FARMSCAN AG

www.farmscanag.com

Please Note: Parts & specifications are subject to change. Part numbers may differ if supplied directly from an OEM or retrofit.

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INTRODUCTION

ABOUT THE 7000

The 7000 series is a versatile monitoring and control device that is capable of interfacing with many agricultural systems.

A 4.3" colour touch screen provides a simple but powerful interface for operators as well as providing the ability to monitor multiple inputs at once.

The display is fully configurable to show any combination of monitored values in both metric and imperial units. It is also configurable to let the operator control the system outputs by selecting onscreen buttons.

The 7000 series devices have connections for a monitoring camera as well as many different input and output connections depending on the system configuration. Inputs and outputs to the 7000 series devices can all be set with alarms to notify the operator if anything goes beyond set low/high/proportional thresholds.

The 7000 terminal can be used in many agricultural applications including but not limited to:

- Spray Controller Model 74V1
- Variable Rate Controller Model 7500
- Spreader Rate Controller Model 7300
- OEM & Custom application Model 7XXX

ABOUT THIS GUIDE

Read this operating manual before commissioning the 7000 terminal. Keep this operating manual where it is accessible to all users at any time. Every person who is assigned to commission or operate the 7000 must have read and understood the operating manual and the safety instructions in particular!

This operating manual contains instructions that must be complied with for your personal safety and in order to avoid damage to property.

Failure to follow these safety instructions could result in fire, electric shock, or other personal injury or damage to the 7000 terminal or other property.

TECHNICAL SPECIFICATIONS

TERMINAL

Housing	RAM Style mount, orientation landscape Approx. W 142 x H 98 x D 49 mm, excl. connectors and cables Weight < 1 kg
Display	4.3", 16:9 , TFT, transmissive , 480 x 272 pixels 400 cd/m^2 max brightness , 400:1 max contrast H ±60°, V ±55° max viewing angle, resistive touchscreen
Processor & Memory	32-bit, 532 MHz, I.MX35 256 MB DDR2 , 1 GB Mass Storage, 32 kB serial EEPROM
Interfaces	• 2 CANbus ISO 11898, • CAN specification 2.0 B active • 1 RS-232 (RxD, TxD, GND only), EIA-level • Optional 4 analog or digital inputs (selectable via software), 3 digital outputs • 1 USB 2.0 full speed on main connector • Optional Ethernet 10/100 Mbit.
Video	Optional 1 Composite CCITT video input
Connectors	• Main: AMP Seal, 26 pin • Analog/Digital I/O: On main connector • USB: On main connector • Ethernet: 4-pole round connector, • M12, D-coded • Video: 5-pole round connector, • M12, B-coded
Power Supply	Max tolerable 8 – 36V DC
Environmental Conditions	• Temperatures • Operating –30° to +75°C • Storage –40° to +80°C • Protection IP 67 and IP 65 • True outdoor. • Vibration 5g @ 57 – 2000 Hz, 150 h per axis • Shock 30g, 11ms, 10 times per axis
Operating System	Embedded Linux®

7300 SPREADER CONTROLLER

OVERVIEW

The Farmscan Ag Spreader Controller 7300 was developed to provide advanced Spreader controlling capabilities whilst maintaining an extremely simple "TILE" user interface.

The controller has a variety of selectable display and control options that can be configured to suit a specific application or user preference. The controller options and calibration setup can also be locked to limit operator access.

A large colour LCD (liquid crystal display) touchscreen gives all the information required to operate in one view with readouts for rate, speed, bin level, trip area and trip volume.

Spreader records are maintained for up to 200 amounts of jobs/paddocks in a separate screen and may be exported in a CSV format using the USB connection to a PC based record keeping program.

The controller may be operated in manual, automatic or GPS (Slave) mode.

Manual : Rate is controlled automatically based on speed but can be manually varied on screen.
Automatic : Rate is controlled automatically base on speed but controlled using information received from a Variable Rate Map (Application Shape File)
Slave : Rate is controlled automatically based on information received from a third party TASK CONTROLLER. I.e. 7300 operates as a slave to the TASK CONTROLLER

In the event of an error, an audible warning alerts the operator with a short message displayed to explain the fault.

The 7300 cab module is connected to a flow control valve on the Spreader via the UniPOD. The 7300 will automatically adjust the belt speed or gate to maintain the selected target rate.

The 7300 can also monitor and control spinner RPM via a sensor/s mounted on the spinners and also low bin level via the bin level sensor mounted in the bin. The spinner/s can then be monitored or controlled to maintain the correct width of spread as products change. An alarm can be set to notify the operator when the spinner RPM drops below the set alarm point.

The factor value may be fine-tuned after the first load.

The 7300 will also monitor or control spinner RPM via a sensor/s mounted on the spinners and also low bin level via the bin level sensor mounted in the bin. The spinner/s can then be monitored to maintain the correct width of spread as products change. An alarm can be set to notify the operator when the spinner RPM drops below the set alarm point.

The bin low alarm is activated when the material in the bin uncovers the sensor. The sensor can thus be mounted to provide sufficient warning of a low bin level.

A standard wheel sensor is used for ground speed pickup. Alternatively, a GPS can be used to provide ground speed.

PARTS LIST

WHAT'S INCLUDED IN THE MONITOR KIT

Ref	Qty	Part Number	Description
A	1	A-7000	7000 Monitor/Controller
B	1	AC-7000	7000 In Cab Harness & Power
C	1	AH-7000	RAM Mount Kit for Monitor
D	1	AC-7700	CANbus Terminator
	1	Installed onto 7000	Spreader Software

WHAT'S INCLUDED IN THE UNIPOD KIT

Qty	Part Number	Description
1	A-UniPOD-Spreader	UniPOD with Spreader Software
1	AC-7300 or OEM specific part number may apply	UniPOD to Spreader Sensor Harness.

Refer to pages 12 & 13 for further images

CANBUS EXTENSION CABLES (OPTIONAL)

Qty	Part Number	Description
X	AC-2012	2m CANbus extension Cable
X	AC-2012-5	5m CANbus extension Cable
X	AC-2012-10	10m CANbus extension Cable

INSTALLATION OF THE TERMINAL

CHOOSING A SCREEN LOCATION

Choose a location in the cab that is convenient to the operator and preferably not in close proximity to mobile telephone or two way radio equipment.

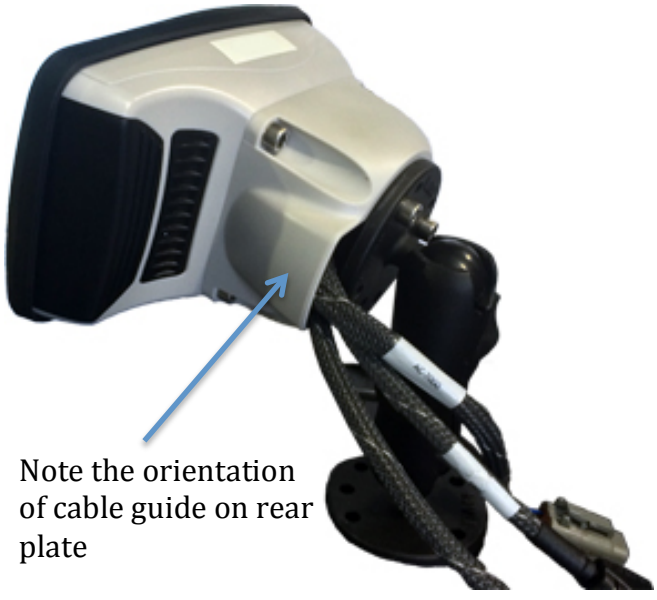
Find a suitable place to mount the RAM base (AH-7000). This prevents the controller from swiveling around once mounted. The mounting position should not subject the 7000 terminal to high levels of vibration.

MOUNTING HARDWARE

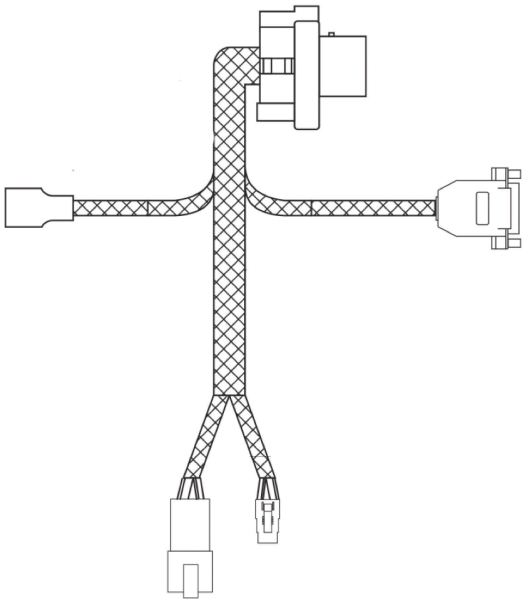
Assemble the backing plate to the rear of the 7300 terminal as below:

NB: A size 4 Allen key is required to attach the mounting plate & RAM mount

1. Thread the AC-7000 (PLUG end) through the rear RAM mounting plate
2. Insert plug to the rear of the 7300 controller
3. Attach the rear plate with the supplied 4 screws using an allen key
4. Attach the Ram plate to rear cover plate also using the supplied 3 screws



