _____

Planter Control Module Serial Number _____

Date Purchased _____

Measured Pulses Per Mile
(Planter Seed Sensor) _____

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Kinze Manufacturing, Inc. thanks you for your patronage. We appreciate your confidence in Kinze farm machinery. Your Kinze planter has been carefully designed to provide dependable operation in return for your investment.

This manual has been prepared to aid you in the operation and maintenance of the ISOBUS display. It should be considered a permanent part of the machine and remain with the machine when you sell it.

It is the responsibility of the user to read and understand the Operator Manual in regards to safety, operation, lubrication and maintenance before operation of this equipment. It is the user's responsibility to inspect and service the machine routinely as directed in the Operator Manual. We have attempted to cover all areas of safety, operation, lubrication and maintenance; however, there may be times when special care must be taken to fit your conditions.

Throughout this manual the symbol ⚠ and the words **DANGER, WARNING,** and **CAUTION** are used to call attention to safety information that if not followed, will or could result in death or injury. **NOTICE** and **NOTE** are used to call your attention to important information. The definition of each of these terms follows:

⚠ **DANGER Indicates a hazardous situation which, if not avoided, will result in death or serious injury.**

⚠ **WARNING Indicates a hazardous situation which, if not avoided, could result in death or serious injury.**

⚠ **CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.**

***NOTICE* is used to address practices not related to personal injury.**

NOTE: Special point of information or machine adjustment instructions.

⚠ WARNING

Improperly operating or working on this equipment could result in death or serious injury. Read and follow all instructions in Operator Manual before operating or working on this equipment.

⚠ WARNING

Some photos in this manual may show safety covers, shields, or lockup devices removed for visual clarity. NEVER OPERATE OR WORK ON machine without all safety covers, shields, and lockup devices in place as required.

NOTE: Photos in this manual may be of prototype machines. Production machines may vary in appearance.

NOTE: Some photos and illustrations in this manual show optional attachments installed. Contact your Kinze Dealer for purchase of optional attachments.

The Kinze Limited Warranty for your new machine is stated on the retail purchaser's copy of the Warranty And Delivery Receipt form. Additional copies of the Limited Warranty can be obtained through your Kinze Dealer.

Warranty, within the warranty period, is provided as part of Kinze's support program for registered Kinze products which have been operated and maintained as described in this manual. Evidence of equipment abuse or modification beyond original factory specifications will void the warranty. Normal maintenance, service and repair is not covered by Kinze warranty.

To register your Kinze product for warranty, a Warranty And Delivery Receipt form must be completed by the Kinze Dealer and signed by the retail purchaser, with copies to the Dealer, and to the retail purchaser. Registration must be completed and submitted to Kinze Manufacturing, Inc. within 5 business days of delivery of the Kinze product to the retail purchaser. Kinze Manufacturing, Inc. reserves the right to refuse warranty on serial numbered products which have not been properly registered.

If service or replacement of failed parts which are covered by the Limited Warranty are required, it is the user's responsibility to deliver the machine along with the retail purchaser's copy of the Warranty And Delivery Receipt to the Kinze Dealer for service. Kinze warranty does not include cost of travel time, mileage, hauling or labor. Any prior arrangement made between the Dealer and the retail purchaser in which the Dealer agrees to absorb all or part of this expense should be considered a courtesy to the retail purchaser.

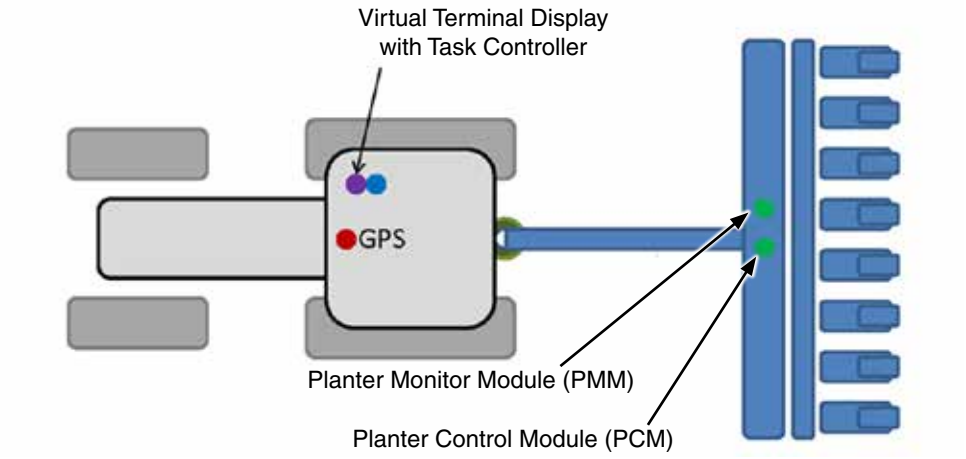
Kinze warranty does not include cost of travel time, mileage, hauling, or labor.

ISOBUS is an agricultural industry term used to describe software and hardware that complies with the global ISO11783 standard. ISO11783 was created by an international standards committee of representatives from different agricultural companies. The standard was created to allow *plug-and-play* compatibility between different manufacturers of tractors, harvesters, sprayers, implements, and more.

There are 14 different parts to the ISO11783 standard. A device does not have to support all 14 parts to be considered ISO compatible or certified. The parts that are important to the Kinze ISOBUS solution are the Virtual Terminal (VT) and the Task Controller (TC).

ISOBUS COMPONENTS

- Virtual Terminal (VT) - A display in the cab of the tractor. The operator interacts with the display to monitor information and change settings.
- Task Controller (TC) - Makes automatic swath control, automatic rate control, and as-applied mapping possible. The functionality is software based, so does not require a separate box. When present, it is normally built into the display. Every ISOBUS display is a Virtual Terminal, but not every display has a task controller.
- Planter Monitor Module (PMM) - The brains of the system. This device is found on the planter and relays information to and takes inputs from the VT. The PMM is part of the Kinze ISOBUS option.
- Planter Control Module (PCM) - Device on the planter that executes the manual and automatic rate control, clutches and automatic clutch control, plus swath control commands. These functions are available with the Kinze ISOBUS product



GENERAL INFORMATION

The information used in this manual was current at the time of printing. However, due to Kinze's ongoing product improvement, production changes may cause your planter control system display to appear or operate slightly different in detail. Kinze Manufacturing, Inc. reserves the right to change specifications or design without notice and without incurring obligation to install the same on machines previously manufactured.

Right hand (R.H.) and left hand (L.H.), as used throughout this manual, are determined by facing in the direction the machine will travel when in use, unless otherwise stated.

KINZE ISOBUS PLANTER CONTROL SYSTEM DISPLAY

Absolute Voltage Range	0 to 60v
Connector	(1) 9-Pin Deutsch
Environmental Operating Temperature	14˚ to 149˚F
Full Function Voltage Range	8 to 18v
Input/Output	CAN, Muxbus
Maximum Current Draw	20A
Operating Voltage Range	6 to 19v
Power Loss Protection for Shutdown	Yes
Reverse Voltage Protection	Yes
Storage Temperature	-22˚ to 158˚F

ISOBUS SYSTEM

ISOBUS provides a consistent user interface for planter functionality, regardless of the tractor brand that is pulling the implement. The ISOBUS control system plugs into a compatible, existing monitor in the cab of the tractor. The existing monitor becomes a Virtual Terminal (VT) for Kinze controls and monitoring.

CAN-BUS TECHNOLOGY

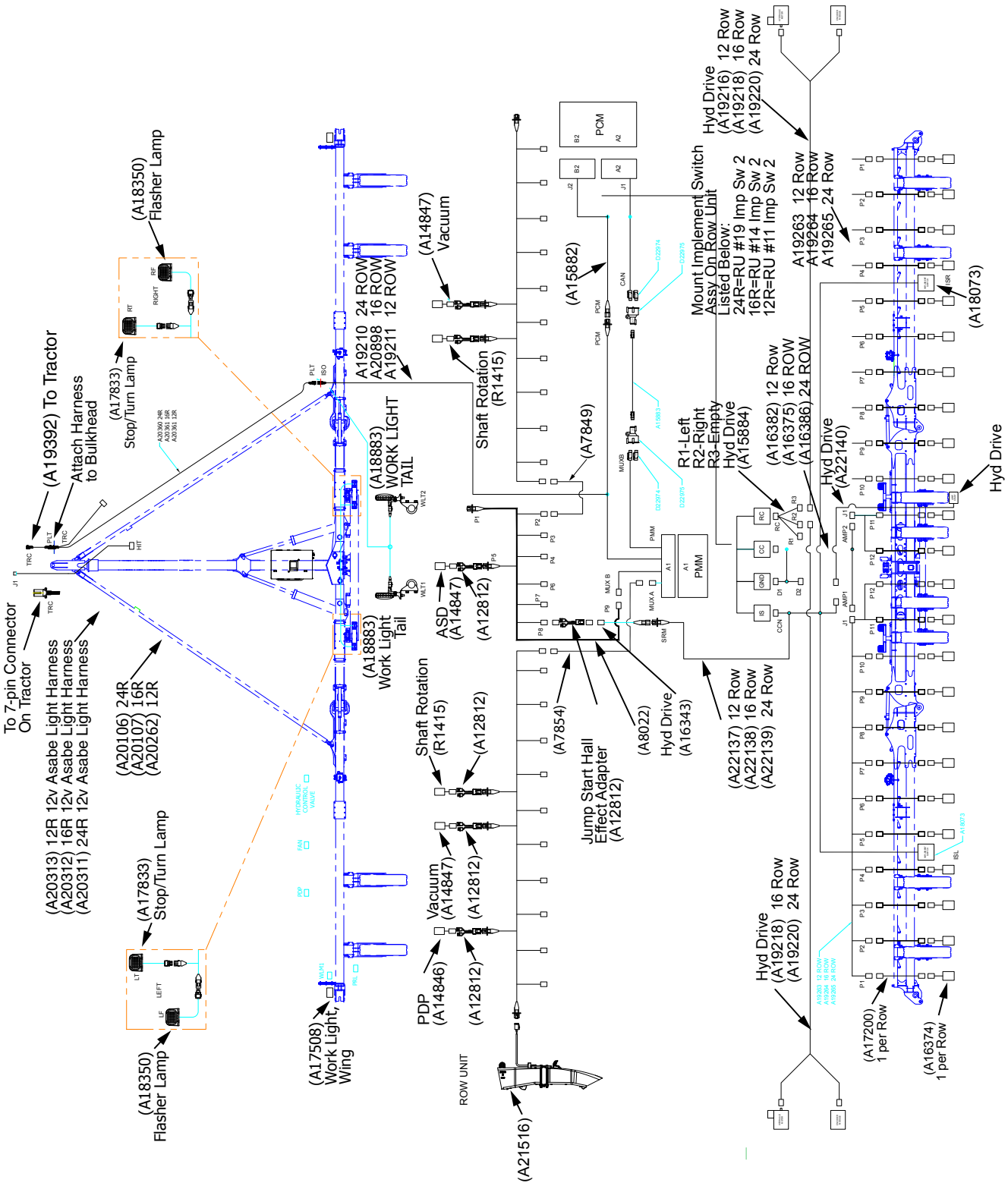
The ISOBUS system uses Controller Area Network (CAN) technology. CAN systems are comprised of individual modules, each with their own high speed processor, connected through a high-speed communications cable. CAN has many benefits, including greater ability to configure and expand the system, compatibility, simpler installs with less wiring and increased system dependability.

