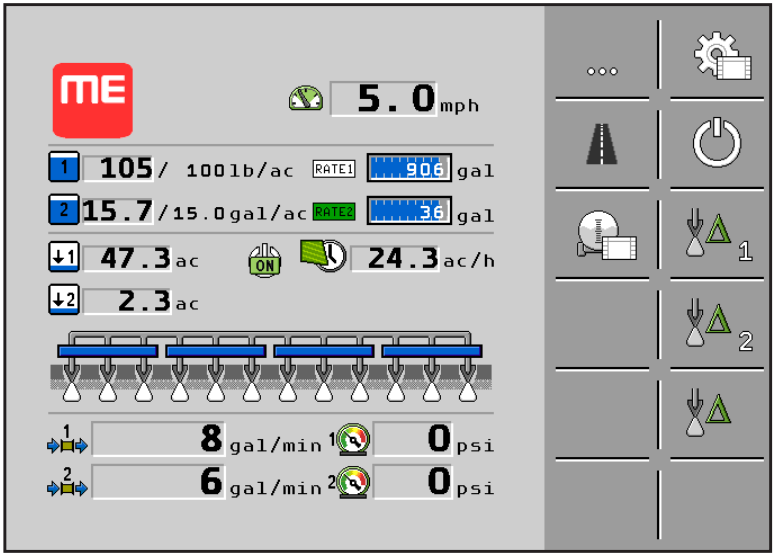
Operation Manual
ISOBUS Ammonia
Liquid Fertilizer Controller



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SW Version Liquid v.01.00.04.00 - ECU HW: 1.6-1.7
SW Version Liquid v.02.00.01.00 - ECU HW: 3.0-3.2

ME0112000-02-OM

Read and follow these operating instructions.

Keep these operating instructions for future reference.

Table of Contents

1 For Your Safety

1.1 Basic Safety Instructions

Please read the following safety instructions carefully before operating the product for the first time.

Working:

- Before leaving the vehicle's cab, ensure that all automatic mechanisms are deactivated or that manual mode is activated.
- Always check the system thoroughly before the season starts.
- Do not open the master valve if the injection knives are out of the soil.
- No one should remain in the proximity of the tractor or the application unit during work.
- Before driving on a public road, close all valves. For example, by activating road mode. [→39]

Instructions:

- Learn how to operate the ISOBUS Controller correctly. No one should operate this before having read and understood these operating instructions.
- Read and carefully observe all safety instructions and warning notices in these operating instructions and in the instructions for connected machines and devices.
- If any part of the operating instructions is unclear, ask your dealer or Mueller-Electronics.
- Ensure that everyone in close proximity to the system has been trained how to work with the application product properly.

Alterations to the product:

- Do not make unauthorized alterations to the product. Unauthorized alterations or unauthorized use can place your safety at risk and affect the lifespan or function of the product. All alterations which are not described in the product documentation are forbidden.
- Do not remove any safety mechanisms or stickers from the product.
- The product does not contain any serviceable parts. Do not open the housing.

1.2 EC declaration of conformity

This product has been manufactured in conformity with the following national and harmonized standards as specified in the current EMC Directive 2004/108/EC: ▪ EN ISO 14982

1.3 Handling Ammonia Safely

Contact with anhydrous ammonia can lead to the following:

- death
- very hazardous thermal or chemical burns
- eye injuries or blindness
- suffocation or Injuries to the respiratory tract

To work safely with ammonia, please read all safety instructions and safety-related information before using the system.

- Find out from your dealer what safety requirements you must fulfill in order to be able to work safely with ammonia.
- Always wear protective equipment which is appropriate for working with ammonia. These include: Face mask, protective glasses, chemical handling gloves, protective clothing, breathing apparatus. Ask your dealer about the proper equipment.
- Do not allow anyone who has not been trained to use the system.
- Ensure that the rinsing water tanks are always filled with clean water.
- Before opening a valve, always assume that it contains ammonia.
- Never stand into the wind when emptying the hose lines.
- Ensure that discharge outlets are not pointed towards a person.
- Before performing maintenance on the system, rinse out the ammonia. Wait for sufficient time to allow the liquid to evaporate.

1.4 Intended use

The ISOBUS Liquid controller is intended exclusively for metering liquid on agricultural equipment specifically designed for subsurface application of liquid in an agricultural operation.

The manufacturer cannot be held responsible for any installation or use of the system that deviates from or exceeds the scope of intended use.

The manufacturer cannot be held liable for any personal injury or property damage resulting from improper use. All risks involved in engaging in improper usage, lie solely with the user.

Intended use is also understood to include adherence to the conditions for operation and repair as prescribed by the manufacturer.

All applicable accident prevention regulations and all other generally recognized safety, industrial, and medical standards, as well as, all road traffic laws must be observed. Any unauthorized modifications made to the equipment will void the manufacturer's warranty.

1.5 Layout and Meaning of Warnings

All safety instructions found in these Operating Instructions are composed in accordance with the following pattern:

DANGER

This signal word identifies high-risk hazards, which can cause death or the most serious bodily injury, if not avoided.

WARNING

This signal word identifies medium-risk hazards, which could potentially cause death or serious bodily injury, if not avoided.

CAUTION

This signal word identifies low-risk hazards, which could potentially cause minor or moderate bodily injury or damage to property, if not avoided.

NOTICE

This signal word identifies actions which could lead to operational malfunctions if performed incorrectly.
These actions require that you operate in a precise and cautious manner in order to produce optimum work results.

There are some actions that need to be performed in several steps. If there is a risk involved in carrying out any of these steps, a safety warning will appear in the instructions themselves.

Safety instructions always directly precede the step involving risk and can be identified by their bold font type and a signal word.

Example:

1. NOTICE! This is a notice. It warns that there is a risk involved in the next step.
2. Step involving risk.

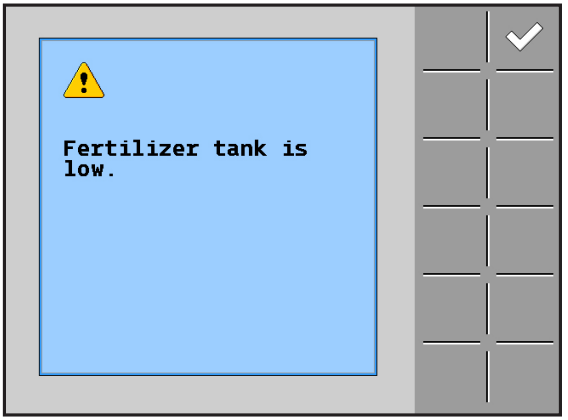
1.6 Layout and Meaning of Alert Messages

While working with the implement, an alarm message may appear. The alarm messages have the following purpose:

Warn - They warn the operator when the current condition of the implement can lead to hazardous situations.

Inform - They inform the operator that the current condition of the implement is not correct or that it is incorrectly configured and can lead to problems during operation.

On the following diagram, you can see how the alarm messages are structured:



1.7 De-pressurizing the Control System

DANGER

Ammonia under pressure

Death or serious physical injury

- Even when the pressure in the system is 0 psi, liquid ammonia can still be present in the system. Ammonia can remain between the shutoff valves and in lines which are lower than the rest of the system.
- Frost on any component is always an indication that liquid ammonia is still evaporating. Even if no frost is apparent, this does not mean that the ammonia has completely escaped.

To reduce the pressure in the system using the ISO Ammonia Controller, do the following:

1. Close the master valve.
2. Switch off the job computer.
3. Close nurse tank valves and disconnect nurse tank from implement.
4. Lower the implement so that the injection knives are in the soil.
5. Switch on the job computer and open all section valves so that ammonia can injection knives escape into the soil.
6. Tow the device across the field.
7. Continue driving until the pressure at manifolds reaches 0.
8. Slowly lift the implement out.
9. Keep a lookout at a safe distance for any signs of white vapor.
10. If you see vapor, lower the implement and wait for a few minutes. Lift the implement again and check for vapor again.
11. If no more vapor is escaping, stop.
12. WARNING! Opening a bleed valve can allow residual ammonia to escape.
13. Open all of the bleed valves on the control system.
14. Check if frost appears on the plumbing. This means that there is still liquid ammonia in the system.
15. Wait until the ammonia evaporates from the system. This evaporation can last a number of days or weeks, depending on the temperature and configuration. The implement can be stored during this time.
16. If you want to disassemble the plumbing, please refer to the manufacturer's service instructions of the ammonia cooler for how to make these

2 About these Operating Instructions

2.1 Illustrations in these Operating Instructions

The role of the diagrams on the software interface is to serve as a reference. They help you in finding your way around the software screens.

In these instructions, “screens” refer to anything which appears on the displays screen, with the exception of the function icons.

The information shown on the display is dependent on various factors:

- type of implement
- configuration
- status of all actuators and sensors
- model of the ISOBUS display

The screens on the display may therefore sometimes differ from those given in these operating instructions.

The instructions were written for the operation of the job computer with Mueller-Electronics display. When the job computer is operated using other ISOBUS displays, the layout of the screens and the information displayed can differ from the illustrations in these operating instructions.

2.2 Layout of Operating Instructions

The operating instructions explain step by step how you can perform certain operations with the product.

We use the following symbols throughout these Operating Instructions to identify different operating instructions:

Type of Depiction	Meaning
1. 2.	Actions that must be performed in succession.
→	Result of the action. This will happen when you perform an action.
→	Result of an operating instruction. This will happen when you have completed all steps.
☑	Requirements. In the event that any requirements have been specified, these must be met before an action can be performed.

2.3 Layout of References

If any references are given in these Operating Instructions, they will appear as:

Example of a reference: [➔8]

References can be identified by their square brackets and an arrow. The number following the arrow shows you on what page the chapter starts where you can find further information.

3 Product Description

3.1 General Functions

The ISOBUS Liquid ECU, which performance is described in these operating instructions, is used to control the precise application of liquid in agriculture.

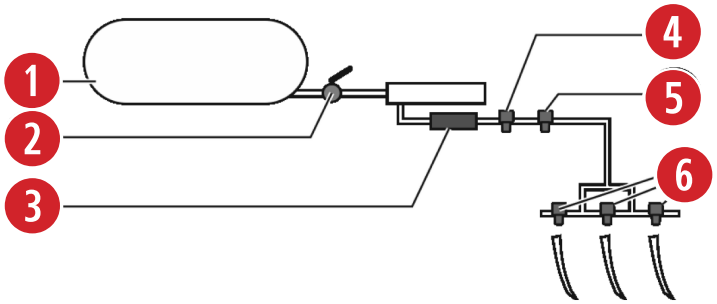
The system is provided with the following functions:

- Determination and display of speed.
- Control of the application amount based on the speed and working width of the implement used.
- Display of the current tank content.
- Automatic Section Control with an ISO Task Controller system. This enables the automatic opening and closing of section valves in order to prevent overlapping.
- Transfer of target rates from prescription maps.
- Closure of all valves when the vehicle slows below a defined speed.

