IntelliAg/ISO Bus Virtual Terminal

(IntelliAg system used with a non DICKEY-john Virtual Terminal/Planter Monitor functionality only)
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INTELLIAG/ISO BUS VT

Installation, setup, and operation instructions for a Dickey-john IntelliAg Planter/Drill Control module (pdc) utilizing an ISO Bus Virtual Terminal (planter monitor functionality only).
INSTALLATION

Figure 1
Implement Harness

Connect to Harness at rear of tractor

Implement CAN Breakaway Harness 46798013X (multiple lengths)

Connect to WSMB module harness and WSMB module for planters larger than 16 rows

WSMB Module Harness 467981200

Connect to next module harness or implement extension harness (connect CAN terminator if this is the last module on the CAN bus)

Standard Dj PM Style Planter Harness

WSMT II Module Harness 467980850

Standard Dj PM Style Planter Harness

CAN Terminator

Implement CAN Extension Harness (if required) 46798014X (Multiple Lengths)

PDC

467980810S1

18 rows max

467981100S1

WSMT II Module Harness 467980850

WSMT Module Harness 46798013X

WSMB Module Harness 467981200

Standard Dj PM Style Planter Harness

Implement CAN Breakaway Harness 46798013X (multiple lengths)
STARTUP

During initial powerup of the virtual terminal, the VT will detect the connection of the IntelliAG PDC module to the CAN bus. At detection, a message appears that a "new implement module has been detected". Acknowledge the message to begin loading the software within the PDC module. Software transfer may take several minutes.

Upon a successful transfer, an IntelliAg PDC button will appear on the Main screen.

Press the IntelliAg PDC button to display the IntelliAg Work screen.

TOUCHKEY SYMBOL DEFINITIONS

NEXT PAGE
The Next Page button only displays when there are 8 or more buttons on the active window and may look different depending on the Virtual Terminal attached.

SEED MONITOR SETUP
The Seed Monitor Setup button accesses the Seed Monitor Setup screen. All user-entered constants pertaining to general planter monitor functions are accessed on this screen.

GROUND SPEED SETUP
The Ground Speed Setup button accesses the Ground Speed Setup screen. Ground speed is the rate in MPH (Km/h) as measured by the ground speed sensor.

MODULE CONFIGURATION
The Module Configuration button accesses the Module Configuration Setup screen. All user-entered data pertaining to module configuration is established on this screen.

WORK SCREEN CONFIGURATION
The Work Screen Configuration button accesses the Work Screen Configuration Setup screen. Users have the option to customize the Virtual Terminal to display any combination of data items available. The system allows for up to three individual display screens to be customized. All work screen configuration is established on this screen.

MATERIAL LIBRARY
The Material Library button accesses the Material Setup screen. Up to 16 different materials can be configured and stored in a library for planter, liquid, and fertilizer control.
SYSTEM CONFIGURATION

To operate properly, system components must be installed correctly. The parameters of the implements being used must also be entered into the system. The following steps provide guidelines for entering implement parameters.

IMPORTANT: Place the master switch in the OFF position to access and input data into the SETUP/CONFIGURATION mode.

MODULE CONFIGURATION

The Module Configuration screen identifies modules on the CAN bus and the sensors connected to each module. This configuration is necessary for proper sensor monitoring and self-test operation. A check mark to the left of each module’s Serial Number identifies that module as active and communicating module on the bus.

From the Main Operate screen, press the Module Configuration button to access the Module Configuration screen.

**Figure 2**

*Module Configuration Screen*
AUTO CONFIGURATION

The Auto Config button is an automated method of configuring the attached seed sensors. To utilize the Auto Configuration function, all sensors must be connected to the appropriate modules in correct sequence.

Auto Config detects the following:

- the presence of seed sensors connected to each module. The detected number of seed sensors for each module automatically appears in the # of Rows data items on the Seed Sensor Configuration screen.
- Row #’s are automatically assigned based on the module address of each module.

IMPORTANT: All sensors must be connected to the harnessing in the correct sequence for AUTO CONFIG to operate properly. Refer to the Installation Instructions accompanying each module for correct installation.

To run Auto Config:

1. Press the Auto Config button. An hourglass will appear in the upper right corner while the system is being configured.
The following illustrations provide examples of possible installations:

**Figure 3**

16 Row Installation Example (WSMT only)

Figure 3 depicts a 16 row installation connected to the Working Set Master and assigned to Module Address 1. No Working Set Member is utilized.
Figure 4 depicts a 24 row installation with the Working Set Master assigned to Module Address 1 to monitor rows 1-12. One Working Set Member is utilized to monitor rows 13-24.

**Figure 4**

**24 Row Installation Example**
SEED SENSOR CONFIGURATION

The Seed Sensor Configuration screen automatically populates with the module address and module type entered at the Module Configuration screen.