9-PIN CONNECTOR

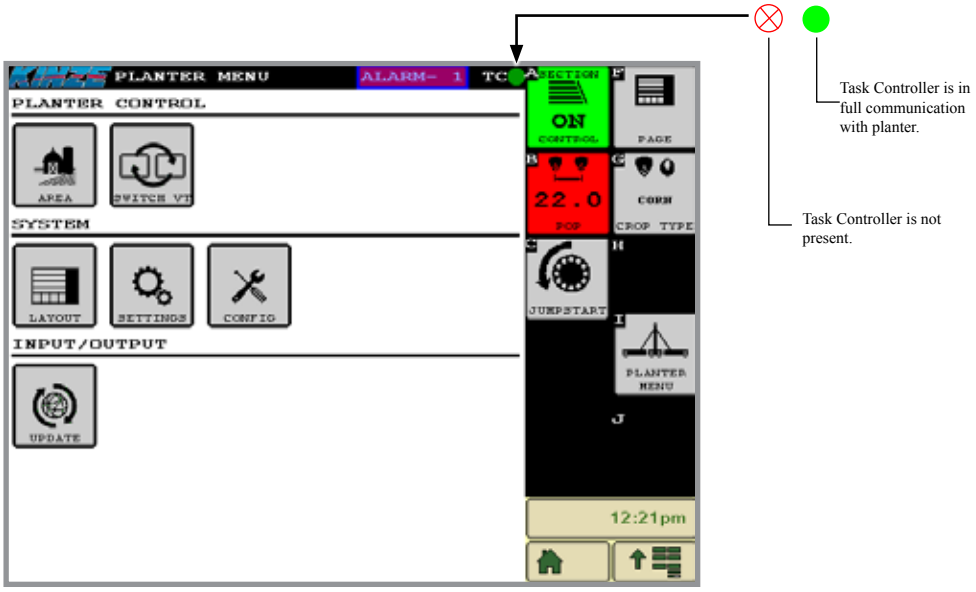
The 9-Pin round pin connector contains CAN, ECU power, solenoid power, and grounds .

NOTE: The displays used in this manual are from a John Deere virtual terminal. Your virtual terminal may vary slightly depending on the manufacturer.

ISOBUS DIAGRAM

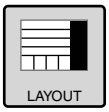


HOME SCREEN



Area opens window that displays multiple acre counters.

Switch VT toggles between displays when more than one display is being used.



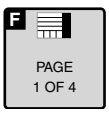
Layout button opens window to set the layout and visibility of the plant screens 1-6.

Settings button opens window that display Speed Input, Advance Seed Counter, Muxbus, Pneumatic Downforce, Seed Sensor Sensitivity, Population Monitoring, Bulk Fill Pressure, Bulk Fill Scale, and EdgeVac Pressure. For more information, see the Settings Section.

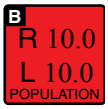
Update button opens window that displays upgrades that are available on a USB Drive.

Configuration button opens a wizard that steps through the configuration of the planter. For more information, see the Configuration Section.

Section Control button will turn section control on or off from the planter. If turned off, use the manual section buttons. Refer to page 20 for more information.



Pages Tapping on the "Pages" button allows you to toggle through the plant screens and menu.



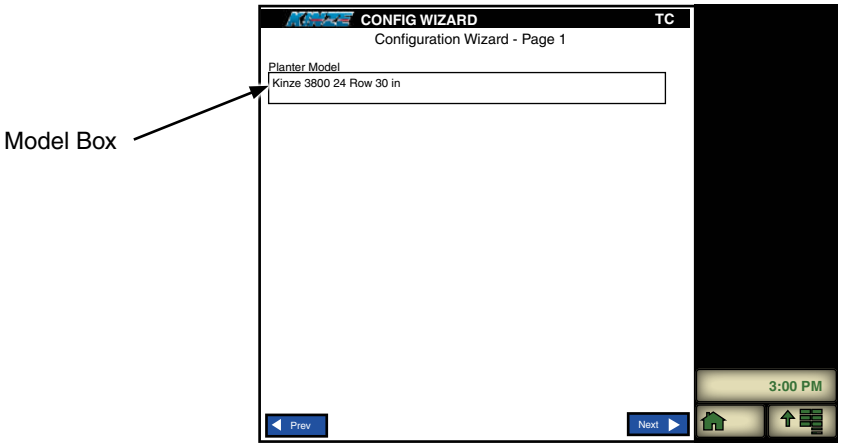
Population button opens window that lets you select a desired planting rate.

Crop Type button opens window that allows you to select crop type and row spacing.

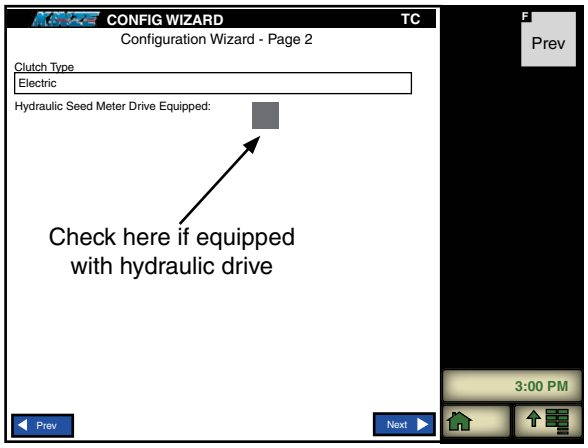
Jump Start manually turns meters on before desired speed is reached by pushing button and holding.

Planter Menu returns you to the planter menu from any screen.

CONFIGURATION WIZARD

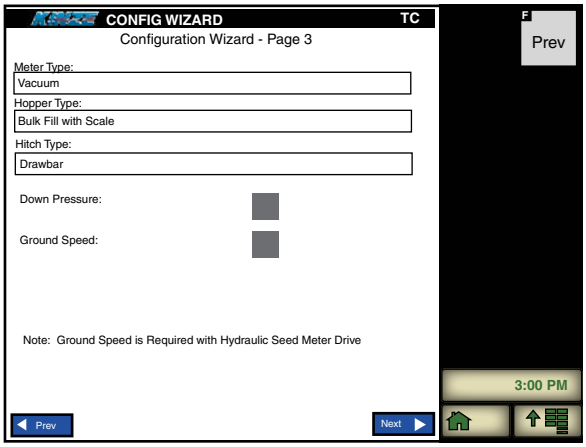


Page 1 - Select planter model by tapping on model box to bring up complete list. Select your model, number of rows and row spacing.



Page 2 - Select your clutch, electric or pneumatic. If equipped with a hydraulic seed meter drive, click in the gray box so a checkmark appears. Refer to "Advanced Settings" on page 36 for information on setting hydraulic drive gear ratio.

CONFIGURATION WIZARD (Continued)

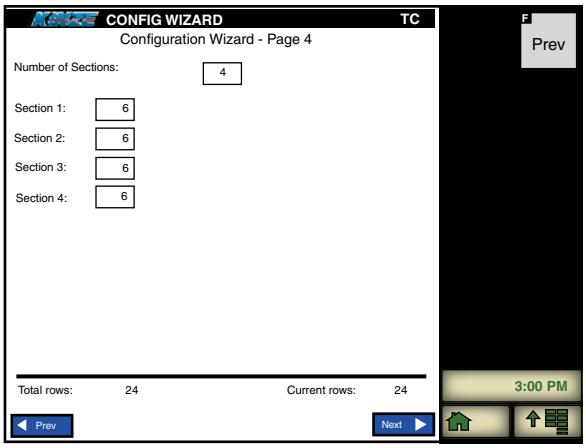


Page 3 - Select either vacuum or mechanical style meter. Select either hopper or bulk fill. If you have a scale option on your bulk fill, select bulk fill with scales.

If applicable, select hitch option.