Regulation

In order for the ISOBUS ECU to control the application amount, a number of components must be connected and configured.

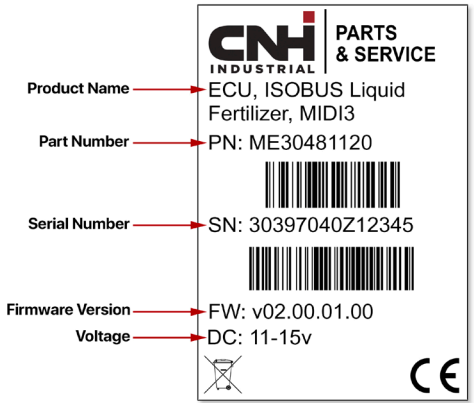
Certain valves are optional. When these are installed, however, they improve the operation of the system.



1	Tank with ammonia
2	**Safety Valve** - This valve is not controlled by the job computer. This is an Aux. Master that is used as a secondary shutoff if something happens to the job computer and the system needs to be closed manually.
3	**Flow Meter** - A sensor which determines the current flow and transmits this to the job computer.
4	**Control Valve** - The valve is electrically controlled. Its opening angle controls the amount of ammonia which is fed to the injection knives.
5	**Master Valve** (optional) - The valve is electrically controlled. This can be opened and closed very rapidly. This is used to close the line quickly.
6	**Section Valve** (optional) - The valve is electrically controlled. These can be open or closed. These are used to open and close the feed to individual sections.

3.2 Information on the Identification Label

On the ISOBUS ECU, you will find an Identification Label. This label provides all the information you need to clearly identify the product.



4 Basic Control Principles

4.1 Powering Up the ISOBUS ECU

You can switch on the ISOBUS ECU as follows:

1. Supply the ECU with power. This can be done in the following ways:
   a) For ISOBUS tractors: Switch the tractor on using the ignition key.
   b) For non-ISOBUS tractors: Switch on the display.
2. You have switched on the ECU.

4.2 Powering Down the ISOBUS ECU

Always switch off the ECU in the following situations:

- When you have finished work.
- Before you leave the field.
- When someone approaches the implement.

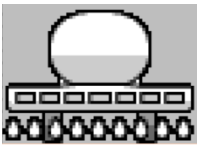
You can switch off the ECU as follows:

1. Stop the tractor.
   The ISOBUS ECU closes all the valves.
   ➔ The work screen displays this icon: 

2. Switch application off by pressing the Master ON/OFF soft key. 
   ➔ The application indicators beneath the icon of the implement are faded out:
3. Activate road mode by pressing the Road icon. 
   ➔ Alarm message appears: “Caution! Road mode is active!”
4. Switch off the tractor at the ignition switch, and ensure that the display is switched off.
   ➔ You have switched off the ECU.

4.3 ISOBUS ECU Symbol on a Display

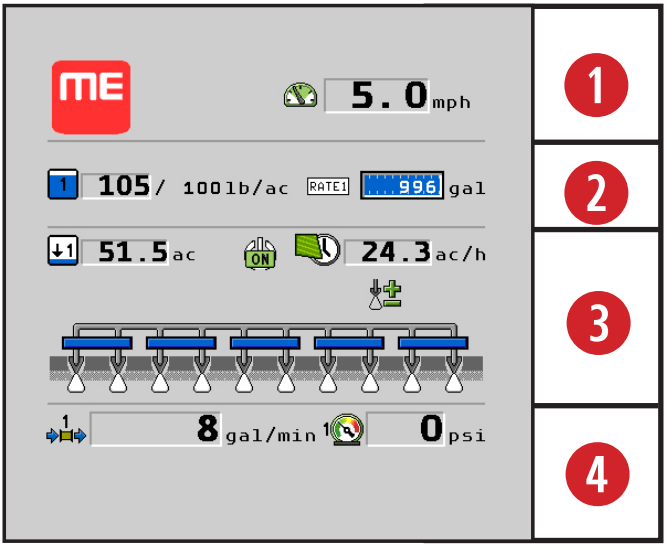
You can recognize the ISOBUS ECU existence on your display by the following icon:



4.4 Run Screen

The work screen is always displayed during work and contains the most important information. The work screen tells you the status of the implement during work.

The Run Screen is divided into four areas:



1	**Speed Indicator** Information on speed	3	**Implement Display Area** Information on sections & performance
2	**Application Display Area** Information on regulation & tank content	4	**Product System Feedback** Information on Flow & Pressure

Function Icons on the Run Screen

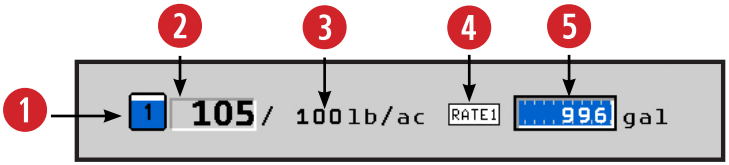
Function icons are shown on the sides of the display. You can touch these (on a touch-screen) or press a function key beside the icon (on a non-touch display) to perform a function.

Function icon	Meaning
	This opens a screen with counters.
	This opens a screen into which you can enter the tank content. [→25]
	This opens screens in which you can configure the system. [→20]
	This activates Road Mode. [→39]
	This displays further function icons.

4.4.1 Application Information Display Area

This is the Application Information display area. It shows the product actual rate, target rate, rate selected, and tank volume.

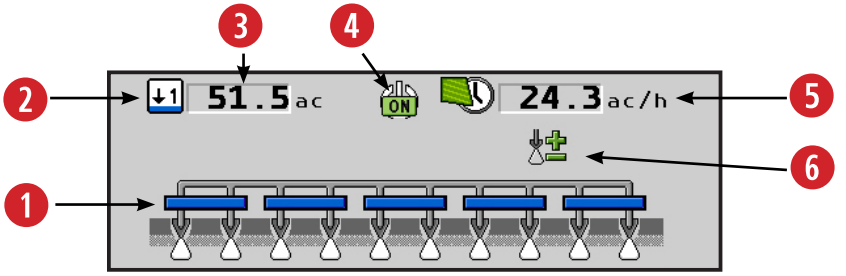
What information is shown on the display is dependent on how the manufacturer has configured the ECU.



1	**Control Channel Indicator** This icon indicates the control channel used for the product control and product form. In example above Control 1 and liquid form.	4	**Rate Number** The indicator shows which Target Rate is currently being used.
2	**Actual Rate** This display shows the actual As-Applied rate.	5	**Tank Fill Level** The bar graph provides a visual indication of the tank level. The numbers indicate product remaining in the tank.
3	**Target Rate** This area will display the current Target Rate as set by operator.		

4.4.2 Implement Display Area

This is the implement display area. It shows the area remaining and productivity data.



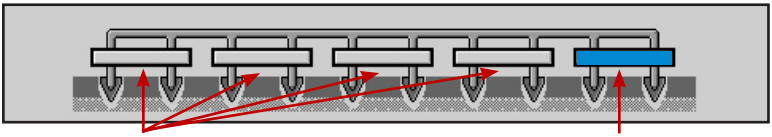
1	Section application status.
2	Tank number indicator.
3	Area remaining based on tank level.
4	Master ON/OFF Indicator.
5	Performance in acre/hour.
6	Rate has been adjusted from Default Rate. This icon also appears briefly when you press the Increase Rate or Decrease Rate icons in Manual Mode.

Possible Section States:

The sections can be in four states. You can see the state of a section on the work screen in the implement display area.

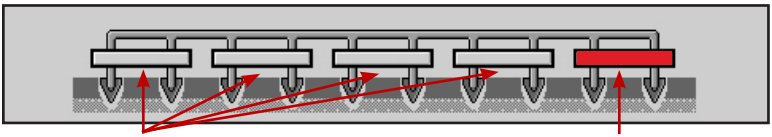
Display	Section State
	Section is in an ON ready state but NOT applying due to being out of work. Section is Manually turned OFF. As long as SECTION-Control is working in automatic mode, this section cannot be switched on or off automatically.
	Section is turned off via Task Controller due to overlap or outside the boundary.
	Section is applying.

The following illustrations show how the sections in the implement display area can appear.



Sections 1-4 are switched off.

Section 5 is pre-selected and applying.

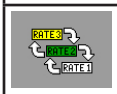


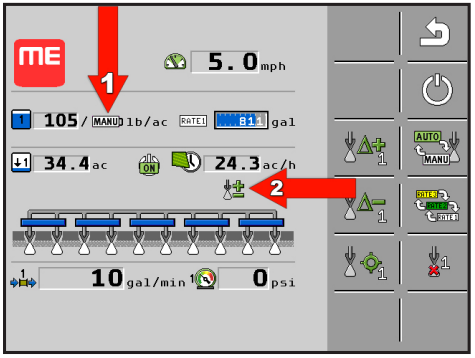
Sections 1-4 are switched off.

Section 5 is pre-selected but not applying.

4.5 Operating the Valves

You can operate the valves directly using the display function keys. Work Screen will default with icons for Master Control, Section Control, and Rate control.

Function Icon	Function
	**Master Switch** - Turns the system ON/OFF. If a master valve is installed, it is also opened and closed.
	**Rate 1 Control Selection** - This softkey accesses Product 1 rate control options and includes product shutoff.
	**Rate 2 Control Selection** - This softkey accesses Product 2 rate control options and includes product shutoff.
	**Rate Control Selection** - Selects control for both Product 1 and 2 for Delta Rate and Manual Rate Control options for both products at once.
	**Rate Decrease** - Decreases the rate with every button push by the preset amount which was determined and set during the configuration setup.
	**Rate Increase** - Increases the rate with every button push by the preset amount which was determined and set during the configuration setup.
	**Automatic Mode** - Returns rate to selected Target Rate.
	**Auto/Manual** - When tapped, this icon puts the system in manual mode. This allows the rate increase or rate decrease icons to manually open or close the valve. Press the Auto/Manual icon again to return the system to Automatic Mode. *(see below)*
	**Rate Selection** - Pressing the icon switches between Rate 1, Rate 2, and Rate 3. A visual indication of the chosen rate will appear on the Tank & Rate Display section on the Run Screen.
	**Product Shut-Off** - Pressing this icon will shut-off the product. The actual rate will turn grey and read zero.
	**Boost Pump** - Pressing this icon initiates the boost pump. See the Configuration 2/4 screen to setup the boost pump.
	**Section Control** - Open or close valves if you have 4 or less sections.
	**Section Control** - Turns sections ON/OFF sequentially for 5 or more sections.