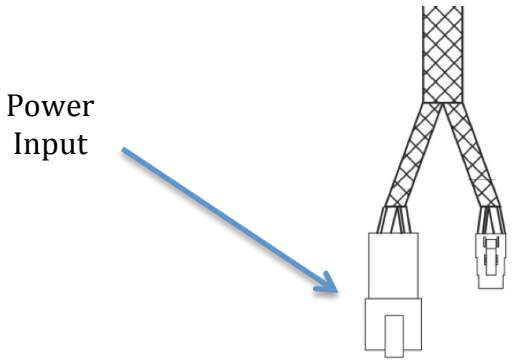
7000 Monitor with RAM Mount & AC-7000 Harness



AC-7000 Cab Harness

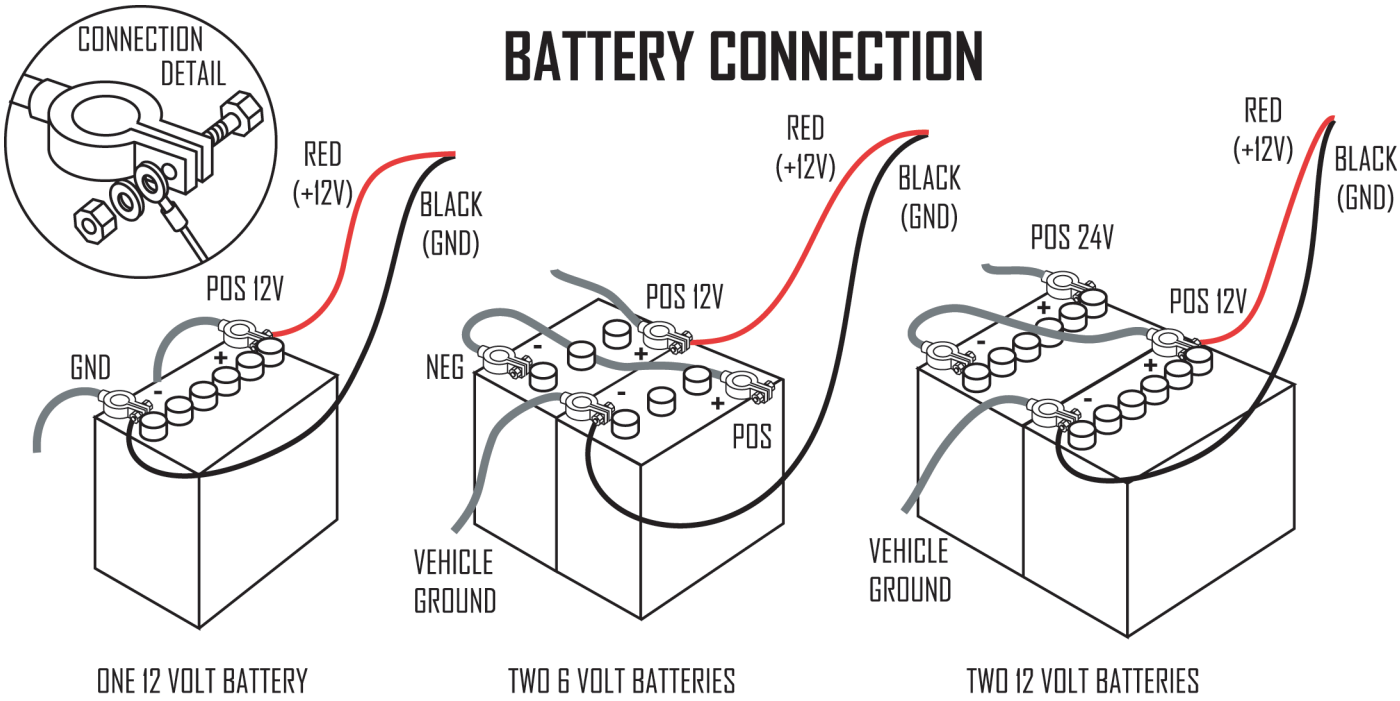
CONNECTION TO POWER

Located on the AC-7000 harness is a 3 Way (Male) Deutsch style plug, used for power.



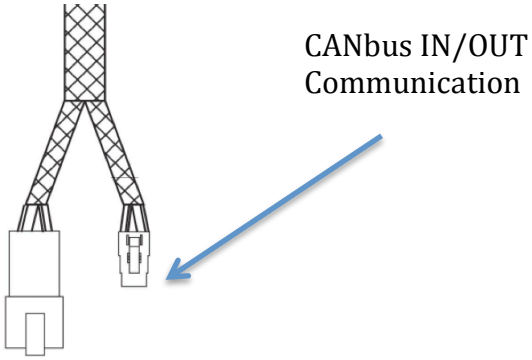
Follow the guidelines below when connecting to power.

- Do not connect power until all other installation is finished.
- Connect direct to 12 Volt DC battery terminals, **RED** wire to positive (+) and **BLACK** wire to negative (-).
- Connect the **ORANGE** wire to **ACCESSORIES** power
- Do not connect the power cable to a starter motor, alternator etc., as this may cause interference.
- Do not connect the power cable's negative direct to the chassis of the machine – it must be connected to the battery's negative terminal.
- Do not join other instruments off the controller power cable, such as a two way radio.
- Use cable ties to secure the power cable safely away from hot or moving parts.
- Connection to battery terminal bolts must be kept clean and tight. See the diagram below for typical battery connection schemes.



CONNECTION TO UNIPOD

Located on the AC-7000 harness is a 4 Way (Female) Deutsch style plug, used for CANbus communications to the UniPOD.

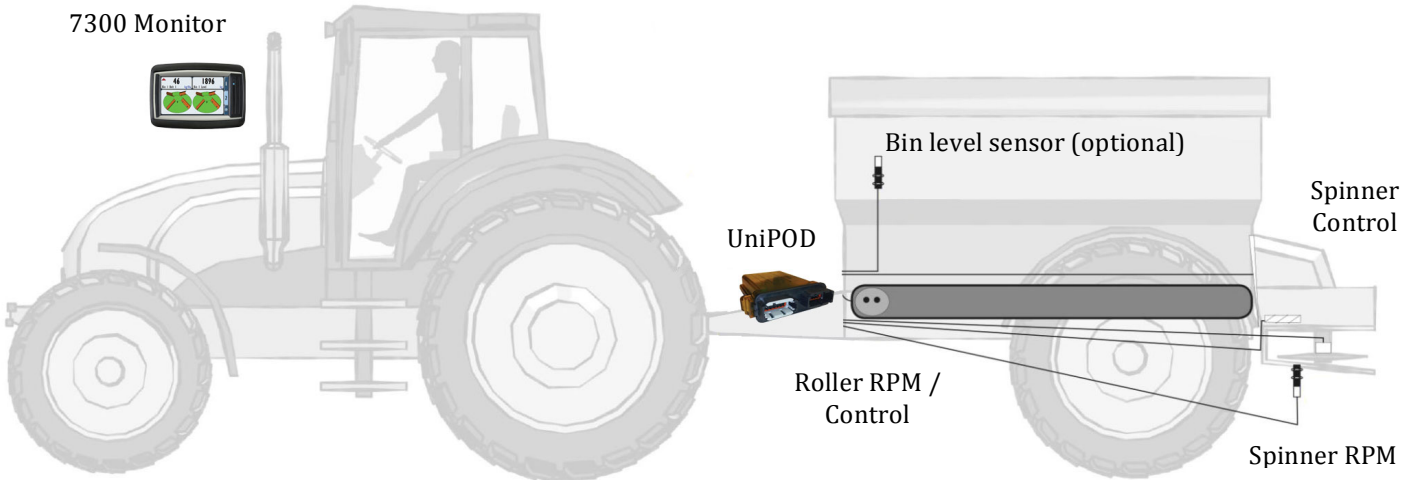


RUNNING THE CABLES

1. From the CANbus IN/OUT on the AC-7000 cab harness, run the main CANbus loom (AC-2012-XX) to the rear of the tractor and connect into CANbus connector in the AC-7300 harness connected to the UniPOD
    a. Extra CANbus extension cables are available for purchase if connection between tractor and implement is too great.

Refer to page 8 (CANbus extension cables)

As a precaution, avoid running the controller harness alongside other electrical cables in the cab. Use cable ties to secure cable away from risk of damage.