If applicable, click in the gray box next to Down Pressure and Ground Speed so a checkmark appears.

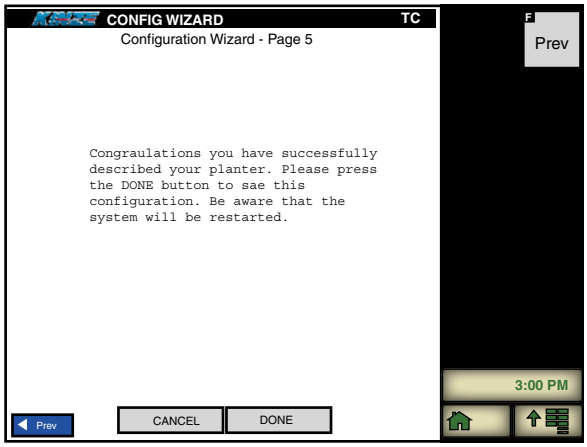
NOTE: Ground Speed (jump start) is required for hydraulic drive configurations.



Page 4 - Clutch sections are set up in this page. If you have Kinze installed electric clutches, the sections will be automatically populated. If so, click NEXT. If not, do the following:

1. Enter number of sections.
2. Enter the number of rows in each section.
3. Confirm that the total rows match the current rows. If so, click NEXT.
4. If not, correct the number of rows per section. Select NEXT.

CONFIGURATION WIZARD (Continued)



Page 5 - Congratulations! You will see this screen after you have properly defined your planter.

Click DONE. The system will automatically shut down and reconfigure for your planter.

When the system is finished rebooting, you will be at the Muxbus screen. The system will instruct you in which order to plug in your sensors.

SENSOR PROGRAMMING

1. With all of the sensors unplugged from the main harness, select Auto Detect.
2. A list will appear on screen that will instruct when and how to plug in different sensor types. The list can also be viewed by selecting the drop down list in the center of the screen.

IMPORTANT: Sensors must be programmed in exact order. Follow instructions on screen.

3. Each time a sensor is plugged in, the display will beep.
4. In the center of the screen, there will be a count of how many sensors are left to program.
5. Once all sensors are plugged in, the status screen will reappear.

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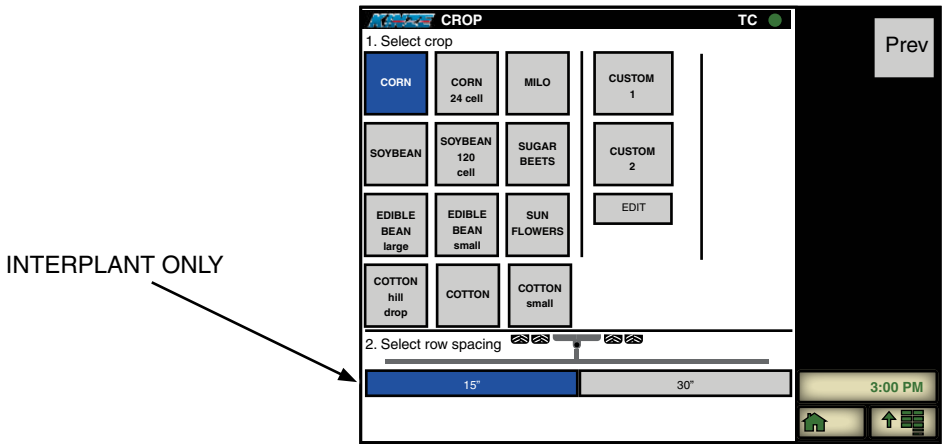
CROP SELECTION SCREEN

CORN

The start of Field Operations begins at the Home screen. First press the Crop Button to go to Crop Selection Screen.



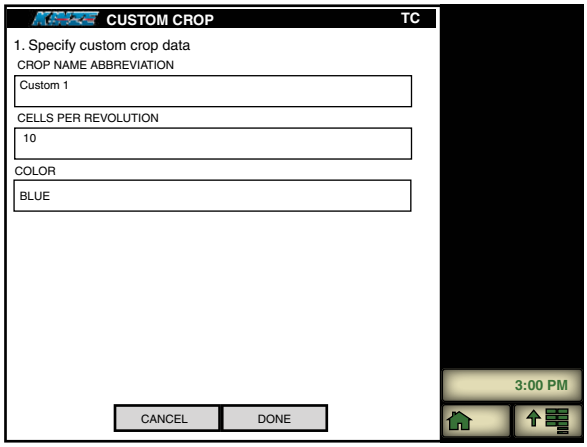
1. First, select a Crop. If crop desired is not available, select Custom Crop Button and select Edit to create a new crop. See Custom Crop for more information. When crop is entered, if Air Seed Delivery and EdgeVac is installed, the following message will appear:

   NOTE: Make sure all seed disks are installed in all meters.

2. Once this is verified, select DONE. By setting the crop, you are setting the seeds per revolution and seed sensor sensitivity.

3. Select 15" or 30" row spacing (interplant only).

CUSTOM CROP

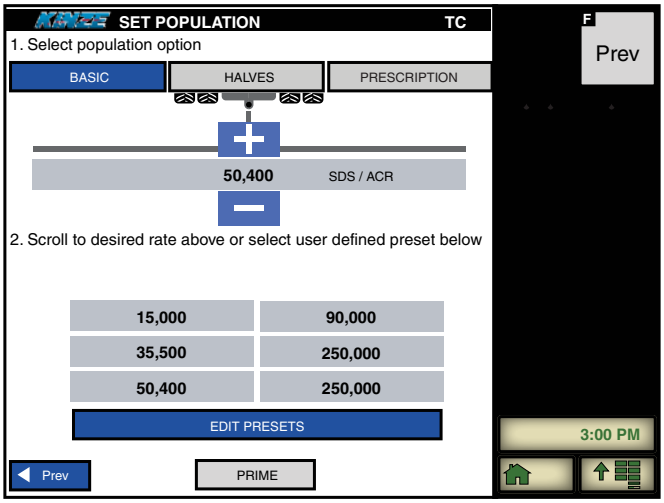


1. Enter custom crop data in the following fields: Crop Name Abbreviation, Cells Per Revolution, and Color. Tap on the box below the title to access the screen keyboard and enter the information. Select Done to save data and return to Crop Selection screen. Select Cancel to discard data and return to Crop Selection screen.

   The new crop entered will now be available for selection on Crop Selection Screen.

SET POPULATION SCREENS

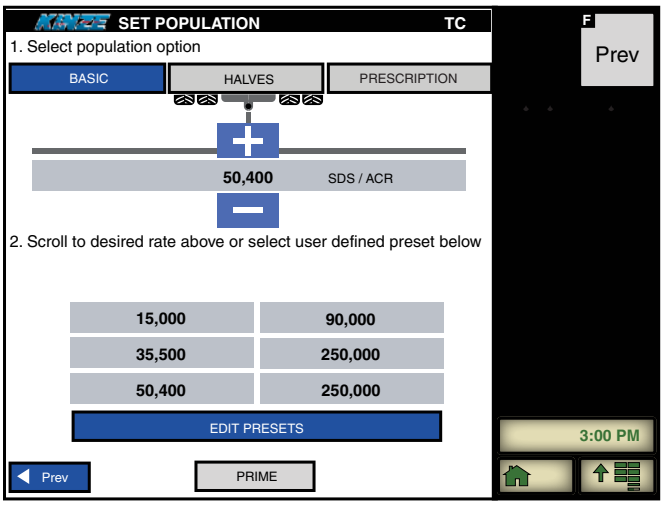
Select the Population Button to set population.

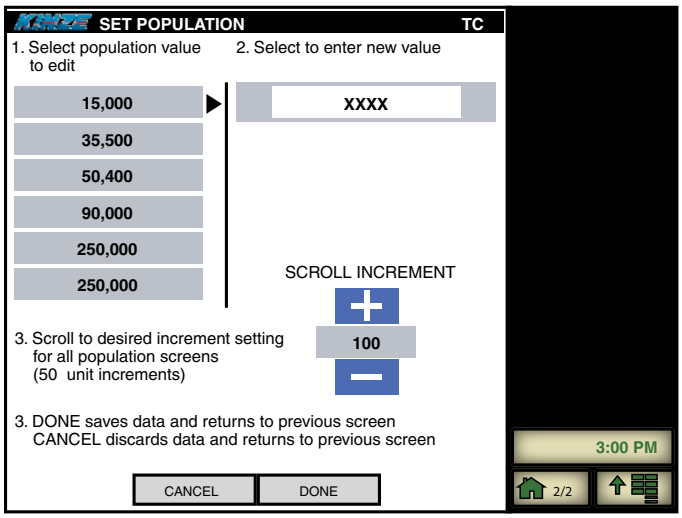


1. First, select population option: Basic, Halves, or Prescription (hydraulic drive only). Depending on planter setup, there may only be one option listed.

2. Select desired rate.

EDIT PRESETS





To change population presets, select Edit Presets.

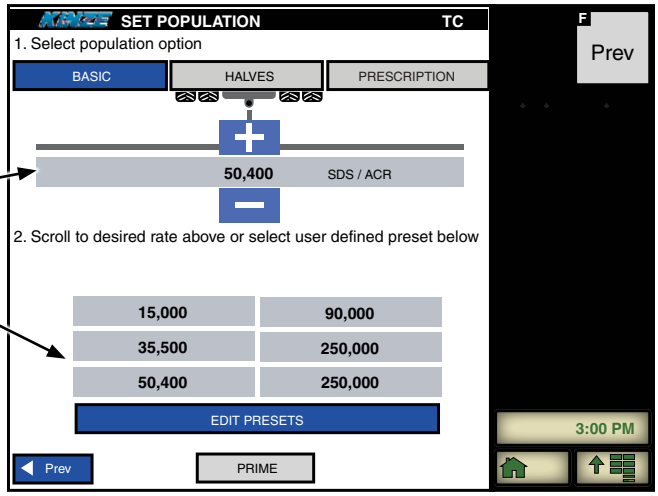
1. On the next screen, select population value to edit. This value will populate the box at the top of the right column.