Arrow #1 indicates that Manual Mode has been activated.

Arrow #2 shows the Rate Increase/Decrease icon appearing when pressed.

5 Preparing the ISOBUS ECU for Use

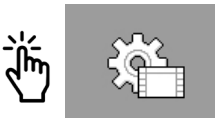
5.1 When should you configure what?

Before using the application for the first time, you must configure the following settings:

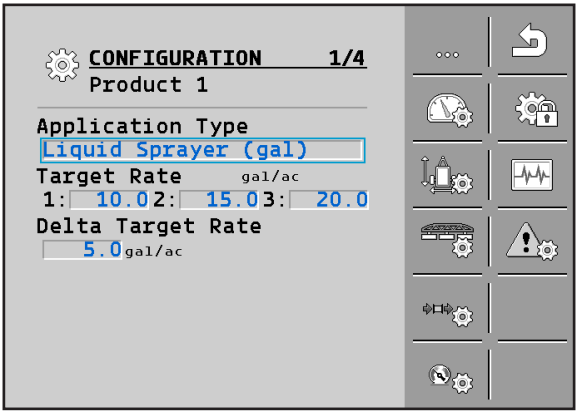
You have to configure the following	Chapter with more information
Implement parameters	Inputting the implement parameters [→ 20]
Implement dimensions	Inputting the implement geometry [→ 30]
Configuring the speed source	Speed signal [→ 26]
Sections	Configuring sections [→ 28]
Flow meter	Calibrating the flow meter [→ 31]

5.2 Implement Configuration

1. Press the Configuration icon:



➞ The Configuration 1 screen appears:



2. Select the value of a parameter by pressing the desired field.
   ➞ The data input screen appears.
3. Enter the new value.
   ➞ The new value appears on the display.

Configuration: One Product vs. Two Products

The following instructions and screen shots are for a one product setup. It contains four configuration screens. If the system is setup for two products, there will be six configuration screens. Configuration 3 and 5 are added for the Product 2 options.

Configuration Parameters:

The list contains all parameters that can appear on the screen. The parameters which appear on your display are dependent on the type and configuration of your implement.

Application Type

Use this parameter to input what product should be taken into account when calculating the application amount and units. Choose between lbs of NH3, lbs of N, Liquid Fertilizer (lb), Liquid Fertilizer (gal), Liquid Sprayer (gal), Liquid (fl. oz.), & Injection (fl. oz.) which is limited to Product 2 only. **The system must be restarted for changes to take effect.**

Target Rate
You can use this parameter to set the amount of product to be applied. Three different Target Rates can be setup and quickly changed with the Rate Selection icon on the Run Screen [→ 18]. If a prescription map is being used, this value input here will be ignored. The ECU will get the target from the value on the prescription map.

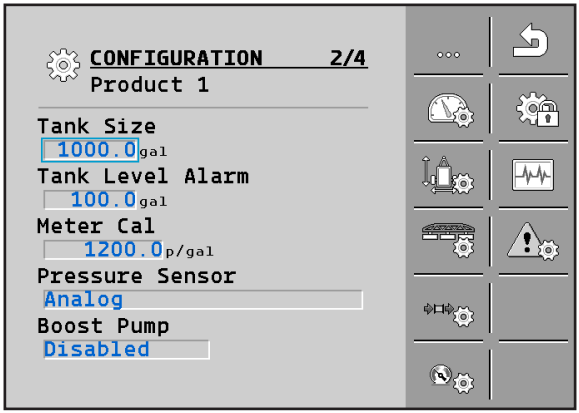
Delta Target Rate
This number reflects the amount of change to the rate each time Deta Target Rate Softkey is pressed either to increase (+) or decrease (-).

Estimated Tank Pressure (NH3 only)
Inputs the Tank Pressure value used for display only.

NH3 Density (NH3 only)
This field is not a parameter, but is rather displayed as a value. This displays the density of the ammonia. The density is dependent on the pressure that you set in the Estimated Tank Pressure parameter. If the density of the ammonia changes, the value of the Rate parameter also changes.

Press the icon with three dots to proceed:

→ The Configuration 2 screen appears:



Tank Size
This value is the total volume of the tank in gallons for product indicated in the screen title area.

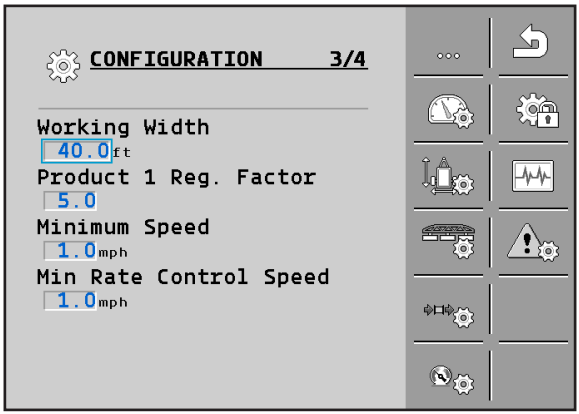
Meter Cal
Number of pulses the flow meter sends to the job computer per one gallon of liquid. Used to calculate the application rate. Take the value for initial set-up from the flow meter data sheet. The exact number of pulses will be determined when calibrating the flow meter.

Pressure Sensor
This will enable the system pressure to be displayed on the home screen. Choose Analog or Not Installed.

Boost Pump
If the system has a boost pump system installed, it can be enabled and pressure set in this section. Additional setup is required in the Password Protection area to enable the feature and set PID control settings.

Press the icon with three dots to proceed:

→ The Configuration 3 screen appears:



Working Width
Enter the working width of the implement in feet.

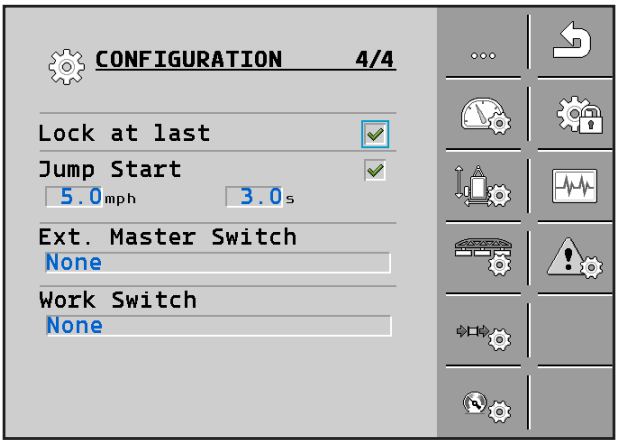
Regulation Factor
This value will adjust the rate the control valve reacts to changes. If the valve is too slow to react you will need to increase the Regulation Factor. If the valve is too fast to react then you will need to decrease the Regulation Factor.

Minimum Speed
This value represents the slowest speed the system will allow product application. Speed below the set value will cause the system to stop applying and close all valves.

Minimum Rate Control Speed
This value represents the minimum rate of application. The system will never apply product at a rate less than this value.

Press the icon with three dots to proceed:

→ The Configuration 4 screen appears:



Lock at Last
Lock at Last setting should be checked if you want to keep the valve open for servos or keep the pump running for a PWM setup. This allows for a quicker return to the Target Rate when you start applying again. Lock at last should only be used when there is a master valve in the system or with systems that have section valves.

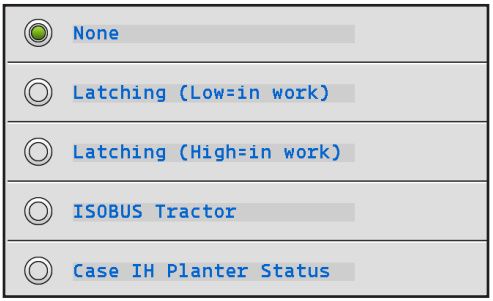
WARNING: If Lock at Last is enabled when no master valve or section valves are present, flow will not be able to be stopped. The Master Switch will not have the ability to turn off product flow.

Jump Start

Check the Jump Start feature to start applying before the implement is up to speed. Enter the speed that corresponds to the rate to be applied when pressing the Jump Start button. Enter the amount of time in seconds that you want Jump Start to apply at the targeted speed before the Automatic control takes over. This option allows operator to start applying from a stop position and allow tractor to get up to operating speed.

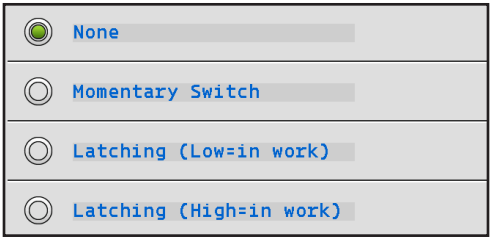
Work Switch

To setup the Work Switch, press the selectable area. Choose the option for your setup from the pop-up screen. Press the checkmark to save your selection.



External Master Switch

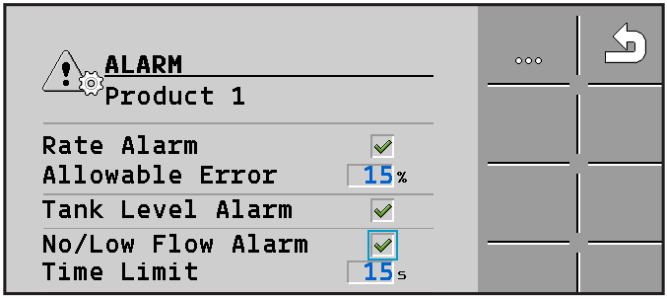
If an External Master Switch is selected, the onscreen master softkey will be removed. Choose the option for your setup from the pop-up screen. Press the checkmark to save your selection.



Alarm Configuration

Press the Alarm icon to open the Alarm Configuration settings.

➞ The Alarm Configuration screen appears:



Product Rate Alarm
Checking this value will activate an alarm to alert the operator if application is outside of the specified Target Rate.

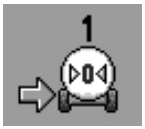
Allowable Error
Adjusting this value sets the percentage of Target Rate error before the operator receives a warning.