Press the Seed Sensor Configuration button to access the Seed Sensor Configuration screen.

Figure 5
Seed Sensor Configuration Screen

<table>
<thead>
<tr>
<th>MODULE</th>
<th>ADDR.</th>
<th>Type</th>
<th># OF ROWS</th>
<th>ROW #’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>WSMT-PDC</td>
<td>16</td>
<td></td>
<td>1-16</td>
</tr>
<tr>
<td>2</td>
<td>WSMB-18R</td>
<td>18</td>
<td></td>
<td>17-34</td>
</tr>
</tbody>
</table>

The following data items can be edited:

IMPORTANT: The # or Row data items for each listed module and the Row #’s value will automatically populate if the Auto Config button is used to configure installed sensors.

# OF ROWS

The # of Rows column displays the total number of seed sensors that are connected to each module. The Row #’s value is automatically configured by Auto Config for proper row numbering for each module based upon the module address value and # of rows.

To edit # of Rows data:

1. Enter the number of rows to be assigned to each module.
2. Press the Sensor Detect button to detect and test seed sensors. An hourglass will appear in the upper right corner while the sensors are tested.
3. If the number of sensors detected on each module is not in agreement with the # of Rows value entered, an alarm will activate.
   - Verify that the # of sensors entered on the Seed Sensor Configuration screen match the actual number of sensors connected to the appropriate module.
   - Confirm that all harnessing and sensors are connected properly.
ROW STATUS/ROW WIDTH SETUP

The **Row Setup** screen controls which rows can be monitored, as well as the distance between rows and implement width.

Individual rows may be set to ON or OFF. Any detected row can be set to OFF. Rows set to OFF will remain OFF until they are turned ON again or are set to ON through the Pattern Select. Rows set to OFF are ignored by the system and will not report seed data or react to row failures.

Press the **Row Setup** button to access the Row Status/Row Width Setup screen.

**NOTE:** The Next Rows button is only present if more than 24 rows are configured.

**Figure 6**
Row Status/Row Width Setup Screen

![Row Setup Screen](image)

**ROW WIDTH**

Row Width is used for seed rate data and control calculations and is the distance in inches (centimeters) between rows, with a resolution of 0.1. This value will update automatically with changes in the On/Off Pattern Setting option if the Auto Update Width option is set to Enabled.

**AUTO UPDATE WIDTH**

Auto Update Width automatically updates the Row Width and Implement Width settings when changes are made to the Pattern Setting option.
NOTE: Depending on the configured number of rows, some On/Off pattern settings may result in erroneous Row Width or Implement Width updates if the Auto Update Width is enabled. Always check the calculated values for accuracy when the Auto Update Width is enabled. If the adjusted values are not correct, disable the Auto Update Width feature and manually enter a Row Width and Implement Width.

There are two choices available for this option:

**ENABLED**

The Row Width and Implement Width settings automatically adjust with ON/OFF pattern setting changes.

The following two examples use a 16 row planter set for 15.0 inch row width. Implement width is automatically calculated as 240.0 inches.

*Example 1:* The On/Off Pattern Setting is changed to every other row (even rows) OFF. The Row Width parameter adjusts to 30.0 automatically. The Implement Width calculated value remains unaffected at 240.0 inches.

*Example 2:* The On/Off Pattern Setting is changed to every 3rd row off. The Row Width parameter adjusts to 22.5 inches automatically. The Implement Width value adjusts to 247.5 inches to accommodate the new pattern.

**DISABLED**

The Row Width and Implement Width values will not be adjusted with changes to the ON/OFF Pattern Setting. Implement Width will not be automatically calculated and must be manually entered.

**IMP WIDTH**

Implement Width is the seeding width of the implement in inches (centimeters) with a resolution of 0.1. This value is used for Total Field 1/Field 2 area accumulators only and does not affect seed rate data. The Implement Width will automatically calculate as described in Auto Update Width if the feature is enabled. If Auto Update Width is disabled, manually enter the implement width.

**ON/OFF PATTERN**

For split, twin, or skip row type seeding implements, there are 21 predefined patterns that will allow easy configuration for setting up the correct row pattern that is used. When a row pattern is selected, all of the rows are automatically turned ON or OFF according to the pattern. Individual rows in the Row Configuration Screen can still be manually edited to Population, Blockage or Off before or after a pattern is selected. The pattern setting, when selected, will override previous individual existing row settings.
MATERIAL LIBRARY

The top portion of the Material Library screen displays all control channels (1, 2, 3, 4) available.

IMPORTANT: All control channels MUST be disabled when used as a planter monitor only. Create material name and type first and then refer to the Control Channel section for disabling instructions.

MONITOR ONLY

The Monitor Only selection is typically used for ground drive/nonhydraulic applications to monitor population with high and low alarms. All seeding control channels MUST be disabled in this configuration and/or no rows assigned to those seeding channels.