2. Enter new value by tapping on the newly-populated box and the pop-up keyboard appears. Enter the desired value.

3. Select Done to save data and return to previous screen. Select Cancel to discard data and return to previous screen.

4. Use the “+” or “-” buttons under Scroll Increment to set desired increment setting for all population screens on the Set Population main page in 100 unit increments.

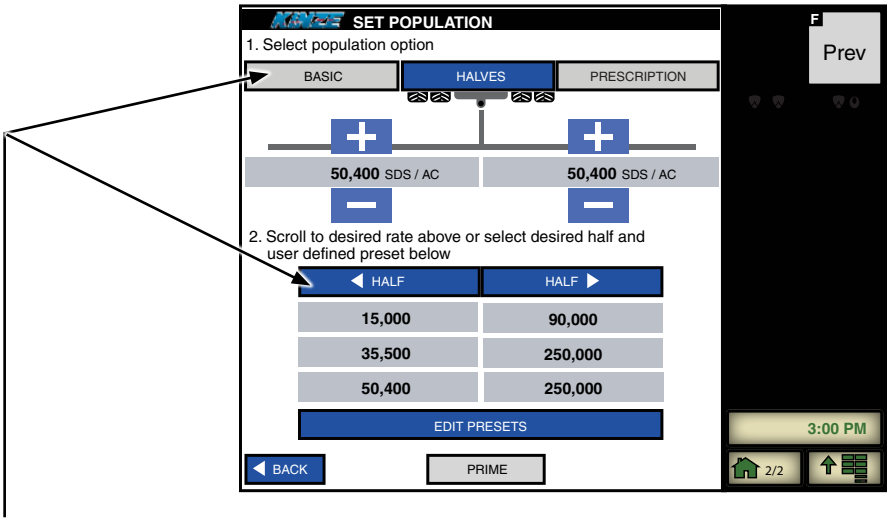
BASIC POPULATION



Select desired rate either manually using the “+” or “-” buttons at the top of the screen or by selecting the user defined preset.

The manual increase and decrease increments for the “+” and “-” buttons are specified in the Edit Presets screen under Scroll Increment.

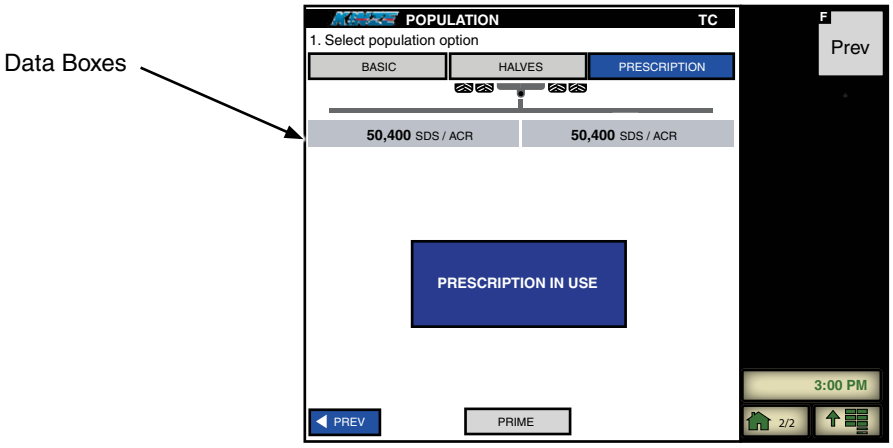
HALVES POPULATION



Select desired rate for each half either manually or by selecting the user defined preset.

Select the half you want to change, then select a Preset.

PRESCRIPTION POPULATION



Prescription rates come from the Task Controller which is commonly located inside the Virtual Terminal in the cab. Prescription maps must be created in farm management software and loaded into the display prior to planting.

Rates supplied by the Task Controller will be displayed on the prescription screen. You must be on the prescription screen to use the prescription rate.

The data boxes below the tractor and planter graphic show the set population for your current location. Prescription rates will only be used if prescription is selected in this screen.

1. Select Prime to Prime Meters.

2. Prime will turn the meters one revolution.

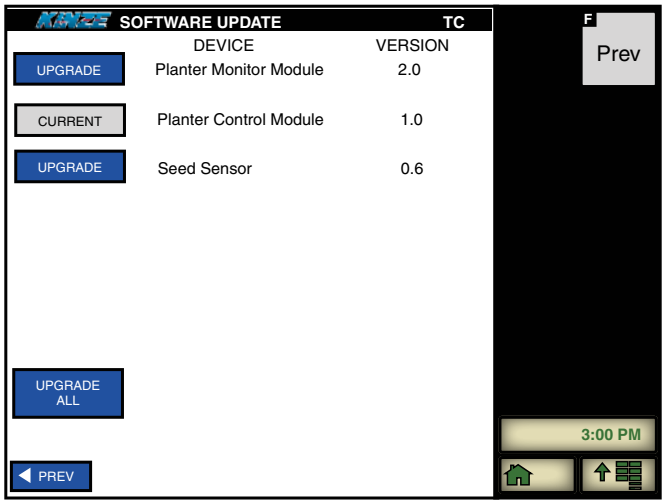
3. If process is not ready to be performed, select Prev.

NOTE: Planting rates must be set even in mechanical drive configuration. It is used as the target rate for the bar graph.

SOFTWARE UPDATE

Upgrading software requires a file server which is usually located inside the Virtual Terminal in the cab of the tractor. This is usually a USB or compact flash card in the display.

Select the Update button to upgrade the following: Planter Monitor Module, Seed Sensor, and Planter Control Module.

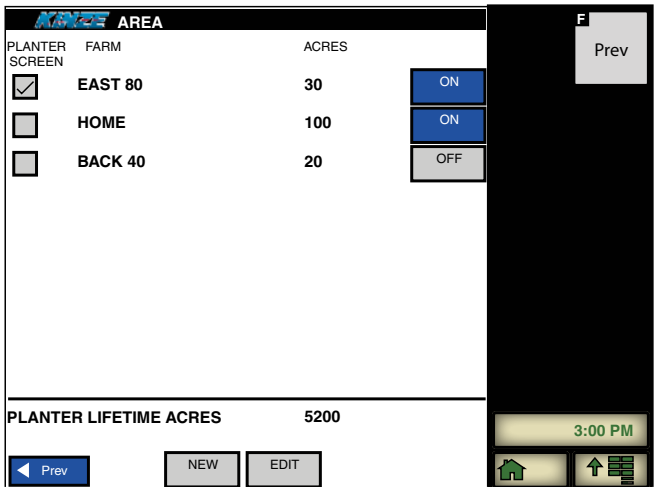


Either Upgrade or Current will show next to each Module.

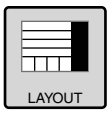
1. If Upgrade is displayed it means that a newer version is available. To upgrade select Upgrade.
2. If more than one module needs to be upgraded, select Upgrade All.
3. If Current is displayed it means the module has the most current version available and no update is needed.

AREA

Select the Area button to add, modify, or delete acre counters.

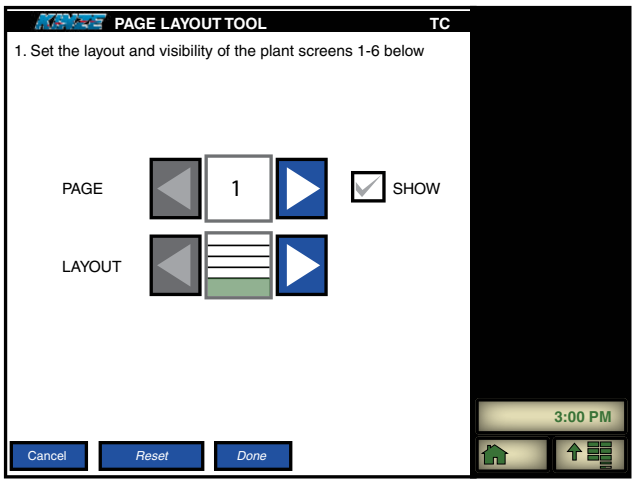


1. Select New to add a new acre counter to the list, then a farm name. Select Done when completed.
2. Select Edit to change an Acre Counter on the list. When the line is highlighted, tap on it to pull up the keyboard and then enter the new information.
3. A check mark must show beside the Acre Counter name to be shown on the Plant Screen.
4. Select On next to the desired Acre Counters if acres are to be accumulated.
5. Select Off next to the desired Acre Counter if acres are not to be accumulated.



PAGE LAYOUT SCREEN

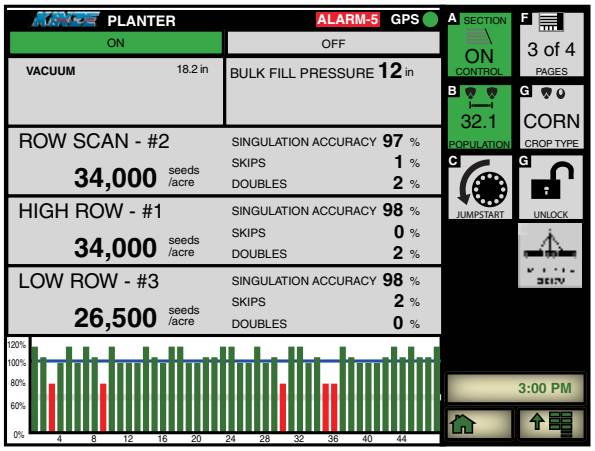
Use the page layout tool to determine how many pages are visible on the display and how they are set up. There are a maximum of 6 screens available.