Tank Level
Checking this value will activate an alarm to alert the operator when the tank level is low.

No/Low Flow Alarm
Checking this value will activate an alarm to alert the operator when the Actual Rate is greater than 25% of the Target Rate. If the system has a dump valve, this feature can protect the pump and keep it from burning up.

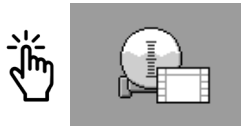
5.3 Enter the Fill Level in the Tank

You must input the amount of ammonia in the tank prior to starting to operate in order for the system to correctly display tank content.

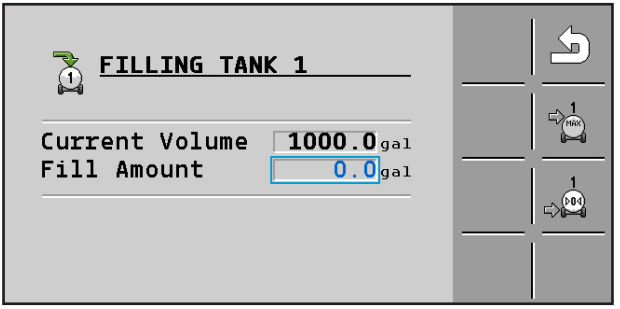
Function Icon	Function
	Press when the tank is completely full.
	Press when tank is completely empty

Input the new tank content by following these steps:

1. Open the “Tank filling” screen by pressing this icon:



➞ The Filling Tank screen appears:



2. Press this Max Tank icon if the tank is empty.
3. If the tank is not completely empty, enter the number of gallons in the Fill Amount field to be added to the current level of the tank. For example, if 500 gallons is in the tank and 1000 gallons is added to the in Fill Amount, the Current Volume will be updated to read 1500 gallons.

➞ The new tank content appears on the Run Screen in the Tank display area.

5.4 Speed Signal

The speed of the vehicle must be known so that the job computer can calculate the application amount.

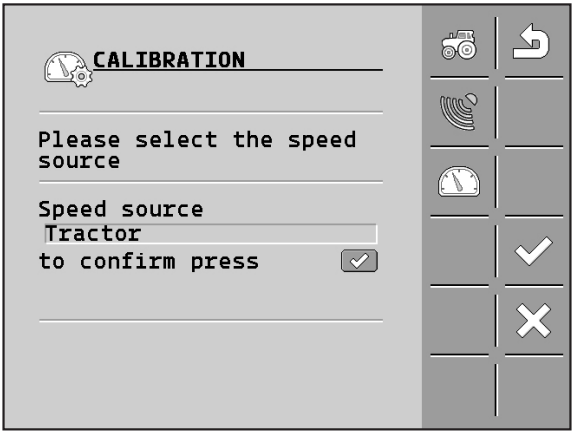
Selecting the speed signal source:

Parameter Value	Description
Tractor	The ECU will receive a speed message via the ISOBUS from Tractor TECU, if equipped from a speed source on the tractor. The display must support this function.
Radar	The speed signal will come from a radar sensor or speed pickup mounted on the tractor or on the implement. It is connected to the ECU via ground speed connector.
Simulation	The speed is a simulated speed that you enter.

5.4.1 Tractor Wheel Speed

1. From the Run Screen, press the Configuration icon. Press the Speed Configuration icon.

➞ The Speed Calibration screen appears:



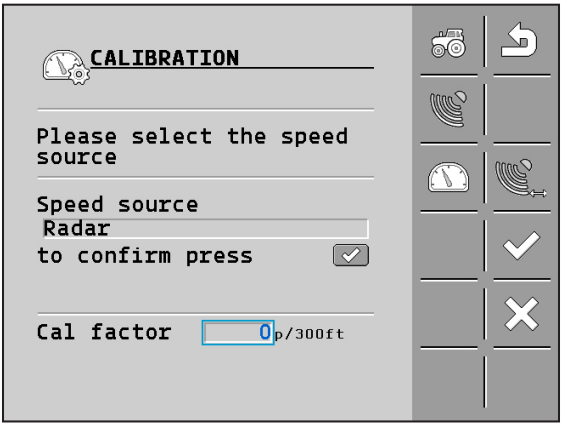
2. Press the Tractor icon and confirm that Tractor is the Speed Source. Press the check mark to save.

5.4.2 Radar or Implement Speed

The Radar Calibration supports implement wheel pulse sensor calibration as well as radar. The user can change the value to match the known speed source if desired.

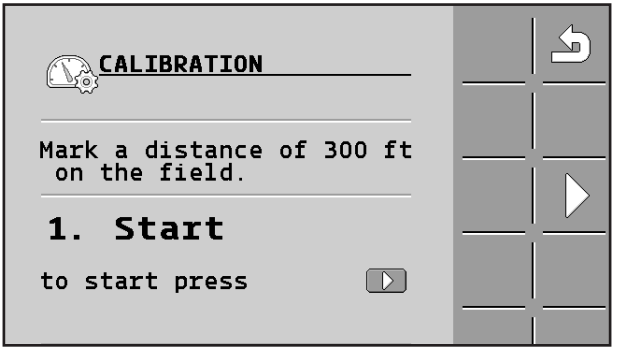
1. From the Speed Calibration screen, press the Radar icon.

➞ The following screen appears:



2. Press  to start the Radar calibration.

3. The following screen will appear:



4. Press the arrow to start the calibration.

5. Drive 300 ft.

6. Once you have driven the 300 ft., press the ✔ to stop the calibration and accept the pulse count indicated. Press the ✖ to return to calibration start and run the 300 ft. again.

5.4.3 Simulated (Demo) Speed

1. From the Speed Calibration screen, press the Speed icon.

2. Enter your desired speed.

3. Press the check mark icon to confirm.

5.5 Configuring Sections

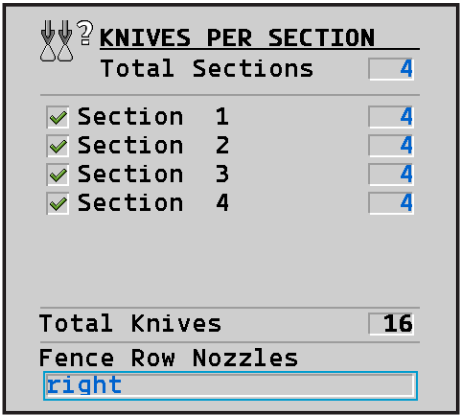
A section refers to a part of the implement in which all of the nozzles are supplied with liquid from a section valve. Closing the section valve switches off the section.

The implement has as many sections as it has section valves which can be switched off. The first section is always on the left in the direction of travel. The second is on its right, etc.

5.5.1 Entering the Number of Sections

1. From the Run Screen, press the Configuration icon. Press the Sections Configuration icon.

➞ The Sections screen appears:



2. If the section number is unchecked, the system will disable the specific section, and it can not be turned on from the Run Screen. This feature allows the operator to disable the sections that aren't going to be used.
3. Enter the number of sections in the Total sections field.
4. If you are using fence row nozzles, select left, right, or left and right from the drop down list.
5. Press the Back Arrow icon the screen to return.

➞ The ECU will indicate that it needs to be restarted. You can restart the system now that you are at the conclusion of the setup process.

5.5.2 Inputting the Number of Nozzles per Section

You must input how many nozzles are connected with each section valve at the following times:

- Prior to initial startup.
- If you change the number of nozzles on a section.

1. Enter the number of nozzles per section.
2. The total number of nozzles will appear at the bottom of the screen.
3. Press the Back Arrow icon the screen to return.
4. Repeat this process for all sections.

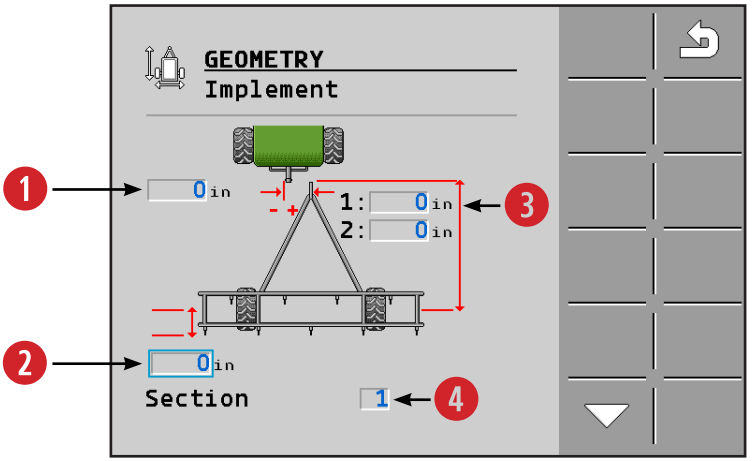
➞ The ECU will indicate that it needs to be restarted. You can restart the system now are at the conclusion of the setup process.

5.5.3 Inputting the Implement Geometry

The geometry is the number of parameters which describe the dimensions of your implement. Inputting the geometry enables the system to know the exact length and width of the machine and the position of the individual sections.

1. From the Run Screen, press the Configuration icon. Press the Geometry Configuration icon.

➔ The Implement Geometry screen appears:



Measure the following distances on the implement and enter the measurements:

1	The distance in inches of the hitch offset to the left or right.
2	The distance in inches of the nozzle offset from the axle.
3	The distance in inches from the hitch to the implement axle. The second offset value from the connection to implement pivot point applies to 2 boom systems. It allows adjustment to delay for section control and overlap control.
4	Enter the section number. Press the arrow icon to cycle through your sections. The nozzle offset can be set individually for each section if the distances are different. If they are the same measurement you still have to cycle through all the sections and set them accordingly.

5.6 Calibrating the Flow Meter - Field Run

If lbs of NH3 or lbs of N are the product application type, the Field Run Calibration is only calibration method available.