IMPORTANT: A material name must be selected at the Seed Monitor Setup screen to activate high and low population alarms.
CREATE MATERIAL NAME (SEED TYPE/ VARIETY)

Each material name can be customized to accurately define the material's type. Creating a name allows for quick identification at the Material Library screen and will display throughout various screens to identify the active material assigned to a channel.

To edit the material name:

1. Press the Material 1 Name Input box as shown in (Figure 8) to display the virtual keypad.
2. Type in a material name and press the checkmark to save or the ‘X’ to cancel. Available characters are a combination of upper case, numbers, letters, symbols, and spaces.

SELECT TYPE

Type establishes the desired type of application control channel being used for the specific material. This step is very important. Type on the Material Configuration screen must match Type on the Control Channel screen to be able to select material from the Material Library screen and operate properly.

To select type:

1. At the Material Library Configuration screen, press the Type input box.
2. Use the arrows to select Monitor Only as the channel type.
3. Press the checkmark to save or the ‘X’ to cancel.

Target population is defined in 1000s of seeds per acre or hectare.

TARGET POPULATION

Target population is defined in 1000s of seeds per acre or hectare.
HIGH AND LOW POP ALARMS

The High Population and Low Population values determine when an alarm and row indicator displays to warn of a population problem. The values are % based. The high population and low population values are independent of each other and do not have to be the same percentage value.

UNITS

Automatically changes with the type of material application selected.

NOTE: Rate changes can only occur on actively viewed control channels.
CONTROL CHANNEL SETUP

Control Channel Setup allows configuration of 4 independent control channels. Control channel choices consist of:

1. Planter Control
2. Granular Fertilizer
3. Granular Seeding
4. Liquid Flow
5. Disabled

IMPORTANT: For planter monitor only applications, all 4 control channels must be disabled. When the channels are disabled, the channels are turned OFF and not configured for operation as shown in (Figure 7).

To disable a control channel:

1. At the Material Library screen, press the Control Channel button to display the Control Channel Setup screen.
2. Press the Type input selection box and use the arrows to scroll through the control channel choices. Type on the Material Configuration screen must match Type on the Control Channel screen to be able to select material from the Material Library screen and operate properly.
3. Select Disabled by pressing the checkmark.
4. To disable channels 2-4, press the Next Channel button and follow the same instructions in step 2 above.

Figure 9
Control Channel Disabled
SEED MONITOR SETUP

The Seed Monitor Setup screen controls the parameters for:

- Material Name - monitor only
- High alarm delay
- Low alarm delay
- Population adjustment
- Population filter
- Row fail rate

From the Main Operate screen, press the Seed Monitor Setup button to access the Seed Monitor Setup screen.

NOTE: A material name will display on the Seed Monitor Setup screen only when ALL seeding control channels are disabled, no seed rows are assigned to channels, and material is set for Monitor Only.

Figure 10
Seed Monitor Setup Screen

IMPORTANT: For ground drive/nonhydraulic applications using the planter monitor only feature, all seeding control channels must be disabled, no seed rows assigned to these channels, and a Material Name selected at the Seed Monitor Setup screen. Reference the Material Setup-Monitor Only section for additional information.

MATERIAL NAME

Material Name only displays if there are NO seeding channels enabled and no rows assigned to these channels. The Monitor Only selection must be selected at the Material Configuration Setup screen.

HIGH ALARM DELAY

The High Alarm Delay establishes the delay between the detection of a High Population Alarm condition and the resulting alarm display. The value is entered in seconds. If the value is set to 10, a row must be in a High Population Alarm condition continuously for 10 seconds before the alarm will be issued.

NOTE: Population is updated every 5 seconds. Setting the Alarm Delay for under 5 second intervals does not provide any delay at all.
LOW ALARM DELAY
The Low Alarm Delay establishes the delay between the detection of a Low Population Alarm condition and the resulting alarm display. The value is entered in seconds. If the value is set to 10, a row must be in a Low Population Alarm condition continuously for 10 seconds before the alarm will be issued.

POPULATION ADJUST
The Population Adjustment percentage scales the displayed population value to allow for inaccuracies with seed sensors in certain applications. This is a multiplier of the monitored population value. For true calculated results, the value should be set to 100.0%. If the monitored value is reading low, the value can be increased above 100.0% to achieve the desired population display. The displayed value is calculated by the monitored value x population scalar.

\[
\frac{\text{Actual Population} - \text{Monitor Population}}{\text{Monitor Population}} \times 100
\]

POPULATION FILTER
The Population Filter value is used to stabilize the monitored population display. For a true population value, this number should be set to 0.0%. 0.0 is no filtering at all. 99 is the highest level of filtering available. Set the filter to meet the appropriate level of filtering for your specific use.