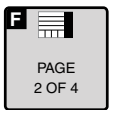


1. Determine how many pages to show in the rotation by clicking the SHOW button beside each page. For example, if you want 3 pages of plant screens, you will click show next to pages 1, 2, and 3 but not next to 4, 5, and 6.

2. Determine the page layout for each selected page. Tap the right arrow in the LAYOUT row to see the 3 choices for page layout - large blocks, small blocks, or a combination of both.

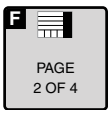
The illustration below is an example of a combination of small blocks (Vacuum and Bulk Fill Pressure) and large blocks (Row Scan, High Row, Low Row).

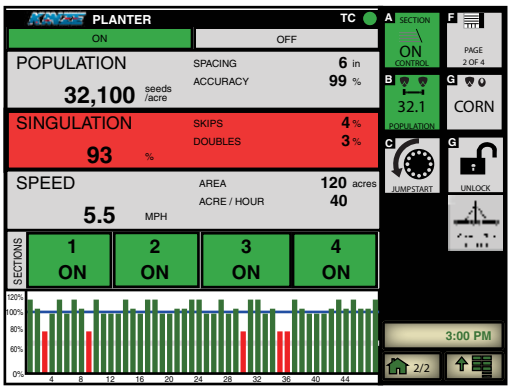


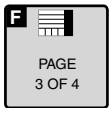


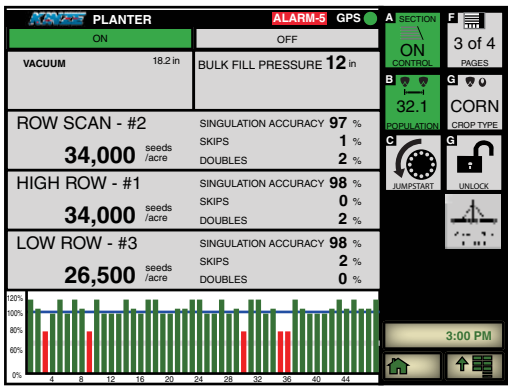
PLANT SCREENS

Tap the pages button to toggle through the plant screens.









Planter ON/OFF is the master on/off switch for the planter. This switch will turn clutches and the hydraulic drive on and off.

Population displays a large readout of the average seed population as well as seed spacing and the population accuracy.

NOTE: Population accuracy = 100% + % of Doubles - % of Skips.

Singulation displays a large readout of the average singlulation as a percentage as well as the skips and doubles.

NOTE: Singlulation is a measurement of how well the seed meter is working.

NOTE: Singlulation accuracy = 100% - % of Doubles - % of Skips.

Speed displays the miles per hour, along with how many acres planted per hour, and the area.

Population Bar Graph represents one row per line. The green line is the target rate. Red bars indicate when the population is above or below the specified threshold. See Population Monitoring to adjust thresholds.

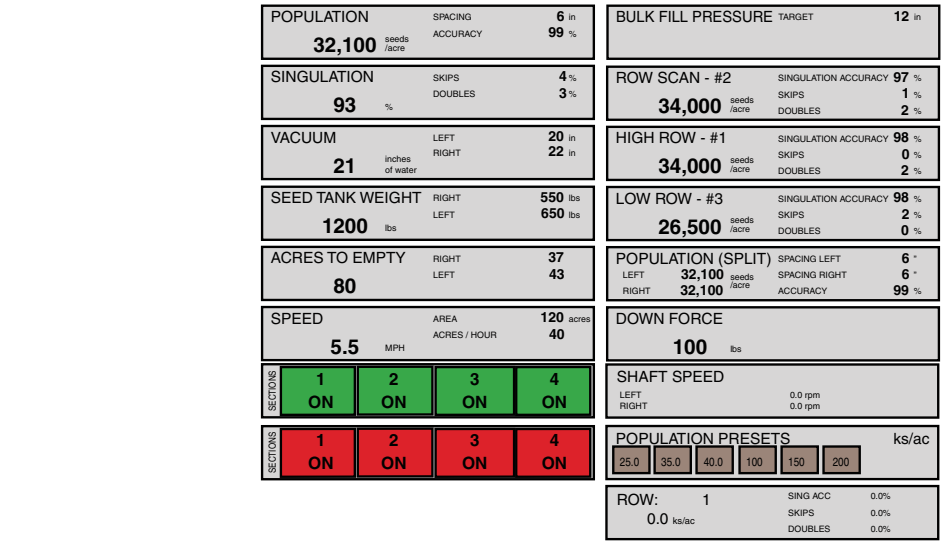
Vacuum displays vacuum level.

Bulk Fill Pressure displays the pressure level of the bulk fill system.

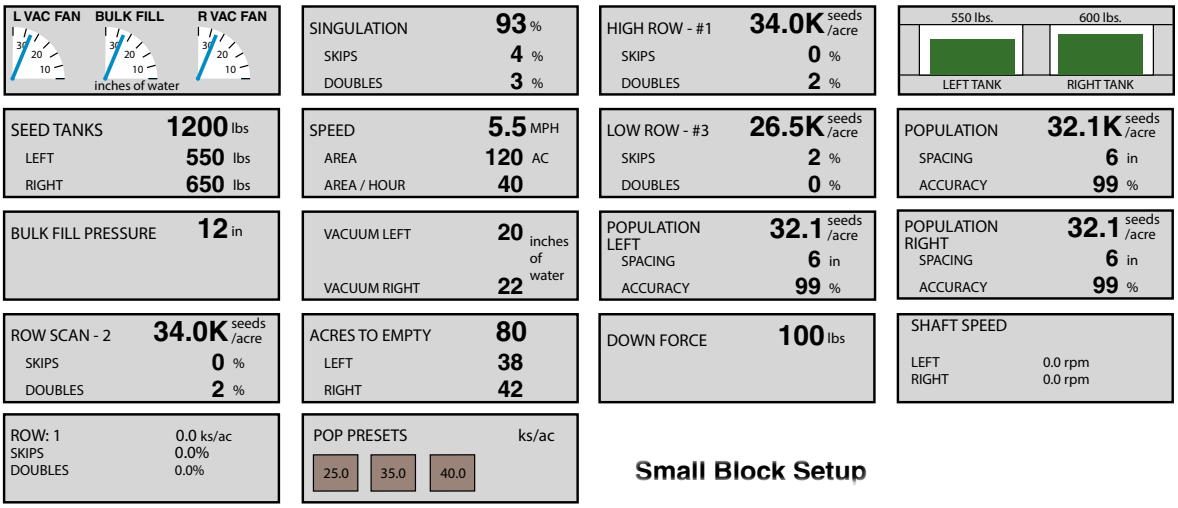
Row Scan displays a large readout of seed population for individual rows as well as singulation accuracy, skips and doubles. This box will rotate through all rows changing every 5 seconds.

Section Control Buttons are used to turn sections on and off manually. For example, if the section control button on the main screen is turned OFF, the sections can be turned on manually here. If the section control button on the main screen is turned ON, the sections can be turned off manually.

Arrange data bars in order best suited to your needs.



Large Block Setup



Small Block Setup

High Row displays a large readout of seed population for the row that is planting at the highest rate as well as singulation accuracy, skips, and doubles.

Low Row displays a large readout of seed population for the row that is planting at the lowest rate as well as singulation accuracy, skips, and doubles.

Seed Tanks displays the weight of each bulk fill tank.

Acres to Empty displays how many acres can be planted with the seed remaining in the tank.

NOTE: Seed and rate information need to be entered into the remote scale head for this feature to work.

Down Force displays the amount of additional force being placed on the row unit by the air bags.

Shaft Speed displays drill shaft speeds.

Selectable Row Details gives the operator the ability to select an individual row to view the details for that row (population, singulation, skips and doubles).

Population Presets gives the operator the ability to change populations without pressing the Population Softkey. This allows the population presets to be selected on the planting screen.

Changing the Settings

The default settings can easily be changed by scrolling through each screen and determining what is the best setup for your needs.

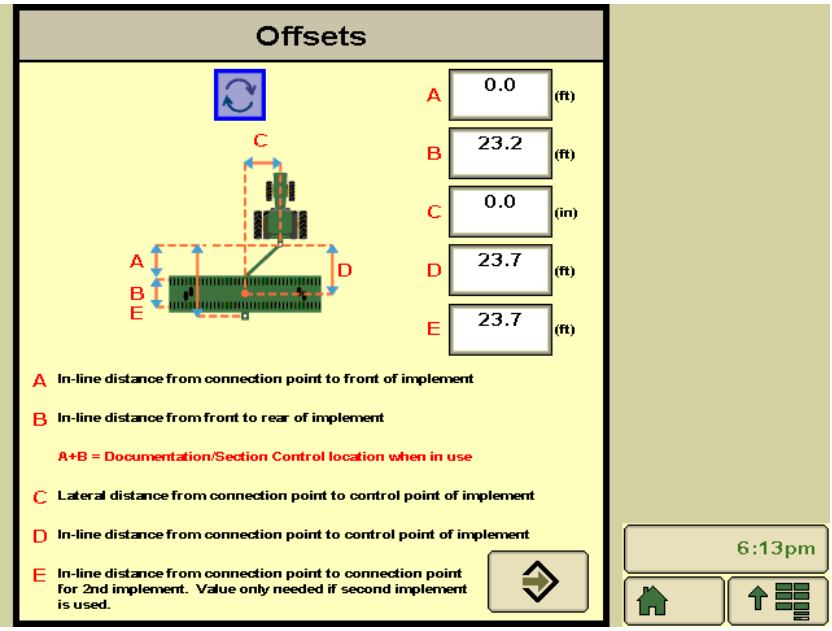
To customize plant screens to display desired data bars:

Press UNLOCK on right side of screen, then tap data bar until desired data appears (speed, downforce, etc). Continue to next data bar to arrange the information in the order desired. When all bars are set, press LOCK on the right side of the screen.