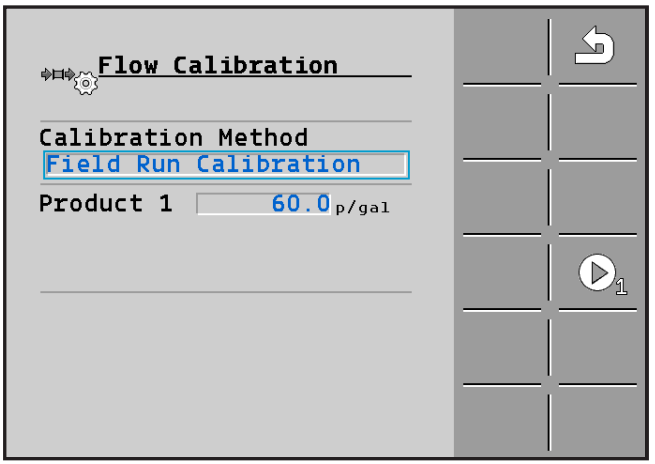
The flow meter is used to measure the amount of applied liquid. Because the number of pulses per gallon can change during the lifespan of a flow meter, calibration must be carried out in the following cases:

- Prior to initial startup.
- At the start of each season.
- If you notice that there are deviations between the actual applied amount and the displayed amount.
- When you have exchanged or repaired the flow meter.

Calibration must be performed during normal field work. This means that can only calibrate the flow meter once the other system parameters have been configured.

1. Note the gallons of liquid in your tank. (Weight can also be used for calibration if the density of the liquid is known.)
2. Drive to a field which is at least 10 acres in size.
3. Prepare the implement for work.
4. Select the Flow Calibration screen by pressing the Configuration icon. Press the Flow Cal icon.

➔ The Flow Calibration screen appears:



5. Confirm the Calibration Method is set to Field Run Calibration.
6. Press the play icon. Use the back arrow to return to the Run Screen and start applying product.

   ➔ During application, the number of gallons will be counted in the screen Flow Calibration.
7. Work a test route on the field until you have applied a few hundred gallons.
   ➔ During application, the number of gallons will be displayed.
8. Stop application. Go to Flow Cal screen and press the stop icon.

   ➔ The application will be stopped.
   ➔ The number of gallons or lbs the system thought it used is displayed.
9. Check the gallon content of the tank once again.
10. Subtract this the current number of gallons from the number of gallons prior to application. *(If you are calibrating based on weight, subtract this mass from the mass measured prior to application. Next divide this number by the liquid density to get the number of gallons applied.)*
11. Enter the applied amount in gallons in the Actual Amount line. Once this amount is entered the Meter Cal value will be updated. The user can accept the new pulses/gal. value with by pressing the ✔ or press the ✖ to return to calibration start screen without updating the Meter Cal Value.
    ➔ You have now calibrated the flow meter.

5.7 Calibrating the Flow Meter - Simple Catch

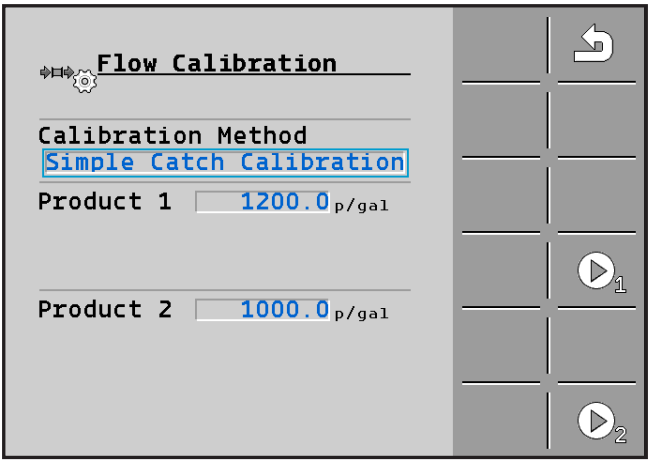
The Simple Catch Calibration method allows the user to calibrate the flow meter without moving the vehicle. For safety reasons, this method cannot be used when the product type is anhydrous. The simple catch test is completed in calibration screens and done statically. The user starts application and catches flow from a single nozzle for 1 minute or a measured time interval. The system converts the catch amount to a gal/min value and enters it in the calibration screens.

Because the number of pulses per gallon can change during the lifespan of a flow meter, calibration must be carried out in the following cases:

- Prior to initial startup.
- At the start of each season.
- If you notice that there are deviations between the actual applied amount and the displayed amount.
- When you have exchanged or repaired the flow meter.

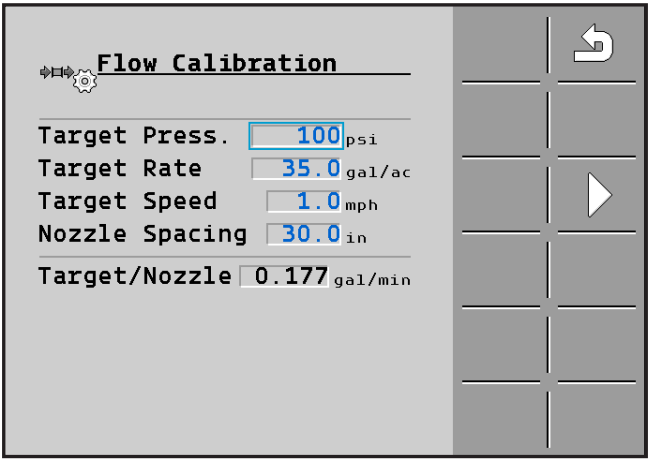
1. Select the Flow Calibration screen by pressing the Configuration icon. Press the Flow Cal icon.

➔ The Flow Calibration screen appears:



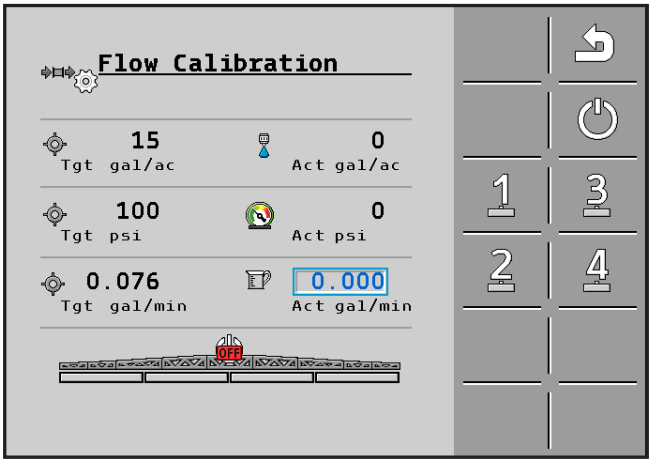
2. Confirm the Calibration Method is set to Simple Catch Calibration.
3. Press the play icon to begin the calibration for Product 1 or Product 2.

➔ The Flow Calibration screen appears:



4. Enter the values for Target Pressure, Target Rate, Target Speed, & Nozzle Spacing. Press the Play icon to proceed.

➔ The Flow Calibration Control screen appears:



5. Setup a container(s) on the implement to catch the product that will be applied during the calibration. Activate/Deactivate the sections you want to apply during the catch test with the section control icons.

6. Press the Master ON/OFF icon to start application. Apply product for 1 minute.

7. Press the Master ON/OFF icon to stop application.

8. Enter the applied amount in gallons in the Actual Amount line. Once this amount is entered the Meter Cal value will be updated. The user can accept the updated value with by pressing the ✔ or press the ✖ to return to calibration start screen without updating the Meter Cal Value.

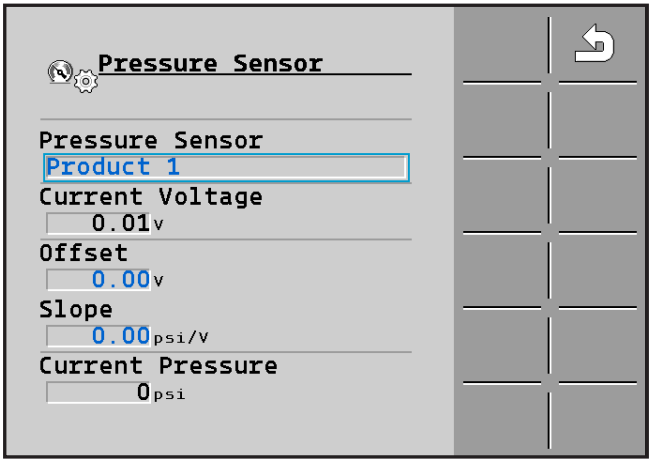
9. Press the Back Arrow to exit the screen.

➔ You have now calibrated the flow meter.

5.8 Pressure Sensor Settings

To adjust the pressure sensor settings, press the Configuration Icon. Press the Pressure Cal button. Be sure to use an accurate pressure gauge to compare system against the pressure sensor. Pressure sensor settings are not available until the Pressure Sensor Analog option is selected in the product setup. [→19]

→ The Pressure Sensor screen appears:



Pressure Sensor
Select name of the product for the Pressure Sensor.

Offset
The settings allow adjustment to the voltage range. The range can be increased or decreased.

Slope
The slope value shows psi/V for the pressure sensor. 1 volt = 20 psi.

Current Pressure
This value is the current pressure reading from the Pressure Sensor.

6 Using the ISOBUS ECU in the Field

6.1 Setting Rate

The rate is the amount which you can apply per acre. The ECU will attempt to operate the control valve so that the rate is maintained during work.

There are several ways to specify the rate:

- Enter the rate on the “Configuration” screen.
- Transfer the rate from a shape-prescription maps.
- Take the rate from a task in ISO-XML format.

Enter the rate on the “Parameters” screen as follows:

1. Press the Configuration icon.
2. Enter the rate in the “Target Rate” line on the Configuration 1 screen.

6.2 Starting Application

⚠ WARNING

Exposure to Ammonia - Death or heavy injuries
Do not rely on the minimum speed to keep the system off. Close the master valve if the machine will be stopped for servicing the implement.

Start application as follows:

☑ The tractor with the implement must be in a field.

☑ The ECU is completely configured.

1. Ensure that all of these preconditions have been met!
2. Press the Master ON/OFF icon to open the control valve.

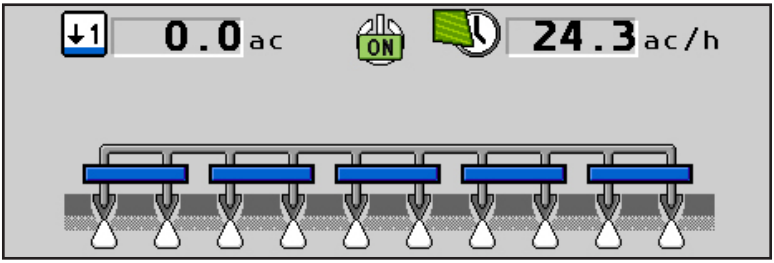
→ The control valve will be prepared for opening, but cannot yet be opened as the implement is still stationary.

→ As long as the implement is not moving, the  Section Off icon will appear on the work screen and the control valve will remain closed.