ROW FAIL RATE
The Row Fail Rate value sets the threshold for Row Failure alarms. The value is entered in seeds per second. Both values are adjustable, allowing for numerous combinations. The default value is 2/1, which indicates a row failure threshold of 2 seeds in 1 second.
GROUND SPEED SETUP

Ground Speed Setup determines:

- The input source and type of ground speed sensor being used
- The manual default ground speed (only displays when manual is selected as source).
- Shut off speed
- Minimum override
- Ground speed constant
- Master switch timeout
- Alarm delay
- Precharge speed (displays only when the Precharge time is greater than 0 mph (0 kmh) on a Control Channel Setup screen)
- Flush ground speed (displays only when Flush Enable is activated on a Control Channel Setup screen)

NOTE: IntelliAg system ground speed is independent of the TECU ground speed.

From the Main Operate screen, press the Ground Speed Setup button to access the Ground Speed Setup screen.

Figure 11

Ground Speed Setup Screen

SOURCE

Source selects the type of ground speed sensor being used and where the sensor’s input is on the system.

MANUAL

Sets the system to operate using a constant, internally generated ground speed. No ground speed sensor is required when using the Manual setting. No area accumulation will occur when speed source is manual.

Manual Ground Speed can be used in the event of a failure of the ground speed sensor being used. This is a constant, internally generated ground speed that will cause the system to operate when the master switch is ON at the speed that has been programmed. This value can be set to any speed within the delivery capabilities of the system.
**RELUCT FREQ**

Used when ground speed is provided by a reluctance (2-wire) type sensor connected to the actuator harness through an adapter harness.

**DIGITAL FREQ**

Used when ground speed is provided by a radar/digital (3-wire) type sensor connected to the actuator harness.

**CAN GROUND**

Used when ground speed is provided by a radar/digital (3-wire) type sensor connected to the cab harness or if radar/forward ground speed is communicated on the CAN bus.

**CAN WHEEL**

Used when wheel speed data is communicating on the CAN bus. This source does account for slip-like CAN ground.

**GSPD CONSTANT**

Ground Speed Constant is the value representing the pulse count produced by the ground speed sensor over a 400’ distance. Refer to Ground Speed Calibration for additional information.

**GROUND FAIL ALARM DELAY**

Alarm Delay determines the length of time after the ground speed goes to zero and seed flow continues before the alarm sounds. This alarm only applies when all control channels are disabled and the system is running in a Planter Monitor Only mode.

*NOTE: Manual ground speed can only be entered if the source is changed to MANUAL.*
PRECHARGE GROUND SPEED

Precharge Ground Speed is the speed the system will use when Precharge has been enabled for a control channel and Precharge Ground Speed greater than 0 must be entered to operate.

IMPORTANT: Ensure Precharge Ground Speed is set to 0 for planter monitor only applications.

GROUND SPEED CALIBRATION

Ground speed is the rate in MPH (Km/h) as measured by the ground speed sensor. The number reflects the number of pulses generated by the ground speed sensor while traveling a distance of 400 feet (100 meters).

IMPORTANT: It is imperative to get an accurate ground speed reading, as this reading directly impacts the accuracy of population, area accumulation, and application rate control.

Press the Ground Speed Calibration button to access the Ground Speed Calibration screen.

Figure 13
Ground Speed Calibration Screen

To Perform the Initial Ground Speed Calibration:

1. Carefully measure an exact 400 foot (100 meter) course, clearly marking the start and finish points.
2. With the tractor moving between 2 and 5 MPH (3.2 and 8 Km/h), press the Start button when the tractor is even with the designated start point. The display showing the ground speed calibration will zero and begin counting ground speed pulses.
3. When the tractor is even with the designated finish point, press the Stop button. The new calibration number will be displayed on the center of the screen.
4. To ensure accuracy, record the number and repeat this process two additional times. Average the three numbers recorded.
5. Enter the average calibration number.
6. Save the desired settings.

WORK SCREEN CONFIGURATION

Data items can be placed in any position on the Main Work screen. The display is functionally divided into 2 columns and 6 rows.

Press the Work Screen Configuration button to access the Work Screen Configuration screen.

• Any data item can be placed in any position.
• Duplicate data items can be configured on a single display if desired.
• Up to three display screens can be configured.
• Some items selected for the work screen will take up one entire row.

After these values have been selected, the new settings will display on the configured work screens.

Figure 14

Work Screen Configuration Screen

Refer to the Data Items section for a detailed description of each item and the associated display images.

In order to configure the second and third display screens, select the Next Work Screen button.
DATA ITEMS

Data items are selected at the Work Configuration screen. Refer to the Work Screen Configuration section for setup instructions. The following illustrates available display parameters and their respective functions. Display parameter placement can be moved to display on the Main Operate screen to individual preferences. Refer to System Configuration for additional information on setting parameters.