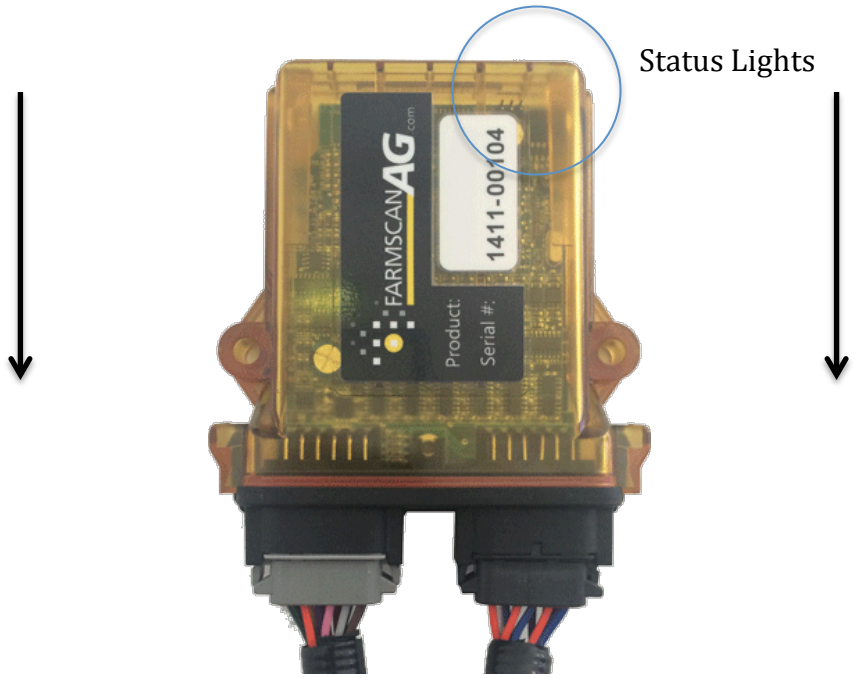


Run CANbus cable from Monitor to UniPOD.

MOUNTING THE UNIPOD

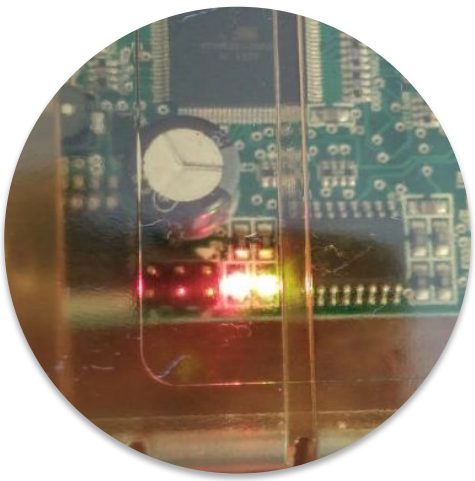
A UniPOD (ECU) & sensor adapter harness (AC-7300) is supplied with all systems to provide connection points for sensors.

- Ensure the UniPOD is mounted as per example below.
- Ensure that all cabling leaving the UniPOD faces downwards, so to prevent water entering the UniPOD or connections.
- It is recommended, if possible to mount the UniPOD in a position sheltered from the weather.



UNIPOD STAUS LIGHTS

The UniPOD has two (2) status indicator lights located as the TOP Right Hand Side of the UniPOD mainboard (Inside the enclosure). This should be left visible at all times for troubleshooting.



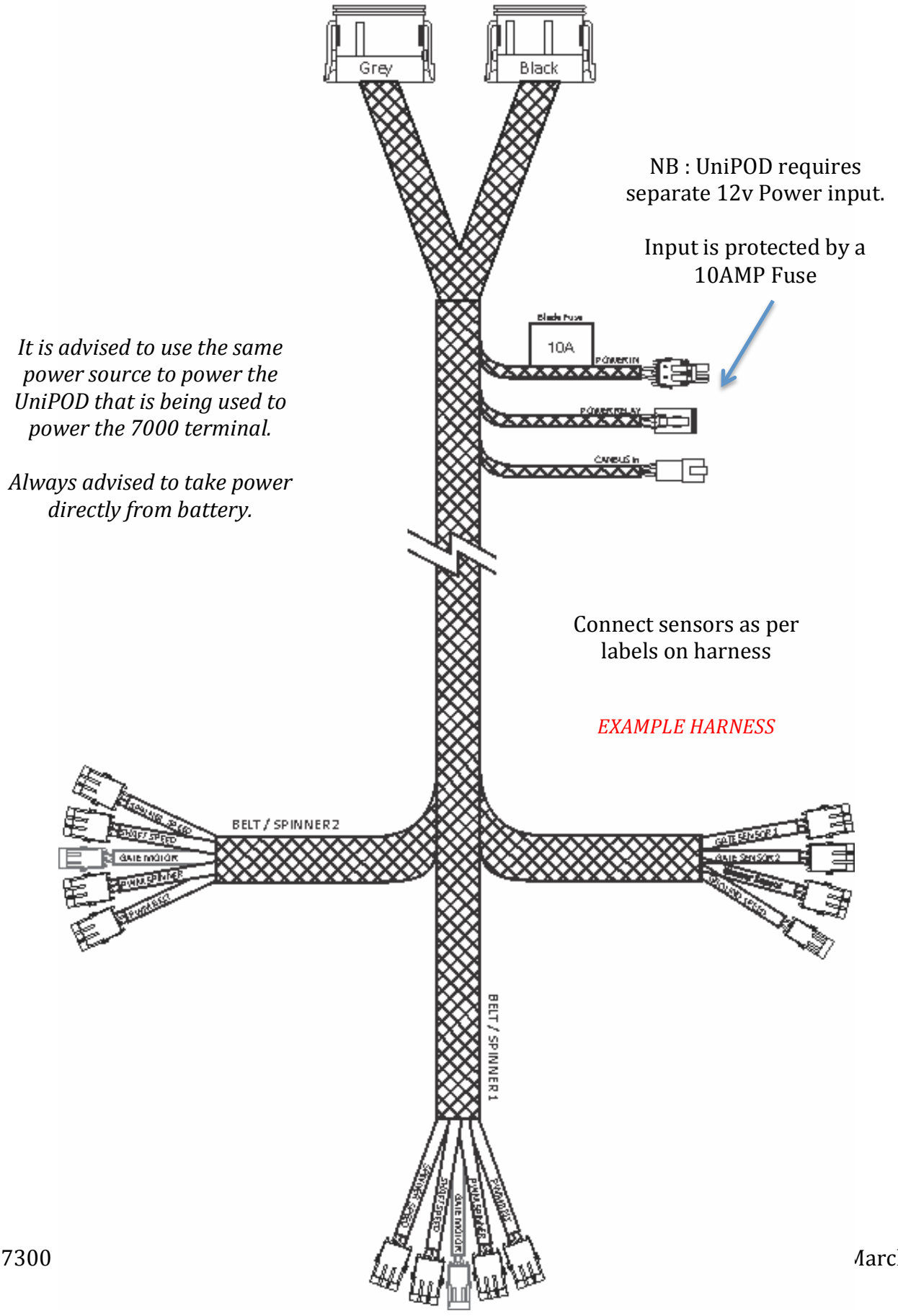
RED (SOLID) : 12v Power is connected to the UniPOD

GREEN (SOLID) : Fixed CANbus communications to 7000

RED/**GREEN** (FLASHING) : Run Mode

SENSOR CONNECTIONS

Connect the spreader harness supplied to sensors and spreader equipment via the UniPOD. Connect the labeled connectors on the loom to their respective sensors (belt, wheel and spinners) or equipment (MFCV). Connect power last after all installation is finished.



INSTALLATION (SENSORS)

WHEEL SENSOR

The wheel sensor consists of a reed type sensor (magnetic switch) and wheel magnet to be fitted onto any non-driven ground wheel of the Spreader. The magnet activates the sensor as it sweeps past.

The Spreader controller requires at least one wheel pulse per second from the sensor. In circumstances of an extremely large wheel working at slow speeds (less than 5kph), additional wheel magnets may be fitted at equal spacing's.

Any spreaders that do not have a non-driven ground wheel can use a GPS speed sensor as an alternative. – Refer to page 15.

Wheel sensor installation procedure

1. Bolt the wheel magnet onto the inside of the wheel in a position that allows the magnet to sweep directly past the wheel sensor within a 5 - 10 mm clearance. Maximum clearance is 15 mm. The bolt in the magnet can be replaced with a longer or shorter bolt as required.

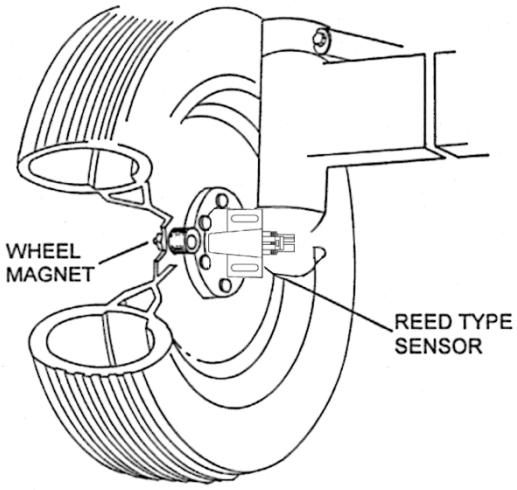
2. The magnet can be mounted anywhere in a radius from the center of the wheel. Nearer to the hub will ensure the best ground clearance.

3. The sensor must be rigidly bolted to an existing structure, ideally in a protected position to face the magnet as shown in the diagram below.

4. If the sensor is mounted on a steered wheel, make sure the sensor moves with the steering mechanism to maintain constant clearance between the magnet and the sensor when turning from lock to lock.