3. Drive off, and exceed the minimum speed (Parameter: “Min Auto speed”).

→ As soon as the implement exceeds the minimum speed, the implement will begin the application.

Application indicators appear under the implement icon:



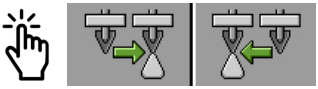
→ You have started the application.

6.3 Stopping Application

You can stop application in the following ways:

- Close the master valve.

- Close all section valves.



- Move slower than the set minimum working speed.
- Activate road mode.

6.4 Documenting Results

Work data can be seen on the Results screen. From the Run Screen

In the Counters screen there are two types of counters:

- **Trip counters** – Documents your work until it is deleted. This applies to the four upper counters.
- **Lifetime counters** – Documents the accumulated work since first start-up and cannot be reset to zero.

The Counters screen has the following information:

- **Volume** – applied volume.
- **Area** – area processed.
- **Distance** – distance driven during the application.
- **Work time** – Total duration of the application.

Use the following function keys to operate the function:

Function Icon	Function
	Clear "Volume" counter
	Clear "Area" counter
	Clear "Distance" counter
	Clear "Time" counter.
	Back to work screen
	Clear content of all trip counters.

7 Road Mode

DANGER

Exposure to Ammonia - Death or heavy injuries
Close the tank valves before transporting the implement.

The Road Mode function is used to close the valves for safe transport on public roads.

When road mode is activated, the following happens:

- An icon appears on the work screen.
- The control valve and the section valves are closed. Application is thus interrupted.
- None of the valves can be opened as long as road mode is activated.

Road Mode can be activated using the following methods:

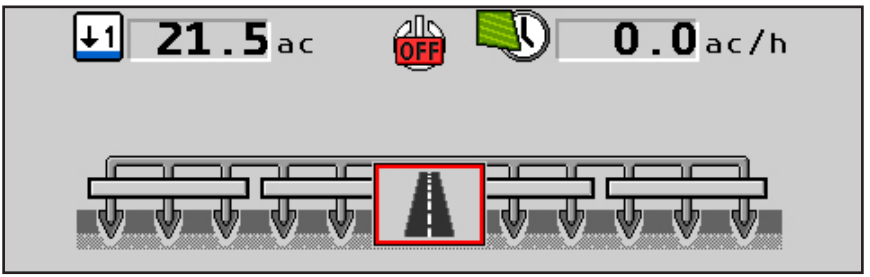
- You can activate the function manually.
- If the vehicle exceeds the speed set in the “Maximum speed” parameter for three seconds.

You can activate road mode manually in this way:

1. Press the road icon from the home screen.

→ The control valve and the section valves are closed.

→ The Road Mode function icon appears on the Run Screen as seen below:



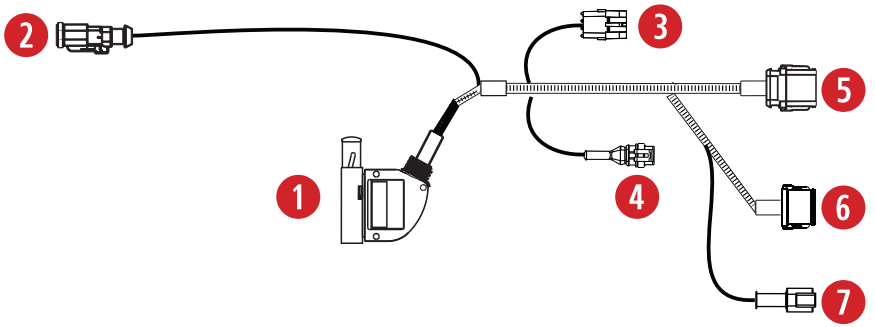
→ Road mode is now activated.

8 Troubleshooting & Technical Data

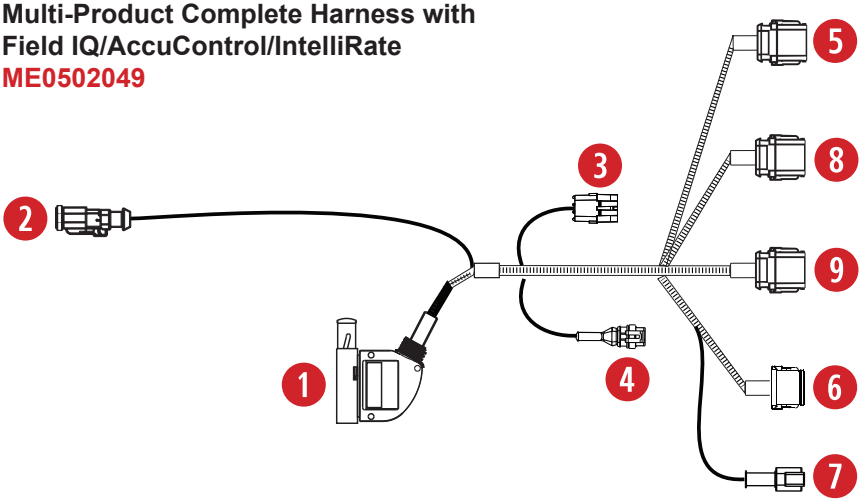
Issue	Possible causes	Possible solution
Section valve does not open or close.	• Valve Motor failure • Broken wire or open connector • Section configuration incorrect • Minimum speed set too high	• Inspect harness for damage and open connectors • Confirm number of sections matches implement • Confirm the entered minimum speed is lower than operating speed. • Replace valve motor of the section valve
Control valve does not open or close.	• Valve Motor failure • Broken wire or open connector • Minimum speed set too high	• Inspect harness for damage and open connectors • Confirm number of sections matches implement • Confirm the entered minimum speed is lower than operating speed. • Replace valve motor of the control valve
No flow detected.	• Encoder failure • Broken wire or open connector • Flow meter turbine failure	• Inspect harness for damage and open connectors • Confirm flow calibration is non-zero • Confirm flow meter turbine spins freely. • Replace flow meter encoder
No ground speed detected.	• Incorrect ground speed source selected • Broken wire or open connector	• If using ISO speed (GPS Speed) confirm that the tractor has a tractor ECU and is calibrated. • If using radar or wheel sensor confirm speed calibration is non-zero.
Incorrect ground speed detected.	• Incorrect ground speed calibration • Radar sensor vibrating	• Calibrate the wheel sensor • Ensure correct radar sensor mounting.
Target Rate cannot be achieved.	• Ground speed too high • Insufficient flow capacity • Ambient temperature too low (low tank pressure)	• Slow Down • Wait until ambient temperature • increases.

8.1 Harness Diagrams

Single Product Complete Harness with Field IQ/AccuControl/IntelliRate
ME0502050

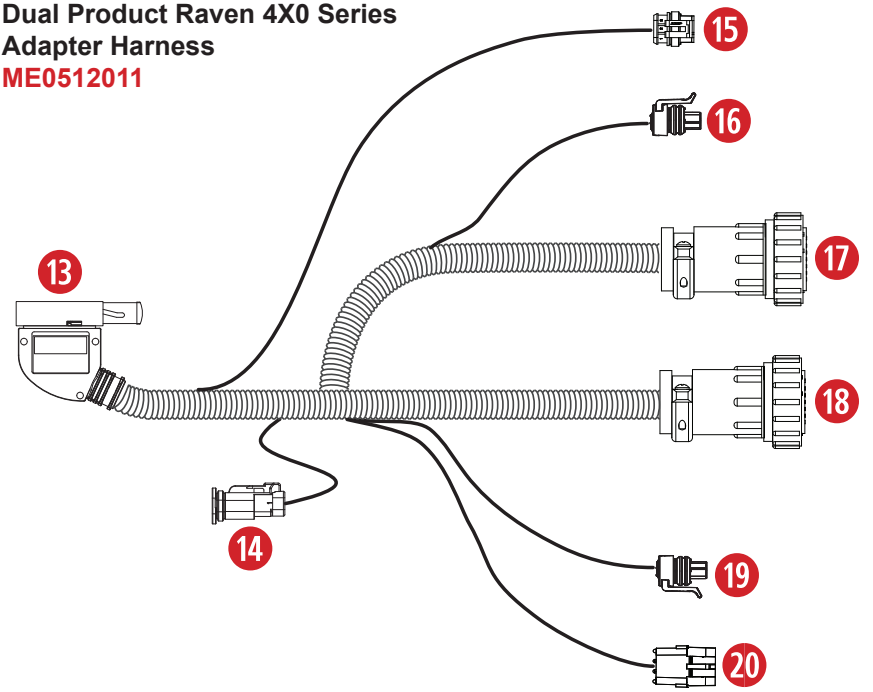


Multi-Product Complete Harness with Field IQ/AccuControl/IntelliRate
ME0502049

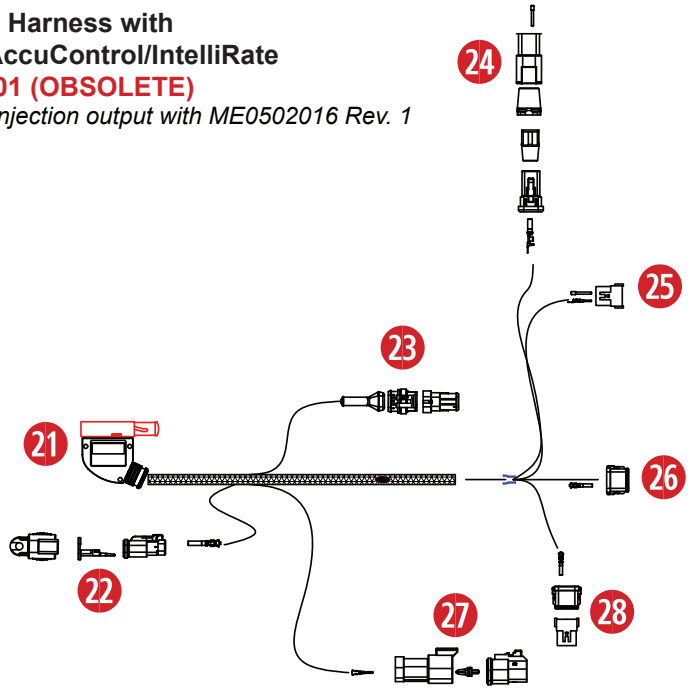


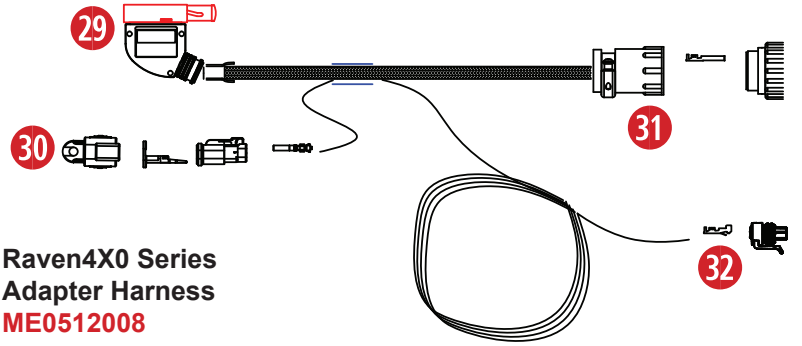
Raven4XX0 Series
Adapter Harness
ME0512009