OFFSETS

The offsets for the planter will be prepopulated in the Task Controller. It is recommended that these measurements are checked and adjusted on each planter. Also ensure that the measurements for the tractor are entered and correct.

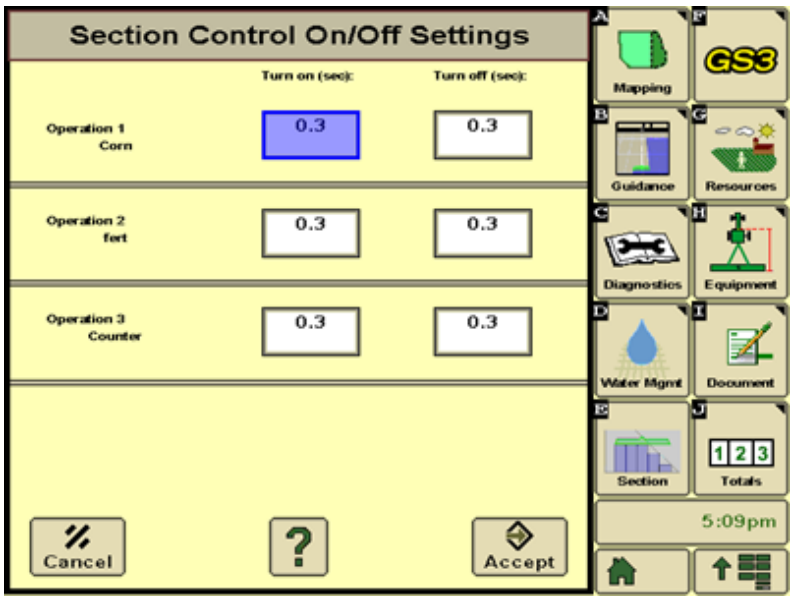
Below is an example of John Deere's offset entry screen for the planter. Measurements will be prepopulated in this screen but the measurements need to be confirmed on the planter prior to planting.



John Deere's Change Planter Offsets Screen

LOOK-AHEADS

Look aheads or section control on/off times will be prepopulated in the display per meter type. These numbers provide a good baseline for starting but should be adjusted in the field if needed. Turn on time is how long it takes the meter to turn on and start dropping seed when coming out of a preplanted area or boundary. Turn off time is how long it takes for the seed meter to turn off when entering a preplanted area or boundary. Below is an example of the John Deere Section Control On/Off Settings.



John Deere's Section Control On/Off Settings Screen

Field Check – Offsets and Look-Aheads
A field check must be performed to ensure accuracy of the shut-offs. To perform a field check drive in and out of a preplanted area at your desired planting speed. Dig for seed on multiple rows of the planter. Then follow the instructions below depending on what is found:

Planter is turning off early and turning back on early by roughly the same distance:
The offsets are too short. Measure the distance from where you would like it to shut off/on and where it did shut-off/on. Increase the hitch to application point by the distance of the gap/overlap measured in the field. Recheck after adjustment.

Planter is turning off late and turning back on late by roughly the same distance:
The offsets are too long. Measure the distance from where you would like it to shut off/on and where it did shut-off/on. Decrease the hitch to application point by the distance of the gap/overlap measured in the field. Recheck after adjustment.

Planter is turning off early:
The look-ahead or turn off time is too long. Measure the distance from where you would like it to shut off and where it did shut-off. Then enter your information into the equation below:

d = Distance of the gap in inches
v = Tractor speed in miles/hour

0.057d/v = Time

Decrease the turn off time by the value you get for time. Recheck after adjustment.

Planter is turning off late:
The look-ahead or turn off time is too short. Measure the distance from where you would like it to shut off and where it did shut-off. Then enter your information into the equation below:

d = Distance of the overlap in inches
v = Tractor speed in miles/hour

0.057d/v = Time

Increase the turn off time by the value you get for time. Recheck after adjustment.

Planter is turning on early:
The look-ahead or turn on time is too long. Measure the distance from where you would like it to turn on and where it did turn on. Then enter your information into the equation below:

d = Distance of the overlap in inches
v = Tractor speed in miles/hour

0.057d/v = Time

Decrease the turn on time by the value you get for time. Recheck after adjustment.

Planter is turning on late:
The look-ahead or turn on time is too short. Measure the distance from where you would like it to turn on and where it did turn on. Then enter your information into the equation below:

d = Distance of the gap in inches
v = Tractor speed in miles/hour

0.057d/v = Time

Increase the turn on time by the value you get for time. Recheck after adjustment.

NOTE: It is important that you drive a consistent speed in and out of preplanted areas and boundaries to ensure accuracy of the shut-offs. See your Task Controller's operators manual for more information about adjusting offsets and look aheads.

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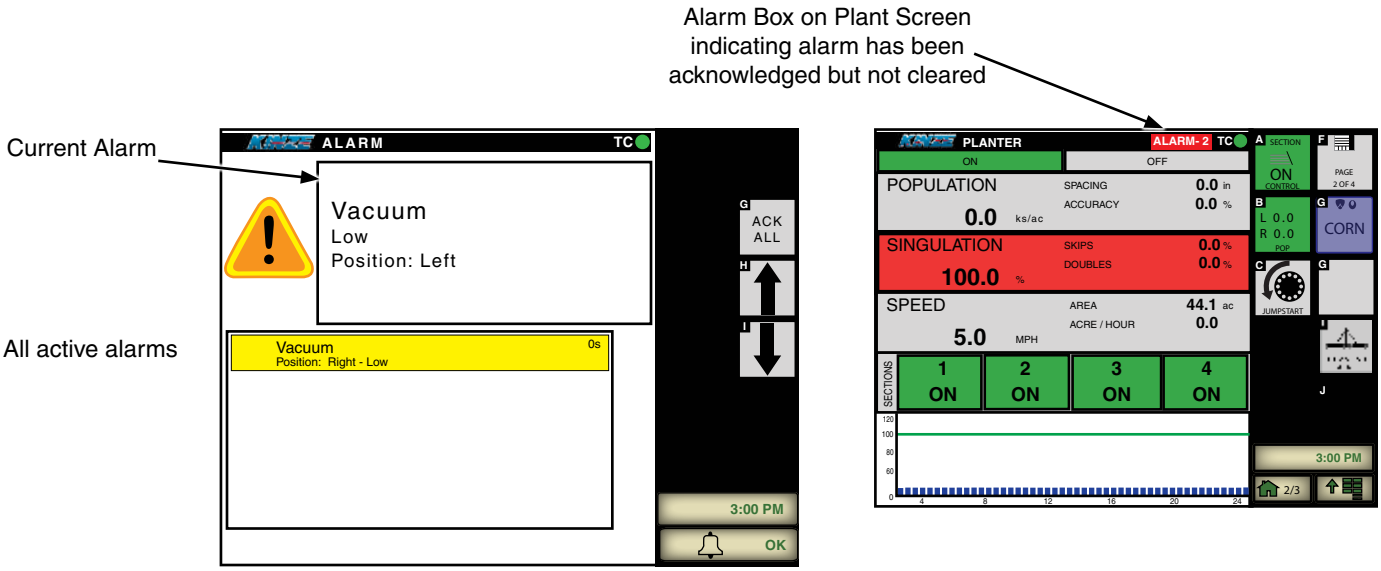
ALARMS



If a threshold is crossed (either high or low), an alarm screen will appear and the data cell with the corresponding data will turn red.

There are two sections to the alarm screen: the large box at the top and the box at the bottom.

The large box will contain the most current alarm. The function will be listed first, followed by the alarm state (i.e. high or low), then the position or row. The box at the bottom of the screen contains all of the active alarms as well as a counter of how long the alarm has been active. The up and down arrows on the right side of the screen can be used to scroll through alarms.

If you select ACK CURR, it will acknowledge the current alarm that is shown in the top box. If you select ACK ALL, all alarms will be acknowledged and you will return to the plant screen. Acknowledging the alarm will not clear it. The alarm box will appear at the top of the plant screen until you correct the problem or the value returns to inside the threshold and the alarm clears itself.

Note: No matter what screen you are in, the alarm will always pop up over it.

If you acknowledge the alarms and return to the plant screen a status box with the alarm status will appear at the top of the screen. It is red and will say ALARMS and then will state how many alarms are active. If you need to return to the list of alarms simply press this red button and you will return to the list of alarms.

Note: See settings to change alarm thresholds.