5. A 5m-extension cable can be purchased to connect the sensor to the Spreader loom connector marked 'wheel'. (Farmscan Ag Part Number AC-205/5m or AC-210/10m)

6. Use cable ties to secure sensor cable away from risk of damage or chaffing.



GPS speed installation

In applications where a non-driven ground wheel is not available, a GPS antenna may be used.

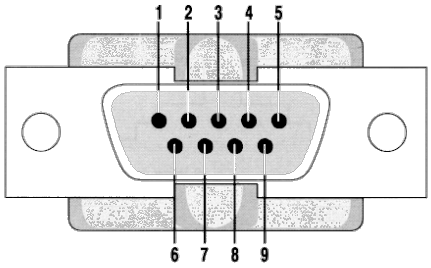
An optional GPS Sensor kit is available (Part Number: T-135 from Farmscan Ag) or if you have existing GPS system that can output NMEA strings this can be used also.

NMEA Strings Required if you choose to bring use your own GPS :

GPVTG, GPGGA, GPRMC – 19200 @ 5hz (Minimum)

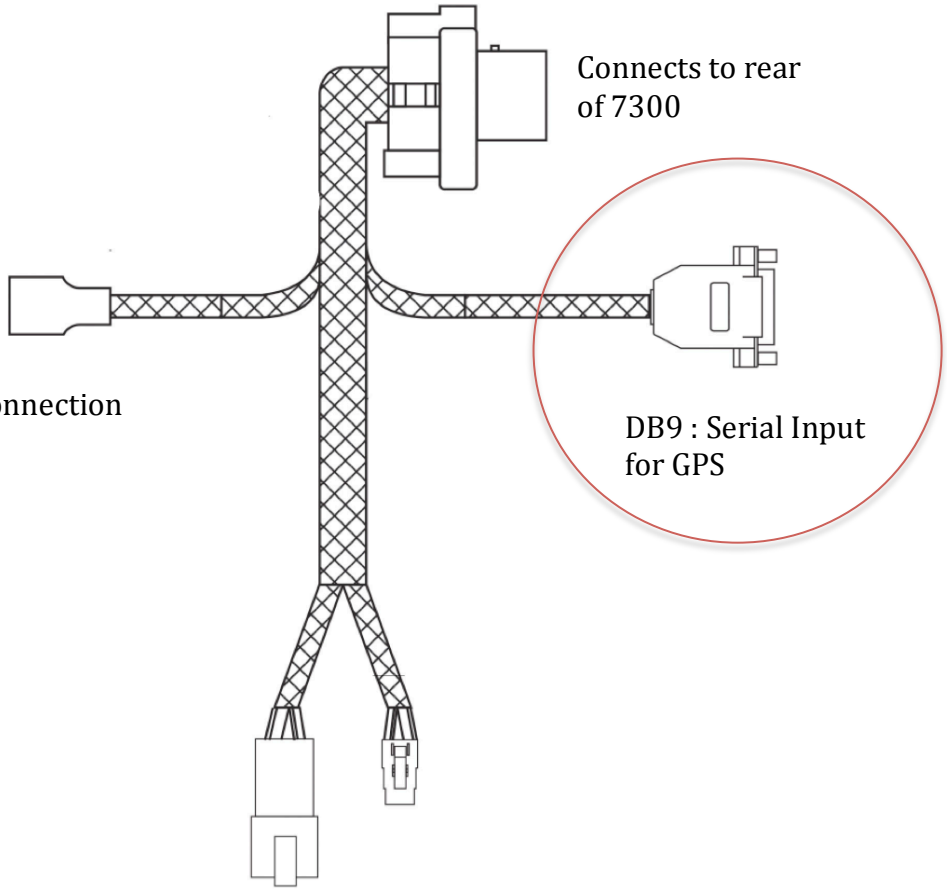
A DB9 serial connector is located on the AC-7000 loom for connection of the GPS.

Pin outs used as follows: Pin 2, Pin 3, Pin 5



Pin	Signal	Pin	Signal
1	Data Carrier Detect	6	Data Set Ready
2	Received Data	7	Request to Send
3	Transmitted Data	8	Clear to Send
4	Data Terminal Ready	9	Ring Indicator
5	Signal Ground		

AC-7000 Harness



CANbus & Power Connections

SPINNER SENSOR INSTALLATION

When **monitoring**, the spinner sensor provides continuous feedback to the Spreader controller allowing the operator to monitor the RPM of the spreader spinners.

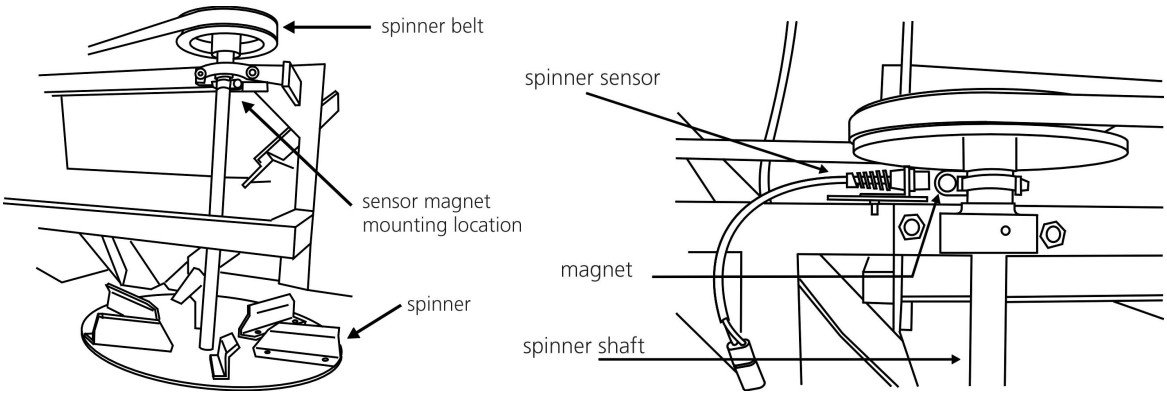
When **controlling**, the spinner sensor provides continuous feedback to the Spreader controller which regulates the flow of oil from the spinners' Flow Control Valve (FCV) to maintain the required spinner speed. Preset alarms can alert the operator if the spinners are operating outside predefined limits.

Spinner sensors maybe pre-fitted or supplied in some kits. Farmscan Ag coil type sensor, (Part Number AA-112P) or Farmscan Ag proximity type sensor (Part Number AA-2010P) can be used, however correct harness connections need to be installed. Coil type sensors are 2 wire, proximity sensors are 3 wire.

Proximity Sensor install :
The spinner sensor needs to be mounted on the spinner so that every time the spinner completes a rotation a piece of metal triggers the sensor. The sensor must be mounted 1 to 4 mm away from the piece of metal. Alternatively, a target disc could be used to trigger the proximity switch. The target disc must be ordered separately from the manufacturer.

Coil type sensor install :
A coil type sensor and a shaft magnet can also be used as a spinner sensor. The coil and clamp magnet are optional and must be ordered separately. A pulse is detected each time the sensor and magnet pass.

See the diagrams below to mount the Reed switch and the shaft magnet.

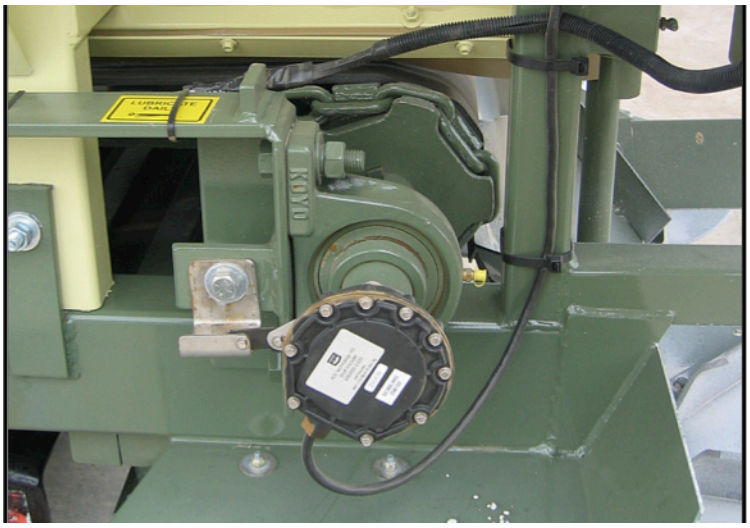


BELT SENSOR INSTALLATION

The belt sensor consists of a proximity sensor (AA-2010P). (If purchased from Farmscan Ag directly)

It is recommended that a target disc be installed on the belt to trigger the proximity sensor. The target disc must be installed on a part of the belt that turns in direct proportion with the belt. A good place to mount the disc is on the end of the belt shaft or on one of the wheels that drive the belt.

The belt sensor provides continuous feedback to the Spreader controller, which regulates the flow of oil from the FCV to maintain the required belt speed. Preset alarms can alert the operator if the belt is operating outside predefined limits.



Example of sensor fitted to roller

BIN LEVEL SENSOR (OPTIONAL)

An optional Bin Level Sensor can be fitted to alert the operator when the bin level drops below a certain point. (Farmscan Ag Part Number : A-2220P)

Install the sensor through the bin wall by cutting a 35mm clearance hole at the bottom of the bin. The sensor must be at least 100mm (4inches) away from any adjacent sidewall. Some bins empty from one side first, so it pays to observe the unloading characteristics before making any holes.