Dual Product Raven 4X0 Series
Adapter Harness
ME0512011



Complete Harness with
Field IQ/AccuControl/IntelliRate
ME0512001 (OBSOLETE)
**Supports injection output with ME0502016 Rev. 1*





Raven4X0 Series
Adapter Harness
ME0512008

8.2 Cable Pin Diagrams

1

Main Master ECU - X1		ME0502050/49
Cavity	Description	Wire Color
1	12v High Current	Red
2	Aux. Input 2	Tan
3	Aux. Input 3 (press)	
4	5V Electronic	Red/White
5	Boost/Spinner/Fan Output	Grey
6	Section 3	Grey
7	Drive 3 (PWM+) Injection	
8	Drive 2 Dec (PWM-)	
9	Drive 1 Inc (PWM+)	Grey
10	Section 11	Grey
11	Section 5	Grey
12	Section 7	Grey
13	Section 9	Grey
14	Aux. Input 4 (press)	
15	Aux Output 1	Grey
16	Aux. Input 5 (press)	
17	Aux Input-Injection Flow Switch	
18	Aux Input 1 (press)	Tan
19	Drive 2 Inc (PWM+)	
20	Section 1	Grey
21	Drive 1 Dec (PWM-)	Grey
22	Section 12	Grey
23	Section 2	Grey
24	Section 4	Grey
25	Section 6	Grey
26	Section 8	Grey
27	Section 10	Grey
28	Drive 3 Dec (PWM-) Injection	
29	12V High Current	Red
30	Master Switch	Tan
31	Aux. Input 7 (press)	
32	12V Electronic	Red/White
33	0V Electronic	Black/White
34	Drive 1 Feedback	Tan
35	Ground Speed	Tan
36	Drive 2 Feedback	
37	Drive 3 Feedback Inj Pump Speed	
38	Spinner/Fan Feedback	Tan
39	Aux. Input 8 (press)	
40	Aux Input 9 (press)	Tan
41	Inplement Switch	Tan
42	0V High Current	Black

2

Master Switch - X8		ME0502050/49
Cavity	Description	Wire Color
1	Master Switch	Tan
2	0V Electronic	Black/White

3

Expansion - X7		ME0502050/49
Cavity	Description	Wire Color
A	Implement Switch	Tan
B	0V Electronic	Black/White
C		

4

Speed Sensor - X9		ME0502050/49
Cavity	Description	Wire Color
1	0V Electronic	Black/White
2	12V Electronic	Red/White
3	Ground Speed	Tan

5

Product 1 - X4		ME0502050/49
Cavity	Description	Wire Color
1	12V L	Red
2	Drive 1 Inc (PWM+)	Grey
3	Drive 1 Dec (PWM-)	Grey
4	12V Electronic	Red/White
5	0V Electronic	Black/White
6	Drive 1 Feedback	
7	Aux Input 1 (press)	Tan
8	Aux Input 2 (press)	Tan
9	Boost/Spinner/Fan	Grey
10	Spinner/Fan Feedback	Tan
11	5V Electronic	
12	0V L	Black

6

Sections & Outputs - X3		ME0502050/49
Cavity	Description	Wire Color
1	Section 1	Grey
2	Section 2	Grey
3	Section 3	Grey
4	Section 4	Grey
5	Section 5	Grey
6	Section 6	Grey
7	Section 7	Grey
8	Section 8	Grey
9	Section 9	Grey
10	Section 10	Grey
11	Section 11	Grey
12	Section 12	Grey

7

Section Power - X2		ME0502050/49
Cavity	Description	Wire Color
1	0V L	Black
2	12V L	Red

8

Product 2 - X5		ME0502049
Cavity	Description	Wire Color
1	12V L	Red
2	Drive 2 Inc (PWM+)	Grey
3	Drive 2 Dec (PWM-)	Grey
4	12V Electronic	Red/White
5	0V Electronic	Black/White
6	Drive 2 Feedback	Grey
7	Aux Input 3 (press)	Tan
8	Aux Input 4 (press)	Tan
9	Aux Output	
10	Aux Input 5 (press)	Tan
11	5V Electronic	
12	0V L	Black

9

Product 3 - X4		ME0502049
Cavity	Description	Wire Color
1	12V L	Red
2	Drive 3 Inc (PWM+)	Grey
3	Drive 3 Dec (PWM-)	Grey
4	12V Electronic	Red/White
5	0V Electronic	Black/White
6	Drive 1 Feedback	Grey
7	Aux Input 6 (press)	Tan
8	Aux Input 7 (press)	Tan
9		
10	Aux Input 8 (press)	Tan
11	5V Electronic	
12	0V L	Black

10

Main Master ECU - X1		ME0512009
Cavity	Description	Wire Color
1	12v High Current	Red
2	Pressure Signal 2	Tan
3		
4		
5		
6	Section 3	Grey
7		
8		
9	Increase Ch. 1	Grey
11	Section 5	Grey
12	Section 7	Grey
13	Section 9	Grey
14		
15		
16		
17		
18	Pressure Signal 1	Tan
19		
20	Section 1	Grey
21	Decrease Ch. 1	Grey
22	Section 12	Grey
23	Section 2	Grey
24	Section 4	Grey
25	Section 6	Grey
26	Section 8	Grey
27	Section 10	Grey
28		
29	12V High Current	Red
30	Master/Implement Switch	Tan
31		
32	12V Electronic	Red/White
33	0V Electronic	Black/White
34	Flow Signal Ch. 1	Tan
35		
36	Flow Signal Ch. 2	Tan
37		
38		
39		
40		
41		
42	OV High Current	Black

11

Implement Switch - X3		ME0512009
Cavity	Description	Wire Color
1	Implement Switch	Tan
2	0V Electronic	Black/White

12

4000 Harness - X2		ME0512009
Cavity	Description	Wire Color
1	OV High Current	Black
2	OV High Current	Black
3	12V Electronic	Red/White
4	Section 1	Grey
5	Section 2	Grey
6	Section 3	Grey
7	Section 4	Grey
8	Section 5	Grey
9	Section 6	Grey
10	Section 7	Grey
11	Section 8	Grey
12	Section 9	Grey
13	Section 10	Grey
14		
15	Decrease CH 1	Grey
16	Increase CH 2	Grey
17		
18		
19		
20		
21	0V Electronic	Black/White
22	12V Electronic	Red/White
23	Pump Speed / FL 2	Tan
24		
25	12V Electronic	Red/White
26		
27		
28	Flowmeter CH 1	Tan
29	0V Electronic	Black/White
30	12V Electronic	Red/White
31	Pressure Sensor 1	Tan
32		
33		
34	12V Electronic	Red/White
35	Pressure Sensor 2	Tan
36	12V High Current	Red
37	12V High Current	Red

13

Main Master ECU - X1		ME0512011
Cavity	Description	Wire Color
1	12v High Current	Red
2		
3	Pressure Signal 2	Tan
4		
5		
6	Section 3	Grey
7	Section 11	Grey
8	CH 2 Decrease	Grey
9	CH 1 Increase	Grey
11	Section 5	Grey
12	Section 7	Grey
13	Section 9	Grey
14		
15		
16		
17		
18	Pressure Signal 1	Black/White
19	CH 2 Increase	Grey
20	Section 1	Grey
21	CH 1 Decrease	Grey
22		
23	Section 2	Grey
24	Section 4	Grey
25	Section 6	Grey
26	Section 8	Grey
27	Section 10	Grey
28	Section 12	Grey
29	12V High Current	Red
30	Master Switch	Tan
31		
32	12V Electronic	Red/White
33	0V Electronic	Black/White
34	Flow Signal Ch. 1	Tan
35	Implement Speed	Tan
36	Flow Signal Ch. 2	Tan
37		
38		
39		
40	Implement Switch	
41	Implement Switch	Tan
42	0V High Current	Black

14

Ex. Master Switch - X7		ME0512011
Cavity	Description	Wire Color
1	Master Switch	Tan
2	0V Electronic	Black/White

15

Radar Speed - X9		ME0512011
Cavity	Description	Wire Color
1	0v Electronic	Black/White
2	12v Electronic	Red/White
3	Ground Speed Signal	Tan

16

Connector - X5		ME0512011
Cavity	Description	Wire Color
A	12V High Current	Red
B	0V High Current	Black
C	Pressure Signal 1	White

17

Connector X2		ME0512011
Cavity	Description	Wire Color
1	0V High Current	Black
2	Section 2	Grey
3	CH 1 Increase	Green
4	CH 1 Decrease	Yellow
5	Section 3	Grey
6	Section 1	Grey
7	Section 4	Grey
8	Section 5	Grey
9	Section 6	Grey
10		
11	0V Electronic	Black/White
12	12V Electronic	Red/White
13	Flow Signal CH 1	Grey
14	12V High Current	Red
15	0V High Current	Black
16	12V High Current	Red

18

Connector X4		ME0512011
Cavity	Description	Wire Color
1	0V High Current	Black
2	Section 8	Grey
3	CH 2 Increase	Green
4	CH 2 Decrease	Yellow
5	Section 9	Grey
6	Section 7	Grey
7	Section 10	Grey
8	Section 11	Grey
9	Section 12	Grey
10		
11	0V Electronic	Black/White
12	12V Electronic	Red/White
13	Flow Signal CH 2	Grey
14	12V High Current	Red
15	0V High Current	Black
16	12V High Current	Red

19

Connector - X6		ME0512011
Cavity	Description	Wire Color
A	12V High Current	Red
B	0V High Current	Black
C	Pressure Signal 2	White

20

Implement Switch - X3		ME0512011
Cavity	Description	Wire Color
A	Implement Switch	Tan
B	0V Electronic	Black/White
C		