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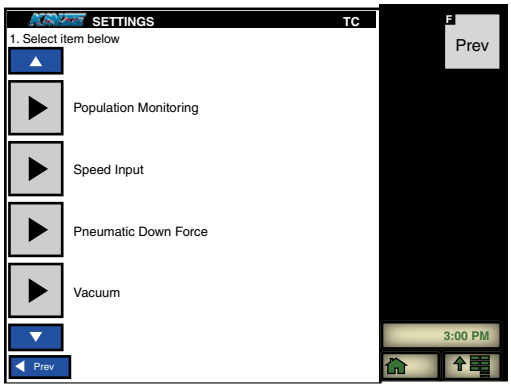
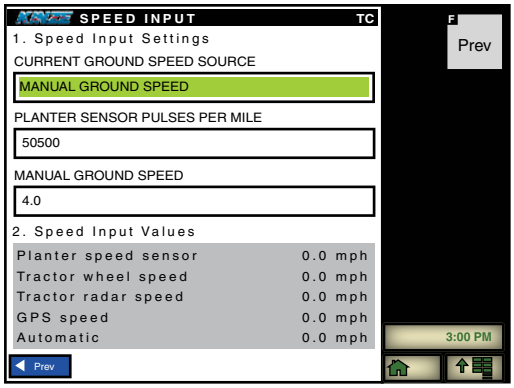
SETTINGS SCREEN



Tap the settings button to toggle through the settings screens. Options include Population Monitoring, Speed Input, Pneumatic Down Force, Vacuum, Bulk Fill Pressure, Bulk Fill Scale, Seed Sensor Sensitivity, and MUXBUS. Tap on each item to view settings and make adjustments.

SPEED INPUT



In the Speed Input settings screen, the ground speed source can be selected, the planter speed sensor can be calibrated, the manual ground speed can be set, and speed readouts can be seen for each speed source.

Selecting a Current Ground Speed Source

There are 6 possible selections for the Ground Speed Sources:

- Manual – Uses a ground speed source that is set by the user.
- Planter Ground Speed – A speed sensor located on the planter that is connected to the PMM via the Muxbus.
- Tractor Wheel Speed – Wheel speed sent by the Tractor over the ISOBUS.
- Tractor Radar Speed – Radar speed sent by the Tractor over the ISOBUS.
- GPS Speed – GPS speed sent by the GPS Receiver over the ISOBUS.
- Automatic – Uses the best possible speed available from one of the following sources, in this order:
    1. GPS
    2. Radar
    3. Wheel
    4. Planter

Note: Kinze recommends that the speed source be set to automatic under normal operating circumstances.

Note: Not all tractors and GPS receivers broadcast speed over the ISOBUS check with your equipment manufacturer to see if it is compliant.

SPEED INPUT (Continued)

Planter Sensor Pulses per Mile

This box is for calibrating a planter mounted speed sensor. To calibrate:

1. Using a known speed value such as your tractor readout, start driving at your normal planting speed in a straight line.
2. Compare the Planter Speed to the known speed source.
3. If the planter speed is too low or high compared to the known speed, stop driving to adjust the pulses per mile.
4. First divide the known speed by the planter speed.
5. Then divide the current pulses per mile by the number from step 4.
6. Enter this number in for the pulses per mile.

Example
Tractor Speed (known speed) – 5mph
Planter Speed – 3mph
Current Pulses per Mile – 50,500

5mph/3mph=1.67

50500/1.67=30,300

30,300 should be entered into the Pulses per Mile box

7. Repeat until Planter Speed is acceptable.

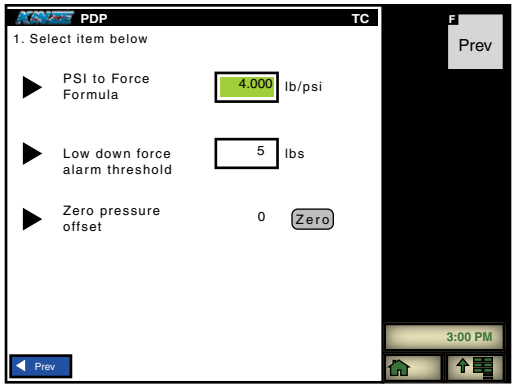
Manual Ground Speed
The manual ground speed can be used as a speed source if no other speed source is available. The speed that is entered into the box is the speed that the planter will use for control and calculations. To use this speed as your source select Manual from the Current Ground Speed Source list.

This value is also used for hydraulic drive jump start if it is installed. When the planter stops from a dead stop it takes 2-3 seconds to acquire ground speed from GPS or Radar therefore the manual speed is used for those first seconds after start-up. Kinze recommends that the manual ground speed be set at 2mph.

Note: Manual Ground Speed selection is normally only used if the planter needs to be run while sitting still.

Speed Input Values
The speed input list shows what each possible ground speed source is reading.

PNEUMATIC DOWN FORCE (PDP)



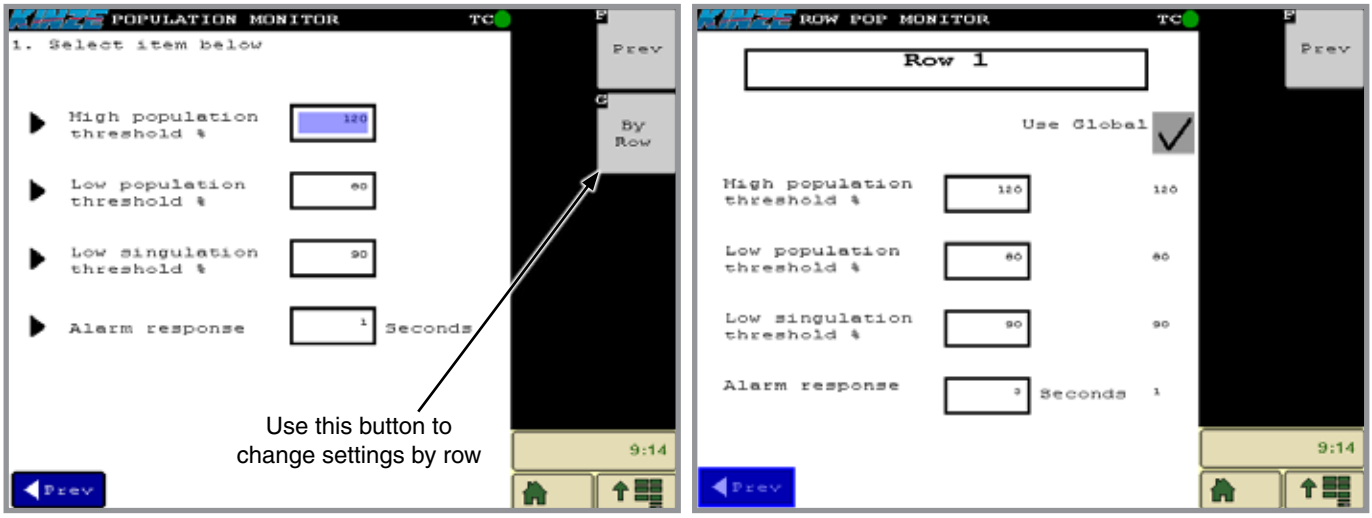
In the Pneumatic Down Force settings screen, the PSI to Force Formula and Low Down Force Threshold can be adjusted. The PDP pressure sensor can also be zeroed.

Zeroing Down Force Sensor

1. Make sure there is no pressure in the air bags.
2. Press the Zero button on the Pneumatic Down Force Settings screen.
3. The readout to the left of the zero button should now read 0.

Note: Do not change Force to PSI formula unless instructed by a Kinze service representative.

POPULATION MONITORING



In the Population Monitoring settings screen, high/low population alarm thresholds can be set as well as the low singulation threshold and alarm response time. You can choose to set the population monitoring thresholds to be universal for all rows at the main screen, or select monitoring specific to each row by selecting the By Row button on the right.

By Row is used to scroll through each row and set individual population monitoring thresholds.

High Population Threshold displays a percentage above the target population that will trigger an alarm on the screen.

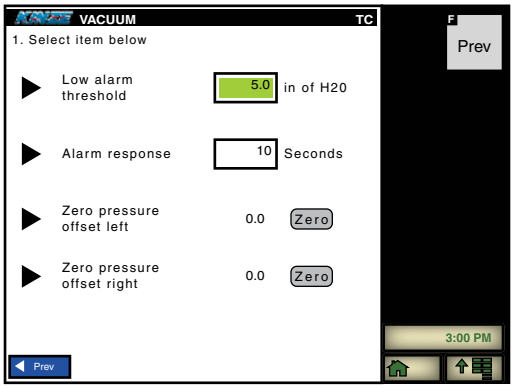
Low Population Threshold displays a percentage below the target population that will trigger an alarm on the screen.

Low Singulation Threshold displays a percent singulation (seed meter accuracy) that will trigger the singulation data cell to turn red.

Alarm Response displays how long it will take before these alarms are activated and will appear on the screen.

Use Global can be check marked so the same settings will be used for all rows. Uncheck for each row to be set individually.

VACUUM

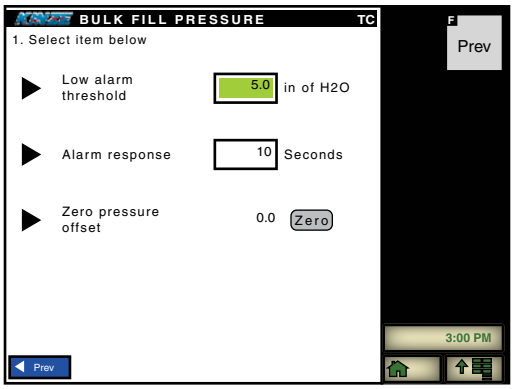


In the Vacuum settings screen, the Low Vacuum Threshold and Alarm Response time can be adjusted. The vacuum sensors can also be zeroed.

Zeroing Vacuum Sensors

1. Make sure the vacuum fans are off.
2. Press the Zero button on the Vacuum Settings screen for both fans.
3. The readout to the left of both zero buttons should now read 0.