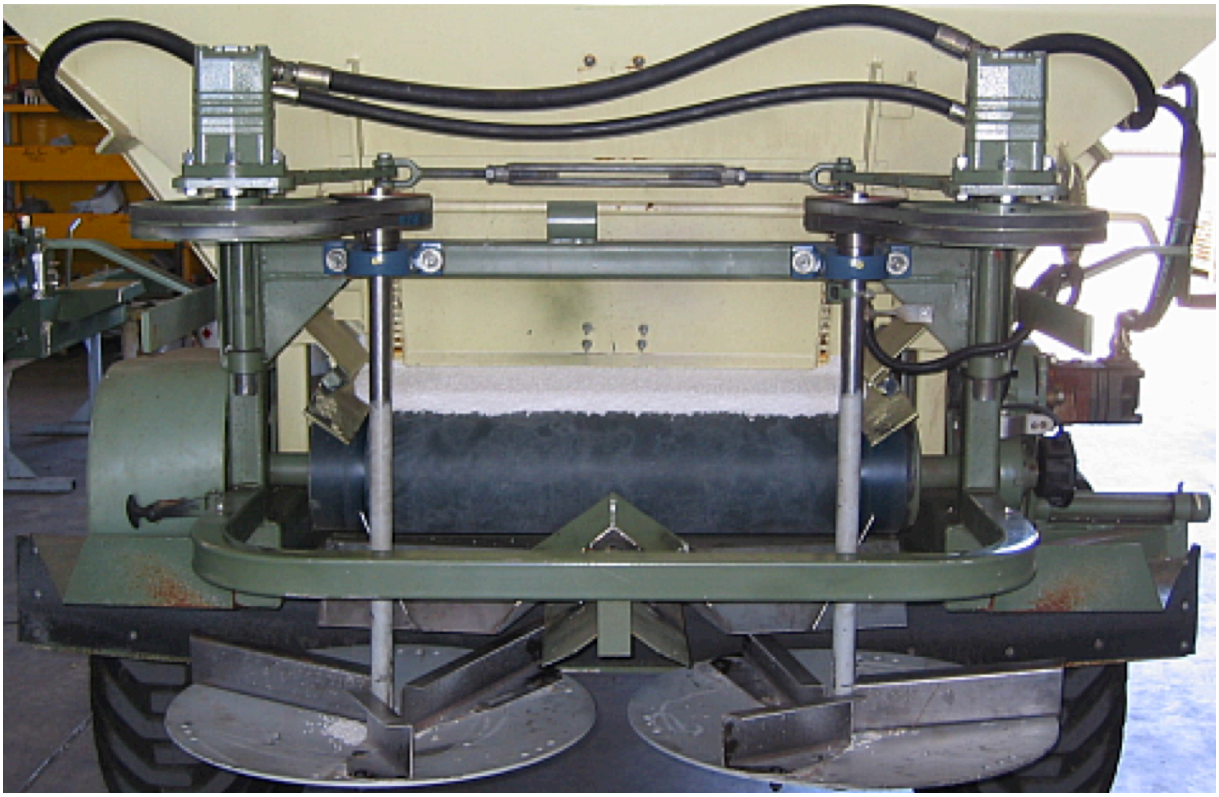
When the sensor is plugged into the harness, the light at the rear (cable entry side) of the sensor glows brightly when the sensor is uncovered and dims when the sensor is covered.

Flow Control Valve (FCV)

The FCV adjusts the flow of hydraulic oil to the hydraulic motor driving the spreader belt and spinner/s, if spinner/s FCV available.

The flow of oil is adjusted to compensate for speed and load variations as determined by the 7300 controller and feedback from the spinner sensors.

Please Note: The FCV's must be proportional valves as On/Off (Bang Bang) valves will note work with this system



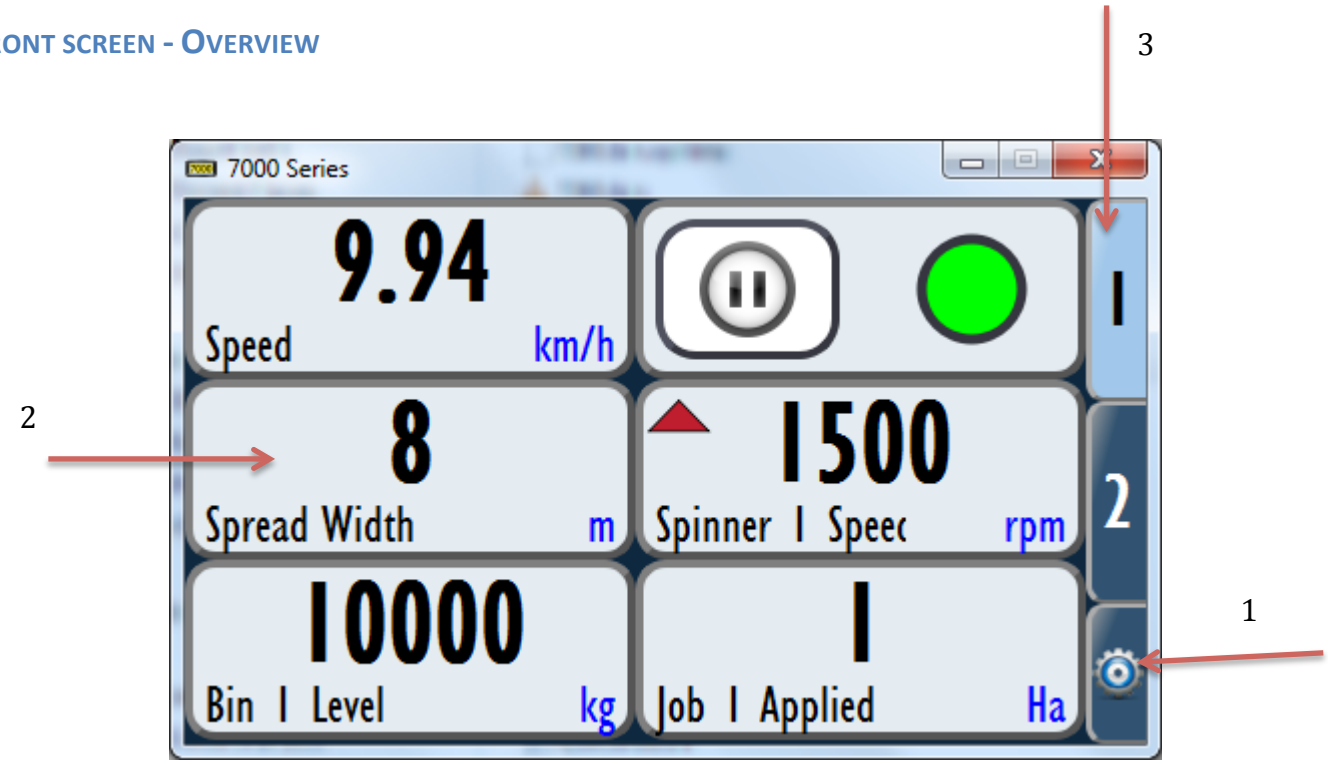
Example of FCV fitted to Spinners.

7300 GENERAL OVERVIEW ONLY

The following pages will give you a brief **OVERVIEW** only.

Setup instructions can be found by following the page number directions

FRONT SCREEN - OVERVIEW



1. **Settings Menu**
   a. Press the "gearwheel" tab once to display the Setting Menu.
   b. Select an option by pressing one of the icons in the Setting Menu.

2. **Display Tile**
   a. A display tile can show a value, unit and title for any given recorded data (speed, Bin levels etc)
   b. Display tiles can be connected together to create larger tiles.
   c. Display tiles can be edited by holding a finger down for 1 second on the tile.

3. **Front Screen Tabs**
   a. Different tabs display different sets of display tiles.
   b. Selecting each tab will change the Front Screen display to show the tiles for that tab.

LED STATUS LIGHTS - OVERVIEW

The 7000 has a two (2) status indicators on the right hand side of the screen.