21

Main Master ECU - X1		ME0512001
Cavity	Description	Wire Color
1	12v High Current	Red
2	CH 1 Increas	Tan
3		
4	5V Electronic	Red/White
5	Boost Pump	Grey
6	Section 3	Grey
7	Master Valve 1	Grey
8	CH 2 Decrease	Grey
9	CH 1 Increase	Grey
10	CH 3 Increase	Grey
11	Section 5	Grey
12	Section 7	Grey
13	Section 9	Grey
14		
15		
16		
17		
18	Pressure Sig 1 (boost)	Tan
19	CH 2 Increase	Grey
20	Section 1	Grey
21	CH 1 Increase	Grey
22	CH 3 Decrease	Grey
23	Section 2	Grey
24	Section 4	Grey
25	Section 6	Grey
26	Section 8	Grey
27	Section 10	Grey
28	Master Valve 2	Grey
29	12V High Current	Red
30	Implement Switch	Tan
31	Inj Switch Signal	Tan
32	12V Electronic	Red/White
33	0V Electronic	Black/White
34	Flow Sig CH 1	Tan
35	Ground Speed	Tan
36	Flow Sig CH 2	Tan
37	Flow Sig 3 CH 3	Tan
38	Tank Control	Tan
39	Inj Flow Sig (freq)	Tan
40	Pressure Sig 3	Tan
41	Inj Tach Sig	Tan
42	0V High Current	Black

22

Implement Switch - X8		ME0512001
Cavity	Description	Wire Color
1	Implement Switch	Tan
2	0V Electronic	Black

23

Radar Speed - X9		ME0512001
Cavity	Description	Wire Color
1	0v Electronic	Black/White
2	12v Electronic	Red/White
3	Ground Speed Signal	Tan

24

HC Power- X10		ME0512001
Cavity	Description	Wire Color
1	0V High Current	Black
2	12V High Current	Red

25

Boom Valves - X3		ME0512001
Cavity	Description	Wire Color
1	Section 1	Grey
2	Section 2	Grey
3	Section 3	Grey
4	Section 4	Grey
5	Section 5	Grey
6	Section 6	Grey
7	Section 7	Grey
8	Section 8	Grey
9	Section 9	Grey
10	Section 10	Grey
11	Master Valve 1	Grey
12	Master Valve 2	Grey

26

Rate Control - X4		ME0512001
Cavity	Description	Wire Color
1	12V High Current	Red
2	CH 1 Increase	Grey
3	CH 1 Decrease	Grey
4	12V Electronic	Red/White
5	0V Electronic	Black/White
6	Flow Sig CH 1	Tan
7	Pressure Sig 1	Tan
8	Pressure Sig 2	Tan
9	CH 2 Increase	Grey
10	CH 2 Decrease	Grey
11	Flow Sig CH 2	Tan
12	0V High Current	Black

27

Tank Control - X41		ME0512001
Cavity	Description	Wire Color
1	12V High Current	Red
2	0V High Current	Black
3	Tank Control	Tan

28

Aux - X5		ME0512001
Cavity	Description	Wire Color
1	12V High Current	Red
2	Boost Pump	Grey
3	Inj Switch Signal	Tan
4	5V Electronic	
5	0V Electronic	
6	Inj flow Sig (Freq)	Tan
7	Inj Tach Sig	Tan
8	Pressure Sig 3	Tan
9	CH 3 Increase	Grey
10	CH 3 Decrease	Grey
11	Flow Signal CH 3	Tan
12	0V High Current	Black

29

Main Master ECU - X1		ME0512008
Cavity	Description	Wire Color
1	12v High Current	Red
2		
3		
4		
5		
6	Section 3	Grey
7		
8		
9	CH 1 Increase	Grey
10		
11	Section 5	Grey
12		
13		
14		
15		
16		
17		
18	Pressure Signal 1	Black/White
19		
20	Section 1	Grey
21	CH 1 Decrease	Grey
22		
23	Section 2	Grey
24	Section 4	Grey
25	Section 6	Grey
26		
27		
28		
29	12V High Current	Red
30	Implement Switch	Tan
31		
32	12V Electronic	Red/White
33	0V Electronic	Black/White
34	Flow Signal Ch. 1	Tan
35		
36		
37		
38		
39		
40		
41		
42		

30

Implement Switch - X3		ME0512008
Cavity	Description	Wire Color
1	Implement Switch	Tan
2	0V Electronic	Black

31

Connector X2		ME0512008
Cavity	Description	Wire Color
1	0V High Current	Black
2	Section 2	Grey
3	CH 1 Increase	Green
4	CH 1 Decrease	Yellow
5	Section 3	Grey
6	Section 1	Grey
7	Section 4	Grey
8	Section 5	Grey
9	Section 6	Grey
10		
11	0V Electronic	Black/White
12	12V Electronic	Red/White
13	Flow Signal CH 1	Grey
14	12V High Current	Red
15	0V High Current	Black
16	12V High Current	Red

32

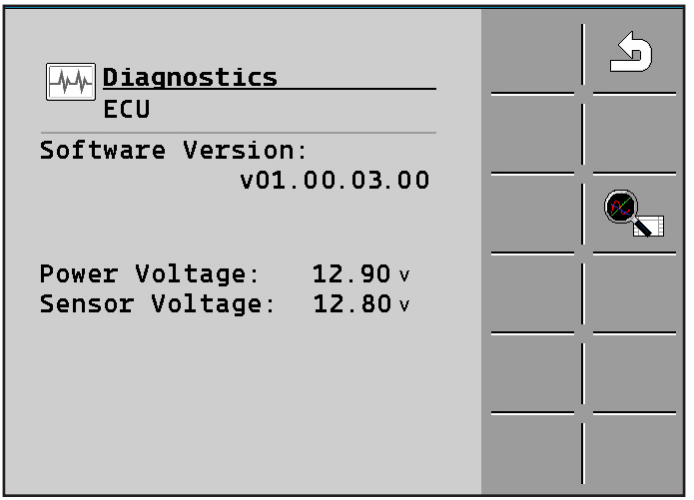
Connector X4		ME0512008
Cavity	Description	Wire Color
A	12V Electronic	Red
B	0V Electronic	Black
C	Pressure Signal 1	White

8.3 Diagnostics

The diagnostic features provide the user feedback to confirm components are working properly and help with troubleshooting.

Diagnostics can be accessed from the Run Screen by pressing the Configuration icon. Press the Diagnostics icon.

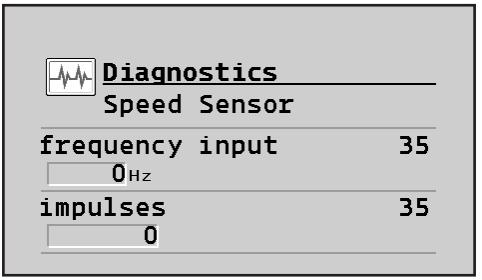
→ The Diagnostics screen appears.



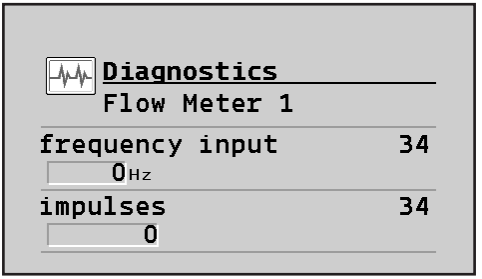
Press the magnifying glass icon to show additional diagnostic options.

Pressing the cycle icon reset the readings for each diagnostic page.

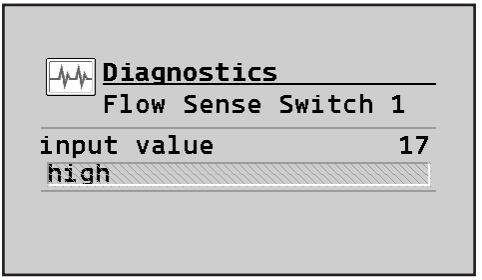
Diagnostics: Speed Sensor - While the tractor is moving, there should be a Frequency Input reading of 1-100 hz. If you are using the tractor as your speed source, your frequency reading with be zero. The pulses (or impluses) should be increasing with forward motion. The number 35 corresponds to the pin number on the 42 pin ECU harness.



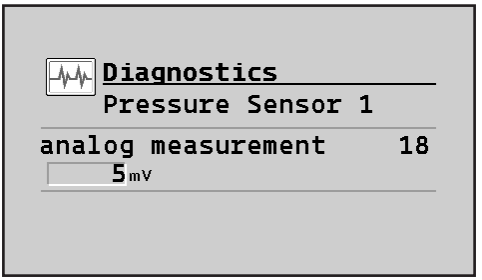
Diagnostics: Flow Meter - The screen will shows if there's a frequencey input from your flow meter. The pulses (or impluses) should increase as more product is applied. The number 34 corresponds to the pin number on the 42 pin ECU harness.



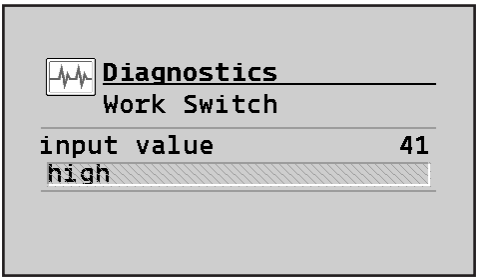
Diagnostics: Flow Sense Switch - This screen shows the flow sensing switch on Surefire Injection Pump system Pin 17.



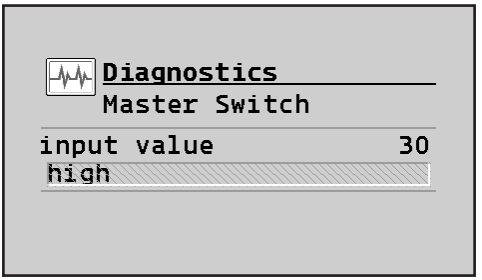
Diagnostics: Pressure Sensor - If a pressure sensor is installed, this screen will help you confirm that you are getting voltage from the pressure sensor. The number 18 corresponds to the pin number on the 42 pin ECU harness.



Diagnostics: Work Switch - This screens refers to the pin that supports the Implement switch.



Diagnostics: Master Switch - This screens refers to External Master Switch options.



8.4 Technical Support

Technical Support for this product is provided by the CNH Technical Support team. To get help with a post-sale technical issue, please submit the issue through ASIST or contact AFS Support at (866) 264-6401.