CLEARING ACCUMULATORS

Some Data Item values can be reset to zero from the Main Operate screen. Accumulator displays (e.g., Area 1 Field, Seed Count, etc.) on the active screen can be reset to zero by placing a check mark in the box next to the data item. Only accumulators that are on the currently-displayed screen can be reset. Accumulators are reset independently. They can only be reset when the master switch is OFF. Once an accumulator has reached its maximum value, it will roll over to 0.0.

POP ROW SCAN

Pop Row Scan displays all active seed rows population in seeds per acre (or seeds/Ha) for each detected seed sensor. The value to the left side displays the current row number being scanned. The value on the right is the population data. The scans continue sequentially in four-second intervals unless a particular row number is selected for continuous view. This Data Item will display on an entire row of the Operate screen.

POP MIN MAX ROW SCAN

Pop Min Max Scan alternately displays the seeding row with the minimum population and the seeding row with the maximum population in seeds per acre (or seeds/Ha). The value to the left side displays the current row number. The value to the right is the population data. Dwell time for each display is four seconds. This Data Item displays on an entire row of the Operate screen.
POP MIN ROW

\[ 4 \text{ KS/AC} \quad 0.0 \text{ KS/AC} \]

Pop Min Row displays the seeding row with the minimum population in seeds per acre (or seeds/ha). The value to the left side displays the current row number. The value on the right is the population data. This Data Item will display on an entire row of the Operate screen.

POP MAX ROW

\[ 1 \text{ KS/AC} \quad 0.0 \text{ KS/AC} \]

Pop Max Row displays the seeding row with the maximum population in seeds per acre (or seeds/ha). The value to the left side displays the current row number. The value on the right is the population data. This Data Item will be displayed on an entire row of the Work screen.

POP AVG

\[ 0.0 \text{ KS/AC} \]

Pop Avg displays the average population in seeds per acre (or seeds/ha) of all active seeding rows per channel.

NOTE: All Data Items are selected from the Work Configuration screen. Refer to the Work Screen Configuration section for setup instructions.

SPACING ROW SCAN

\[ 1 \text{ KS/IN} \quad 0.0 \text{ KS/IN} \]

Spacing Row Scan scans all active seed rows and displays the spacing in inches (cm) for each row as detected by the sensors. The value to the left side displays the current row number. The value on the right is the population data. The scans continue sequentially in four-second intervals unless the rotary knob is used to select a particular row number for continuous view. This Data Item displays on an entire row of the Operate screen.

SPACING MIN MAX ROW SCAN

\[ 1 \text{ KS/IN} \quad 0.0 \text{ KS/IN} \]

Spacing Min Max Row Scan alternately displays the seeding rows with the minimum and maximum spacing in inches (cm). The value to the left side is the current row number. The value on the right is the spacing. Dwell time for each display is four seconds. This Data Item displays on an entire row of the Operate screen.
SPACING MIN ROW
1 \( \text{IN} \) 0.0 \( \text{IN} \)

Spacing Min Row displays the seeding row with the minimum spacing in inches (cm). The value to the left side displays the current row number. The value on the right is the spacing. **This Data Item displays on an entire row of the Operate screen.**

SPACING MAX ROW
1 \( \text{IN} \) 0.0 \( \text{IN} \)

Spacing Max Row displays the seeding row with the maximum spacing in inches (cm). The value to the left side displays the current row number. The value on the right is the spacing. **This Data Item displays on an entire row of the Operate screen.**

SPACING AVG
0.0 \( \text{IN} \)

Spacing Avg displays the average spacing in inches (cm) of all active seeding rows per channel.

**NOTE:** All Data Items are selected from the Work Configuration screen. Refer to the Work Screen Configuration section for setup instructions.

SEED/DISTANCE ROW SCAN
1 \( \text{IN} \) 0.0 \( \text{FT} \)

Seed/Distance Row Scan displays all active seed rows and the number of seeds per foot (seeds/meter) for each row detected by the sensors. The value to the left side displays the current row number. The value on the right is the seeds per distance data. The scan continues sequentially in four-second intervals unless a particular row number is selected for continuous view. **This Data Item displays on an entire row of the Operate screen.**

SEED/DISTANCE MIN MAX ROW SCAN
1 \( \text{IN} \) 0.0 \( \text{FT} \)

Seed/Distance Min Max Row Scan alternately displays the seed row with the minimum number of seeds per foot (seeds/meter) and the seeding row with the maximum number of seeds per foot (seeds/meter). The value to the left side displays the current row number. The value on the right is the seeds per distance data. Dwell time for each display is four seconds. **This Data Item displays on an entire row of the Operate screen.**
SEED/DISTANCE MIN ROW

1 \( \frac{\text{S}}{\text{FT}} \) 0.0 \( \frac{\text{S}}{\text{FT}} \)

Seed/Distance Min Row displays the seeding row with the minimum number of seeds per foot (meter). The value to the left side displays the current row number. The value on the right is the seeds per distance data. This Data Item displays on an entire row of the Operate screen.