These indicators can be useful for troubleshooting and are described as follows

Colour	Status	Explanation
Red	Flashing	Software Crash (Screen Freezes)
Red	Solid	Alarm is on and has not been reset
White	Solid	No Connection to UniPOD
Blue	Solid	Spreader in manual RUN mode *(MFC valve/Belt/Spinner or rate is being calibrated/tested/manually controlled)*
Green	Solid	Spread in normal RUN mode *(The MFC valve/Belt/Spinner or rate is controlled based on speed, application rate, and spread width)*
Green	Flashing	Spreader in HOLD mode

SETTINGS MENU - OVERVIEW

The settings menu allows for the setup of the 7300
Select the **Settings Menu** from the **TAB** Bar

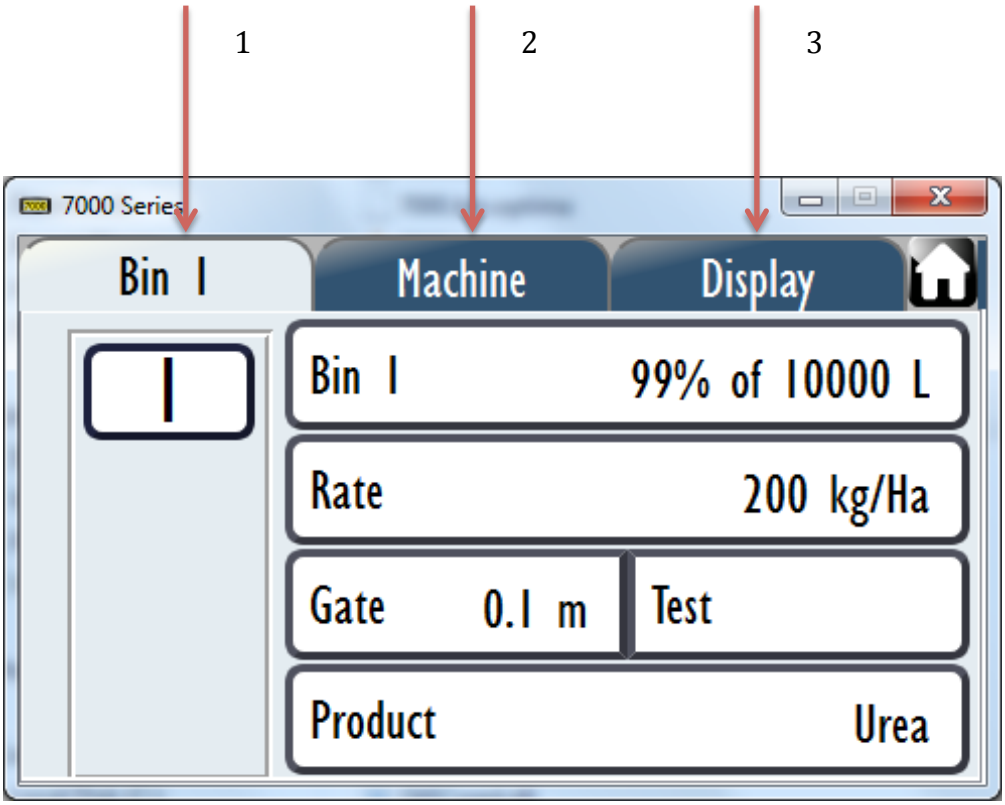
1. **Setup Menu**
   a. Select the Setup Menu icon to open the Setup Menu.

2. **Jobs Menu**
   a. Select the Jobs Menu icon to open the Jobs Menu.

3. **Alarms Menu**
   a. Select the Alarms Menu icon to open the Alarms Menu.

4. **Maintenance Menu**
   a. Select the Maintenance Menu icon to open the Maintenance Menu.

SETUP (1) - OVERVIEW



1. **Bins Tab**
   a. Select the Bins tab to display it.
   b. This tab contains settings for the Bins, any Products of the Bins, and Product calibration.

REFER TO PAGE 54 FOR SETUP INSTRUCTIONS

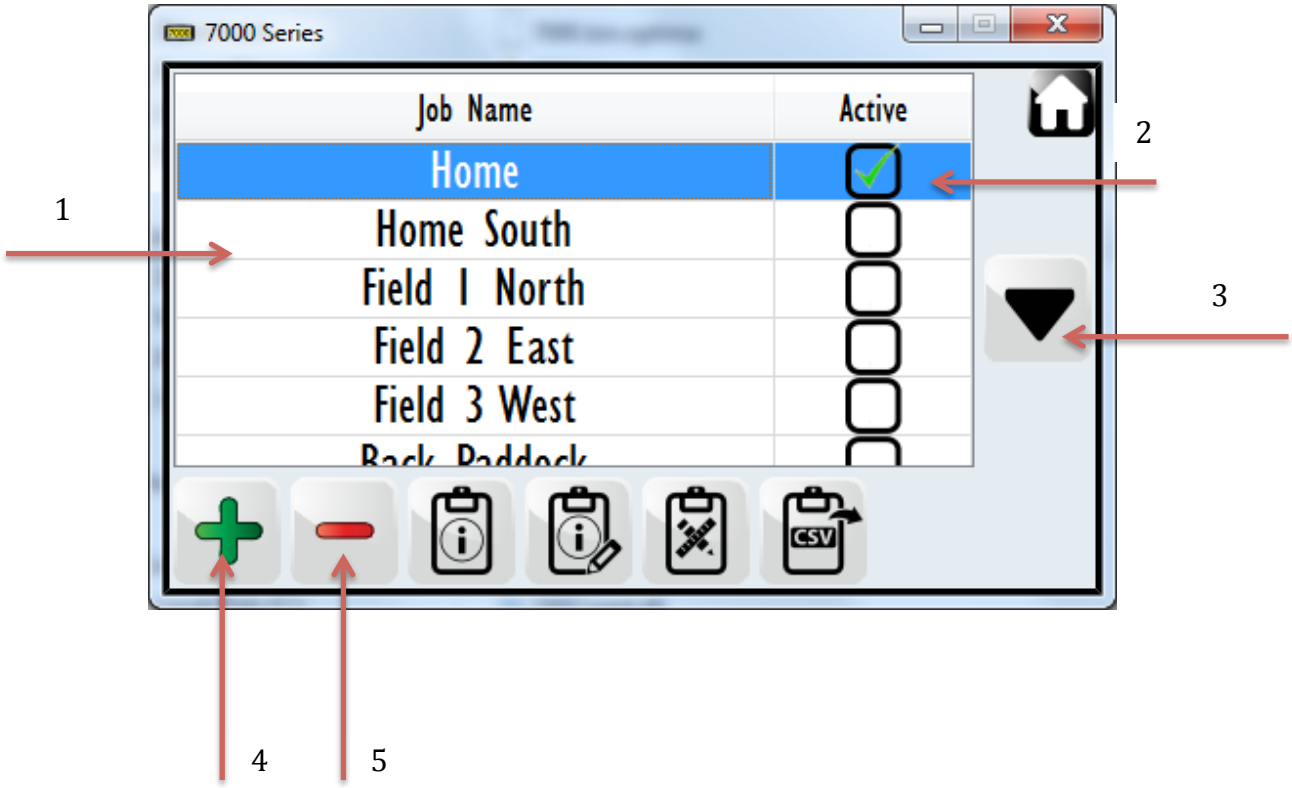
2. **Machine Tab**
   a. Select the Machine tab to display it.
   b. This tab contains settings for spread widths, spreader control response, wheel speed sensor, and CANbus status.

REFER TO PAGE 36 FOR SETUP INSTRUCTIONS

3. **Display Tab**
   a. Select the Display tab to display it.
   b. This tab contains the setting for the number of front screen tabs, how each front screen tab is set up and the brightness of the display.

REFER TO PAGE 74 FOR SETUP INSTRUCTIONS

JOBS (2) - OVERVIEW



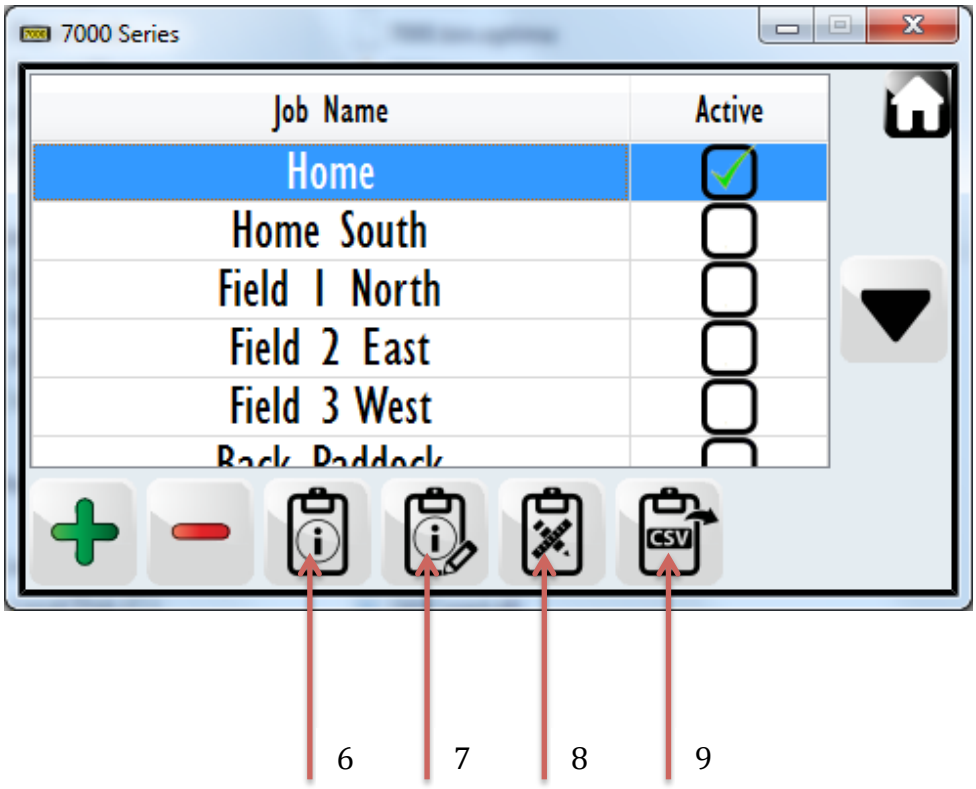
1. **Job Names**
   a. The name of each created job is displayed in the table.
   b. Select each Job to select it or make it active.