BULK FILL PRESSURE

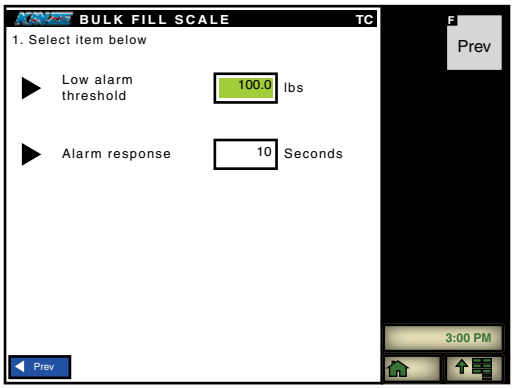


In the Bulk Fill Pressure settings screen, the Low Pressure Threshold and Alarm Response time can be adjusted. The pressure sensor can also be zeroed.

Zeroing Bulk Fill Pressure Sensor

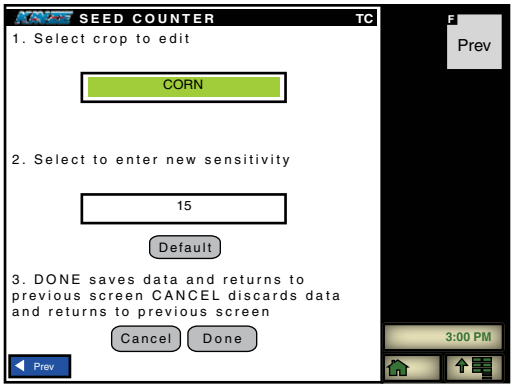
1. Make sure the bulk fill fan is off.
2. Press the Zero button on the Bulk Fill Pressure Settings screen.
3. The readout to the left of the zero button should now read 0.

BULK FILL SCALE



In the Bulk Fill Scale settings screen, the low seed alarm threshold and alarm response time can be set.

SEED SENSOR SENSITIVITY (SEED COUNTER)



In the Seed Sensor Sensitivity settings screen, the sensitivity for each crop can be set.

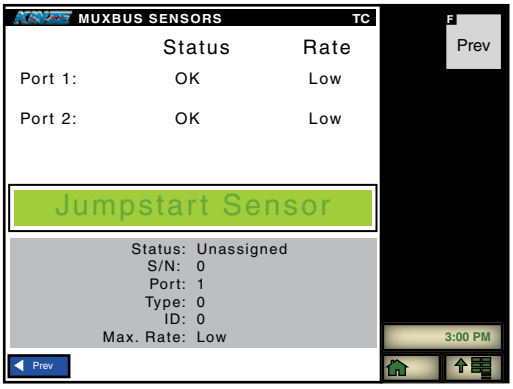
Changing Sensitivity for a Crop

1. Select a crop to change.
2. Select the box with the current sensitivity setting and enter a new one.
3. Select done to accept the change or cancel to discard it.

To return the value to its default setting, select the crop and then select the default button under the sensitivity setting.

MUXBUS

Drop Down List



In the Muxbus settings screen, the sensors can be programmed, a new sensor can be added or removed, and the status of each sensor can be viewed.

Programming Sensors

1. With all of the sensors unplugged from the main harness, select Auto Detect.
2. A list will appear on screen that will instruct when and how to plug in different sensor types. The list can also be viewed by selecting the drop down list in the center of the screen.

IMPORTANT: Sensors must be programmed in exact order. Follow instructions on screen.

3. Each time a sensor is plugged in, the display will beep.
4. In the center of the screen, there will be a count of how many sensors are left to program.
5. Once all sensors are plugged in, the status screen will reappear.

Replacing a Sensor

1. Remove the sensor that is being replaced.
2. Select that sensor from the drop down list in the center of the page.
3. Touch REMOVE from the right side of the screen.
4. Plug in the new sensor.
5. Select that sensor from the drop down list in the center of the page.
6. Select ADD from the right side of the screen.

Diagnostics

In the upper portion of the screen, the status of each port is displayed as well as the communication rate. Port 1 is Mux A and Port 2 is Mux B.

The status of each sensor can also be seen by selecting the sensor from the drop down list in the center of the screen. The status will then be displayed below, along with the serial number, the port it is plugged into, type of sensor, sensor ID, and communication rate.

ADVANCED SETTINGS

In the Advanced Settings screen, tractor wheel speed and tractor radar speed can be set.

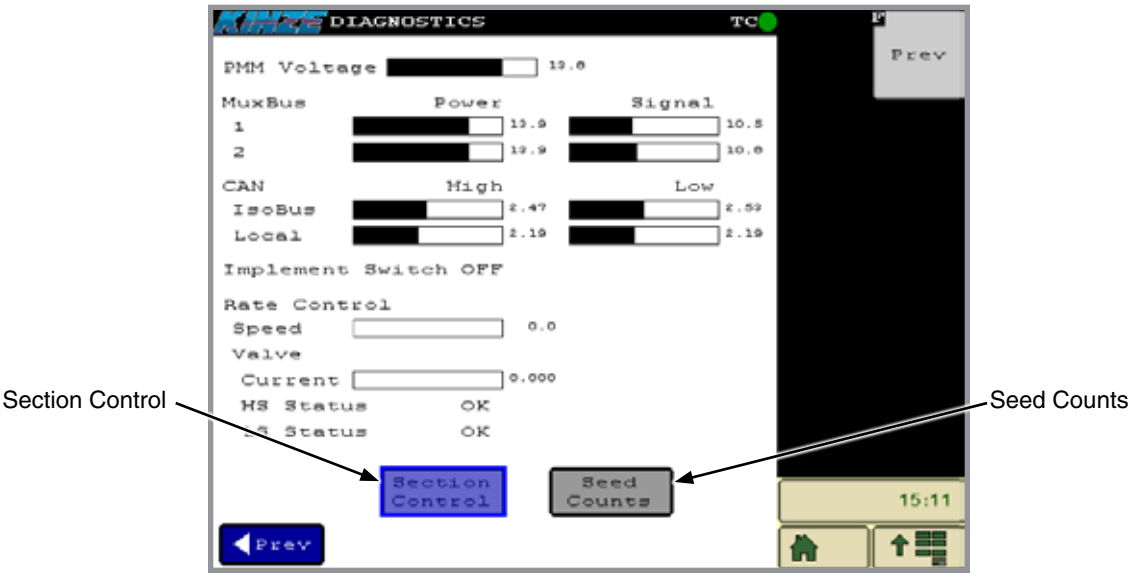
Tractor Wheel Speed Zero sets the tractor wheel speed to zero.

Tractor Radar Speed Zero sets the tractor radar speed to zero.

ISO Name displays the name sent to the task controller and VT.

Hydraulic Drive Gear Ratio displays the ratio from the hydraulic drive to the seed meter encoder. The ratio for the 4000 series vacuum meter is 1.47.

DIAGNOSTICS



PMM Voltage displays the voltage going to the PMM. The average voltage should be between 12 and 14 volts.

Muxbus 1 Power displays the power going to the sensors connected to Muxbus 1 or A. The average voltage should be between 12 and 14 volts.

Muxbus 1 Signal displays the signal voltage for sensors connected to Muxbus 1 or A. The voltage will vary based on how many messages are being sent.

Muxbus 2 Power displays the power going to the sensors connected to Muxbus 2 or B. The average voltage should be between 12 and 14 volts.

Muxbus 2 Signal displays the signal voltage for sensors connected to Muxbus 2 or B. The voltage will vary based on how many messages are being sent.

CAN High and Low ISOBUS displays the voltage on the CANbus that connects the display and PMM. The voltage for each should be between 2 and 2.6 volts.

CAN High and Low Local displays the voltage on the CANbus that connects the PCM and PMM. The voltage for each should be between 2 and 2.6 volts.

Implement Switch will display ON when implement switches are on and OFF when implement switches are off.

Rate Control Speed displays the speed of the hydraulic drive shaft sensor.

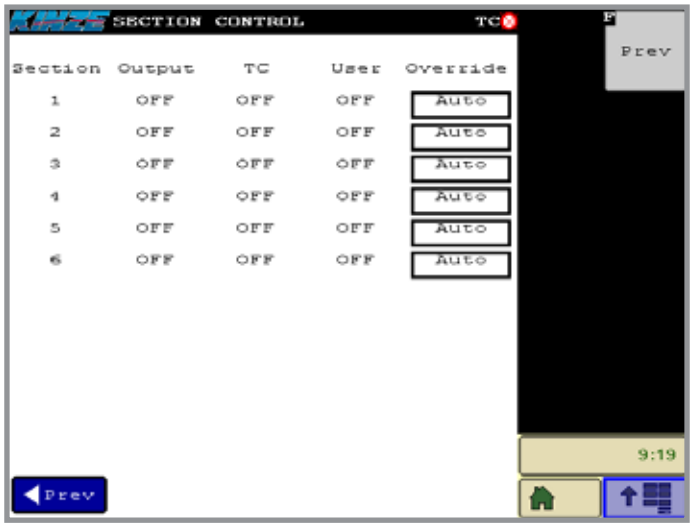
Rate Control Valve Current displays how much current is going to the flow control valve. The more current applied, the faster the hydraulic motor should turn.

HS Status displays the status of the control valve.

LS Status displays the status of the control valve.

Section Control and Seed Count have their own information screens, which are explained on the next page.

SECTION CONTROL DIAGNOSTICS



Output displays what the planter is actually doing and indicates which sections are on and which sections are off.

TC displays what the Task Controller is telling the sections to do.

User displays what the manual override on the Kinze screens are telling the sections to do.

Override allows the user to turn sections on individually for Diagnostic purposes. ON indicates that the section will always be on. OFF indicates that the section will always be off. AUTO indicates the section will be controlled by the system.

SEED COUNT DIAGNOSTICS

This screen shows the seeds per second for each seed sensor.