SEED/DISTANCE MAX ROW

1 \( \frac{\text{S}}{\text{FT}} \) 0.0 \( \frac{\text{S}}{\text{FT}} \)

Seed/Distance Max Row displays the seeding row with the maximum number of seeds per foot (meter). The value to the left side displays the current row number. The value on the right is the seeds per distance data. This Data Item displays on an entire row of the Operate screen.

SEED/DISTANCE AVERAGE

0.0 \( \frac{\text{S}}{\text{FT}} \)

Seed/Distance Average displays the average number of seeds per foot (meter) of all active seeding rows per channel.

GROUND SPEED

7.7 MPH

Ground Speed displays the current ground speed of the tractor in miles per hour (Kph). The ground speed source is defined during the Ground Speed Calibration setup. This data item also displays the implement status using an up/down arrow next to the tractor icon.

TOTAL AREA

0.00 ACT

Total Area displays the area covered by the implement in acres (Ha). Total area is calculated using the Implement Width parameter entered on the Row Status/Row Width Setup screen. Area accumulates for seeding when seeds are detected on at least one seeding row and the ground speed is above the Shutoff Speed parameter entered on the Ground Speed Calibration screen. This accumulator is independent of any other area accumulator and can be reset to 0.0 at any time. Current area is retained after power down. If no rows are configured, the Total Area Accumulator will use the largest channel width.
NOTE: All Data Items are selected from the Work Configuration screen. Refer to the Work Screen Configuration section for setup instructions.

NOTE: Singulation information is only operable when using a Smart Harness system and Seed Smart sensors. Contact DICKEY-john Technical Support at 1-800-637-3302 for additional information.

FIELD 1 AREA

Field 1 Area displays the area covered by the implement in acres (Ha). Field 1 Area is calculated in the same manner as Total Area. This accumulator is independent of any other area accumulator and can be reset to 0.0 at any time. Current area is retained after power down.

FIELD 2 AREA

Field 2 Area displays the area covered by the implement in acres (Ha). Field 2 Area is calculated in the same manner as Total Area. This accumulator is independent of any other area accumulator and can be reset to 0.0 at any time. Current area is retained after power down.

AREA SCAN

Area Scan scans through all area accumulators sequentially displaying the area for each accumulator in four-second intervals.

AREA PER HOUR

Area Per Hour displays the current area per hour in acres (Ha). The value is continuously calculated based on the current ground speed and the Implement Width parameter as entered on the Row Status/Row Width Setup screen.

SYSTEM ACTIVE TIME

System Active Time records the amount of time the master switch is in the ON position indicating the actual number of hours equipment has been operating.
SEED COUNT ACCUM ROW

Seed Count Accum Row scans through all of the active seed rows and displays the seed count for each row as detected by the seed sensors. The value to the left side displays the current row number. The value to the right is the seed count. The scan continues sequentially in four-second intervals unless a particular row number is selected for continuous view. The Seed Count function is enabled/disabled on the Accumulators/Seed Count/Distance Count screen. This Data Item displays on an entire row of the Operate screen.

DISTANCE ACCUMULATOR

Distance Accumulator displays the distance covered in feet (ft). This accumulator is independent of any other area accumulator and can be reset to 0.0 at any time. Current distance is retained after power down.
TROUBLESHOOTING & ALARMS

Alarms are indicated on the Virtual Terminal with the following graphic, as well as with a continuous, audible alarm. The audible alarm is terminated by pressing the **Alarm Cancel** button or **ESC** key. In addition, detailed descriptions of the current alarm can be viewed by pressing the **Alarm Information** button. Some of the alarm conditions display instructions on correcting the situation.

Alarms are presented in a full screen display that will describe the alarm and, depending upon the alarm, may give instructions on how to fix the alarm. Each alarm type has an associated alarm number that can be cross-referenced in this section.

Some alarms (for instance a Master Switch alarm) will require a specific action before the alarm condition will cease. In these cases, the instructions to proceed are indicated in the alarm display.