2. **Job Active/Inactive**
   a. Select this checkbox to turn the Job active or inactive (**WARNING: inactive jobs do not record any data**).
   b. A Tick in the box indicates the Job is active & recording data. This also allows data to be displayed on the front tiles.

3. **Scroll up/down buttons**
   a. If more than 5 Jobs are listed in the table then the scroll up/down buttons will scroll through the table to display all Jobs.

4. **Create new Job**
   a. Select this button to create a new Job, the user will be able to choose a name for the Job or use the default one.

5. **Remove Job**
   a. Select this button to remove the currently selected job (**WARNING: this will remove all information saved in the selected Job**).
   b. The selected Job is indicated as the highlighted blue row in the Job table.



6. **Show Job Details**
    a. Display details of the selected Job, this include total and applied distance, time and area of the job and applied products.
    b. The selected Job is indicated as the highlighted blue row in the Job table.

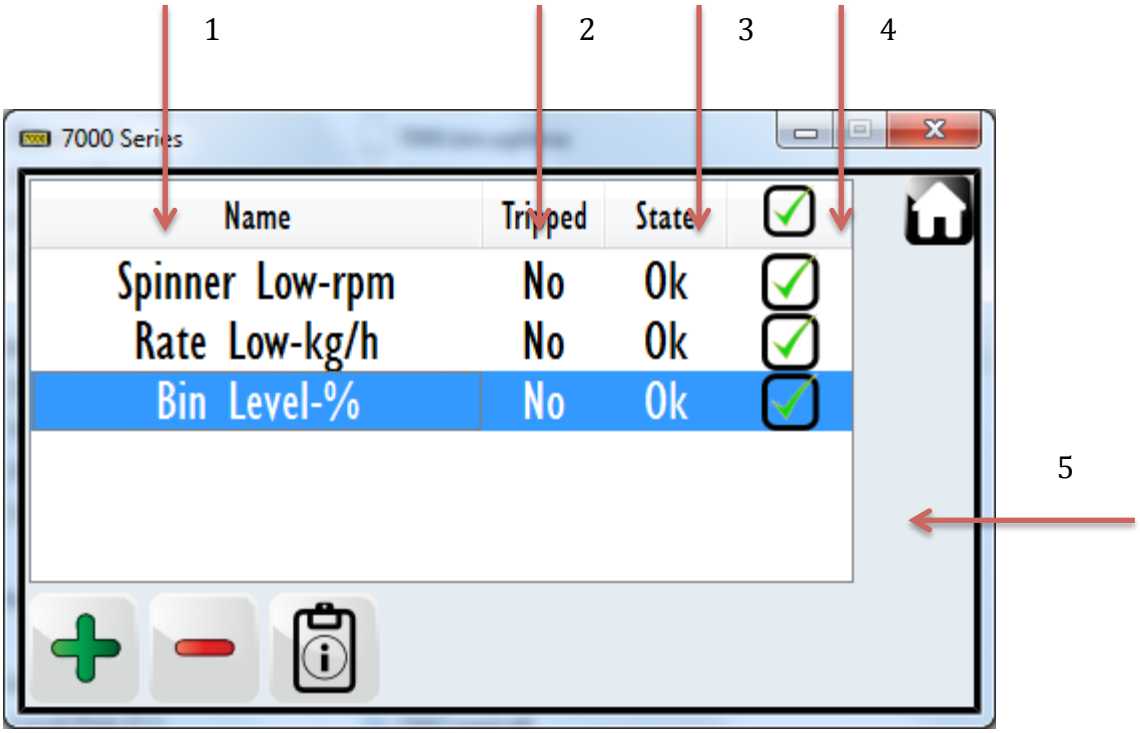
7. **Edit Job Name**
    a. Select this button to edit the name of the selected Job.
    b. The selected Job is indicated as the highlighted blue row in the Job table.

8. **Edit Job Units**
    a. Select this button to open a menu allowing the user to change which units Job details are displayed in.

9. **Export to CSV**
    a. Allows the operator to export the selected jobs via CSV (Text) onto a USB memory stick.

REFER TO PAGE 68 FOR SETUP INSTRUCTIONS

ALARMS (3) - OVERVIEW



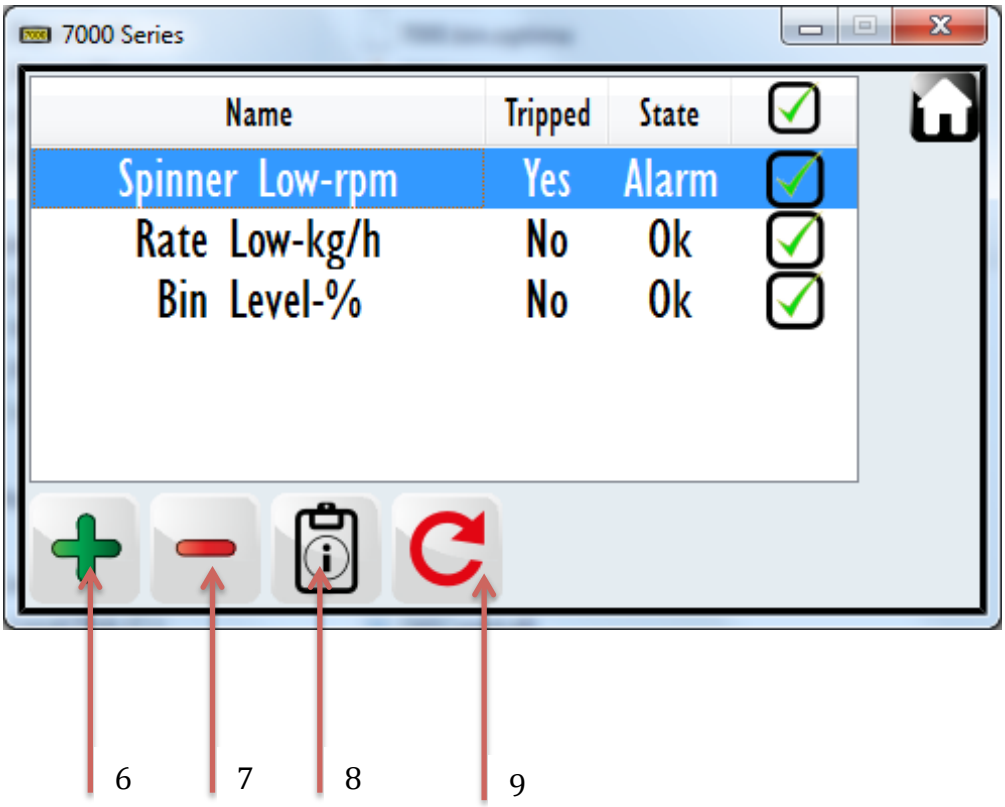
1. **Alarm Title**
   a. The title of the Alarm, it indicates what the alarm is monitoring.

2. **Alarm Tripped Status**
   a. Indicates whether the Alarm has been 'Tripped'.
   b. An Alarm is 'Tripped' if it has gone into the 'Alarm' state and has not been reset yet.

3. **Alarm State Status**
   a. Indicates whether the Alarm is in 'Alarm' or 'Ok' state.
   b. An Alarm is in the 'Alarm' state when it has exceeded a given limit set for the Alarm. E.g. Speed going over a maximum speed or Tank level going below a minimum level.

4. **Alarm Active/Inactive**
   a. Select this checkbox to turn the Alarm active or inactive (WARNING: Inactive Alarms will not indicate when their set limits have been exceeded).
   b. A Tick in the box indicates the Alarm is active.

5. **Scroll up/down buttons**
   (Will appear if Multiple alarms exist and cannot be displayed on one screen)
   a. If more than 5 Alarms are listed in the table then the scroll up/down buttons will scroll through the table to display all Alarms.



6. **Add Alarm**
    a. Create a new Alarm and setup its operating characteristics.

7. **Remove Alarm**
    a. Removes the currently selected Alarm.
    b. The selected Alarm is indicated as the highlighted blue row in the Alarm table.