The following table describes the possible alarm conditions, causes, and remedies.
<table>
<thead>
<tr>
<th>ALARM #</th>
<th>ALARM</th>
<th>PROBABLE CAUSE</th>
<th>CORRECTIVE ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Software Task Stack Overflow Alarm</td>
<td>1. Internal system software error.</td>
<td>1. Cycle system power OFF/ON. If condition persists, contact DICKEY-john Technical Support (1-800-637-3302) or DICKEY-john Europe (011-33-141-192189).</td>
</tr>
<tr>
<td>2</td>
<td>Software System Stack Overflow Alarm</td>
<td>1. Internal system software error.</td>
<td>1. Cycle system power OFF/ON. If condition persists, contact DICKEY-john Technical Support (1-800-637-3302) or DICKEY-john Europe (011-33-141-192189).</td>
</tr>
<tr>
<td>3</td>
<td>VT Out of Memory Alarm</td>
<td>THE ECU MEMORY REQUIREMENTS ARE GREATER THAN THE VIRTUAL TERMINAL CAN HANDLE.</td>
<td>1. Remove any unnecessary ECU’s 2. Contact DICKEY-john Technical Support (1-800-637-3302) or DICKEY-john Europe (011-33-141-192189) for updated hardware.</td>
</tr>
<tr>
<td>202</td>
<td>Ground Speed Failure Alarm</td>
<td>ONLY ACTIVE IN PLANTER MONITOR MODE. SEEDS ARE DETECTED WHEN THERE IS NO GROUND SPEED. 1. Incorrect speed source setting or calibration. 2. Defective speed sensor or harness. 3. Defective module or virtual terminal.</td>
<td>1. Verify correct speed source setting and speed calibration on the Ground Speed Calibration screen. 2. Inspect speed sensor/harness for damage or replace speed sensor. 3. Replace module or virtual terminal.</td>
</tr>
<tr>
<td>211</td>
<td>All Rows Failed Alarm</td>
<td>1. Seed meter drive malfunction. 2. Rows are not assigned to channel and channels are turned off.</td>
<td>1. Check seeding drive(s). 2. Assign rows to channels.</td>
</tr>
<tr>
<td>212</td>
<td>Row Failure Alarm</td>
<td>SEED RATE HAS FALLEN BELOW THE ROW FAIL RATE SETTING ON THE SEED MONITOR SETUP SCREEN. 1. Seed meter malfunction. 2. Dirty or defective seed sensor. 3. Damaged planter harness. 4. Defective module harness or module 5. Out of seed</td>
<td>1. Verify proper planter operation. 2. Inspect seed sensor for dirt or damage. Replace if necessary. 3. Inspect planter harness for damage. Repair or replace. 4. Inspect harness and module for damage. Replace if necessary. 5. Fill with seed.</td>
</tr>
<tr>
<td>213</td>
<td>High Population Limit Exceeded Alarm</td>
<td>SEED RATE HAS EXCEEDED THE HIGH ALARM SETTING ON THE SEED MONITOR SETUP SCREEN. 1. Seed meter malfunction or incorrect setup. 2. Defective seed sensor. 3. Defective module.</td>
<td>1. Verify proper planter operations/setup. 2. Inspect seed sensor for damage. Replace if necessary. 3. Inspect module for damage. Replace if necessary.</td>
</tr>
<tr>
<td>214</td>
<td>Low Population Limit Exceeded Alarm</td>
<td>SEED RATE HAS DROPPED BELOW THE LOW ALARM SETTING ON THE SEED MONITOR SETUP SCREEN. 1. Seed meter malfunction or incorrect setup. 2. Defective seed sensor. 3. Defective module. 4. Running out of seed.</td>
<td>1. Verify proper planter operation/setup. 2. Inspect seed sensor for damage. Replace if necessary. 3. Inspect module for damage. Replace if necessary. 4. Fill with seed.</td>
</tr>
<tr>
<td>ALARM #</td>
<td>ALARM</td>
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<tr>
<td>217</td>
<td>Member module Detection Alarm</td>
<td>NUMBER OF MEMBER MODULES DOES NOT MATCH THE SYSTEM CONFIGURATION.</td>
<td>1. Verify correct module configuration setup on the Module Configuration screen. 2. Verify correct module configuration setup on the Module Configuration screen. 3. Identify missing module in the Module Configuration list. Inspect CAN/module harness of the missing module for damage. Repair or replace harness. 4. Identify missing module in the Module Configuration list. Inspect missing module for damage or replace. 5. Verify correct module configuration setup on the Module Configuration screen.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Too few modules connect to system.</td>
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<tr>
<td></td>
<td></td>
<td>2. Too many modules connected to system.</td>
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<td></td>
<td></td>
<td>3. Defective CAN/module harness.</td>
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<tr>
<td></td>
<td></td>
<td>5. Defective module.</td>
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<td></td>
<td>6. New module has been added to system.</td>
<td></td>
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<tr>
<td>219</td>
<td>Row Sensor Detection Alarm</td>
<td>NUMBER OF SEED SENSOR CONNECTED DOES NOT AGREE WITH THE NUMBER OF SENSORS CONFIGURED ON THE SEED SENSOR CONFIGURATION SCREEN.</td>
<td>1. Inspect seed sensor for damage or replace. 2. Inspect planter harness for damage. Repair or replace. 3. Inspect module and/or module harness for damage. Replace if necessary. 4. Verify correct # ROWS setting for each module.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Defective seed sensor.</td>
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<td></td>
<td>2. Damaged planter harness.</td>
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<tr>
<td></td>
<td></td>
<td>3. Defective module or damaged module harness.</td>
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<td>4. Additional seed sensor detected.</td>
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</tr>
<tr>
<td>220</td>
<td>Row Sensors Installed Incorrectly Alarm</td>
<td>ROWS ARE NOT DETECTED SEQUENTIALLY ON A MODULE.</td>
<td>1. Verify seed sensors are connected sequentially on all modules as instructed in installation. 2. Inspect seed sensor for damage or replace. 3. Inspect planter harness for damage. Repair or replace. 4. Inspect module and/or module harness for damage. Replace if necessary.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Incorrect seed row connections.</td>
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<tr>
<td></td>
<td></td>
<td>2. Defective seed sensor.</td>
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<tr>
<td></td>
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<td>3. Damaged planter harness.</td>
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<tr>
<td></td>
<td></td>
<td>4. Defective module or damaged module harness.</td>
<td></td>
</tr>
<tr>
<td>235</td>
<td>New Member Module Detected Alarm</td>
<td>1. New member module has been found.</td>
<td>1. Assign sensors to the new module at the Module Configuration Setup screen and its position.</td>
</tr>
<tr>
<td>236</td>
<td>Intermittent Member Module Detected Alarm</td>
<td>1. A member module that had previously failed communication has come online.</td>
<td>1. Inspect harness connections to this module.</td>
</tr>
<tr>
<td>602</td>
<td>8 Volt Supply Failure Alarm</td>
<td>8V SUPPLY VOLTAGE IS BELOW 7.2V OR HIGHER THAN 16V.</td>
<td>1. Inspect planter harness or module harness for damage. Repair or replace harness. 2. Inspect seed or hopper sensors connected to the identified module for damage. Replace sensors if necessary. 3. Replace identified module.</td>
</tr>
<tr>
<td>ALARM #</td>
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<tr>
<td>603</td>
<td>Member Module Communication Failed Alarm</td>
<td>COMMUNICATION WITH AN ACTIVE MODULE HAS FAILED 1. Damaged CAN or module harness. 2. Blown module harness fuse. 3. Defective module.</td>
<td>1. Identify missing module in the Module Configuration list. Inspect CAN/module harness of the missing module for damage. Repair or replace harness. 2. Inspect module harness fuse, replace if necessary. 3. Identify missing module in the Module Configuration list. Inspect missing module for damage or replace.</td>
</tr>
<tr>
<td>604</td>
<td>ECU Voltage Out of Range Alarm</td>
<td>ECU VOLTAGE IS BELOW 11V OR HIGHER THAN 16V. 1. Damaged CAN or module harness. 2. Defective module</td>
<td>1. Inspect CAN/module harness of the identified module for damage. 2. Inspect identified module for damage or replace.</td>
</tr>
<tr>
<td>605</td>
<td>Solenoid Voltage Out of Range Alarm</td>
<td>SOLENOID VOLTAGE IS BELOW 11V OR HIGHER THAN 16V. 1. Damaged CAN or module harness. 2. Blown module harness fuse. 3. Defective module.</td>
<td>1. Inspect CAN/module harness of the identified module for damage. Repair or replace harness. 2. Inspect module harness fuse or replace. 3. Inspect identified module for damage or replace.</td>
</tr>
<tr>
<td>606</td>
<td>Ground Offset Voltage Out of Range Alarm</td>
<td>1. Damaged/shorted Actuator Harness. 2. Defective PWM valve driver or Servo valve driver. 3. Defective module.</td>
<td>1. Inspect Actuator Harness for damage around the WPM and Servo valve connections. Repair or replace harness. 2. Inspect PWM or Servo valve drivers for damage and replace if necessary. 3. Inspect identified module for damage and replace if necessary.</td>
</tr>
</tbody>
</table>
Dealers have the responsibility of calling to the attention of their customers the following warranty prior to acceptance of an order from their customer for any DICKEY-john product.

**DICKEY-john® WARRANTY**

DICKEY-john warrants to the original purchaser for use that, if any part of the product proves to be defective in material or workmanship within one year from date of original installation, and is returned to DICKEY-john within 30 days after such defect is discovered, DICKEY-john will (at our option) either replace or repair said part. This warranty does not apply to damage resulting from misuse, neglect, accident, or improper installation or maintenance; any expenses or liability for repairs made by outside parties without DICKEY-john’s written consent; damage to any associated equipment; or lost profits or special damages. Said part will not be considered defective if it substantially fulfills the performance expectations. THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES OF MERCHANTABILITY, FITNESS FOR PURPOSE, AND OF ANY OTHER TYPE, WHETHER EXPRESS OR IMPLIED. DICKEY-john neither assumes nor authorizes anyone to assume for it any other obligation or liability in connection with said part and will not be liable for consequential damages. Purchaser accepts these terms and warranty limitations unless the product is returned within fifteen days for full refund of purchase price.

For DICKEY-john Service Department, call 1-800-637-3302 in either the U.S.A. or Canada

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