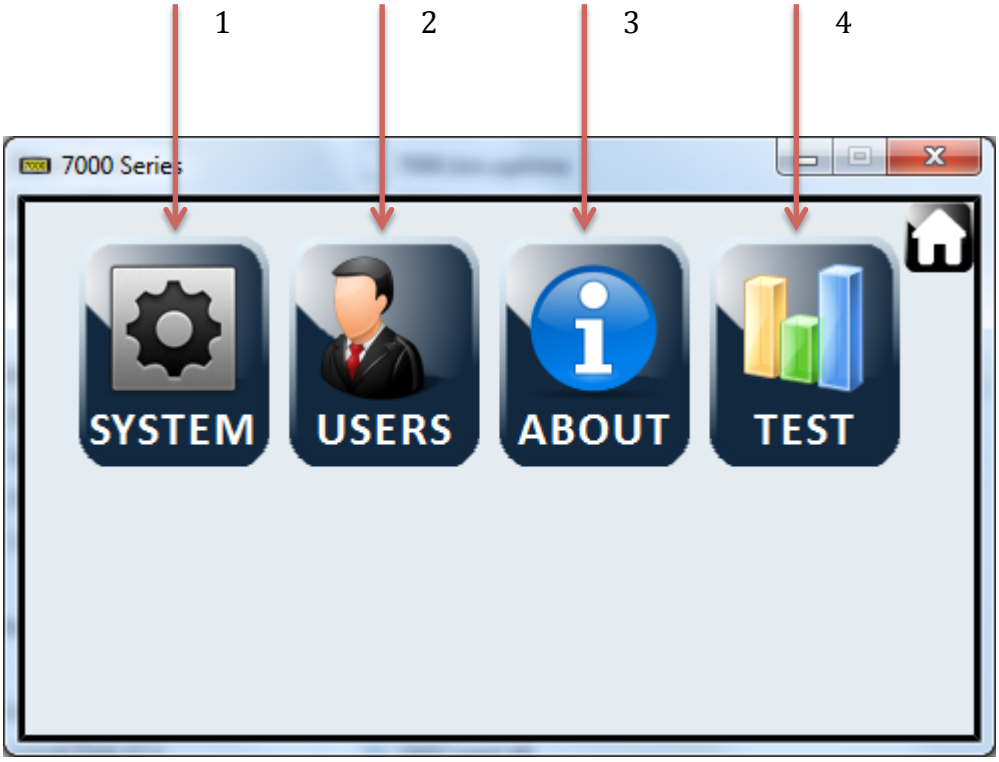
8. **Edit Alarm**
    a. Edit the operating characteristics of the currently selected Alarm.
    b. The selected Alarm is indicated as the highlighted blue row in the Alarm table.

9. **Reset Alarm Button**
    a. This button resets a 'Tripped' Alarm.
    b. If an Alarm is 'Tripped' and still audible (buzzer still sounding) then the reset button will turn off the sound.
    c. If an Alarm is 'Tripped' and the state is 'OK' then the reset button will reset the Alarm back to its normal not 'Tripped' state and turn off other Alarm indicators.
    d. If an Alarm is 'Tripped' and the state is in 'Alarm' then the reset button will NOT reset the Alarm (Making the Alarm inactive will turn off Alarm indicators, the Alarm will no longer be monitored when Inactive though).

REFER TO PAGE 64 FOR SETUP INSTRUCTIONS

MAINTENANCE (4) - OVERVIEW

The maintenance menu allows you to make the following changes to the 7000.



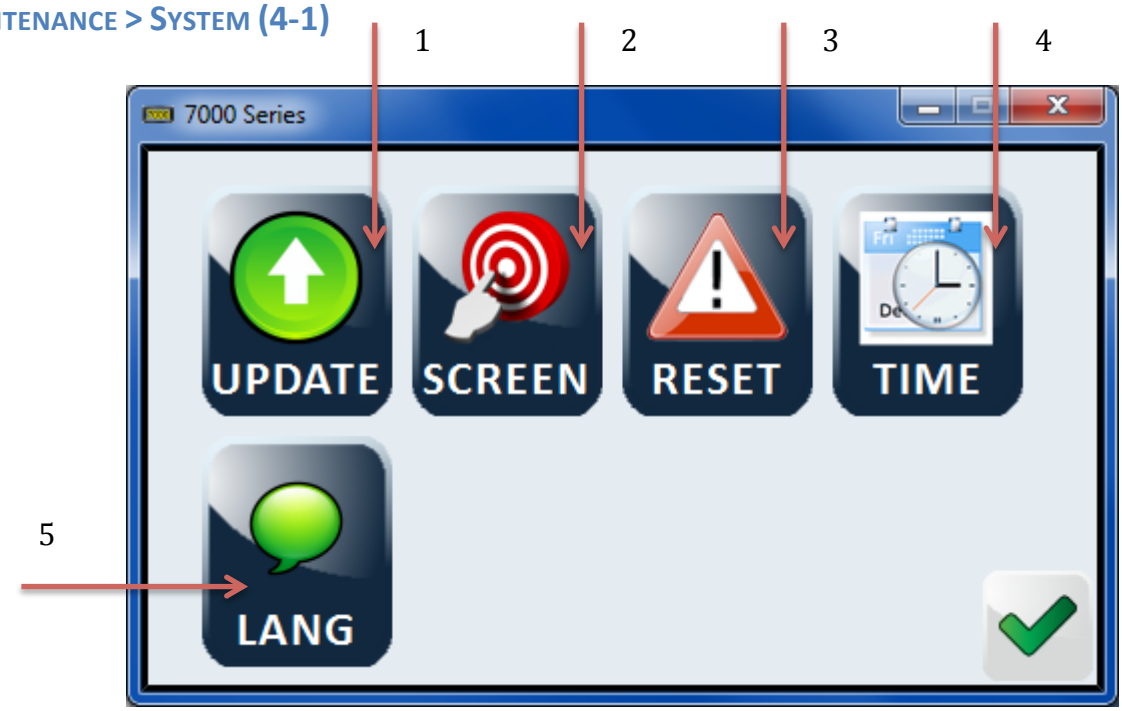
1. **System**
    a. Software update, Screen Calibration, System Reset & Date/Time

2. **Users**
    a. Allows for lockout facility if multiple users option is activated

3. **About**
    a. Lists the details of the current 7000 series device including version.

4. **Test**
    a. Used for diagnostic purposes only.

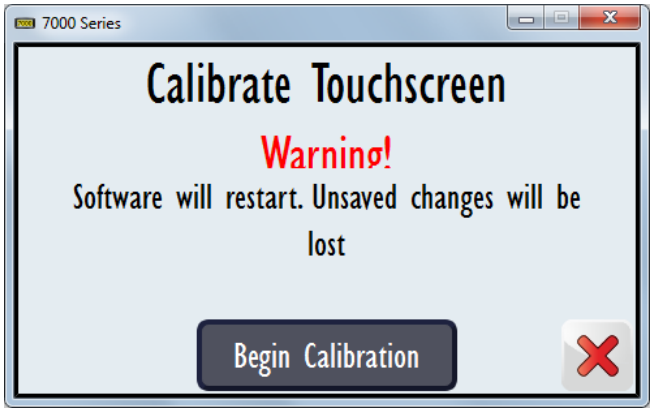
MAINTENANCE > SYSTEM (4-1)



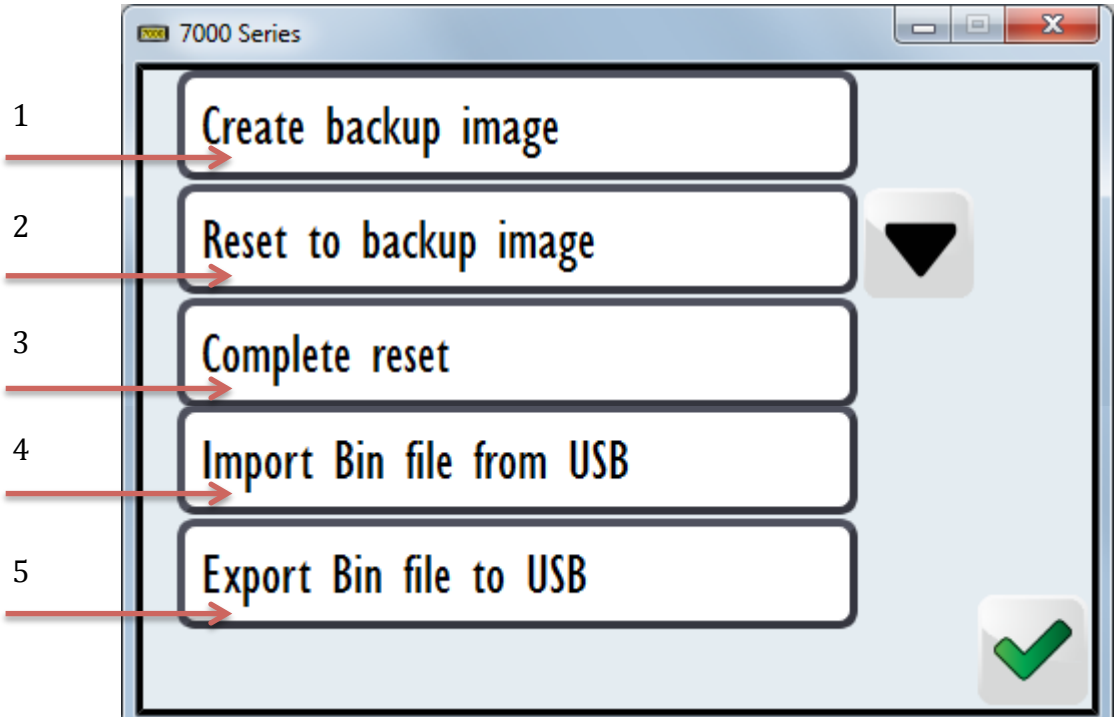
1. **Update**
   a. Updates the software running on the 7000 series device (WARNING: An update requires the 7000 series software to restart upon completion).
   b. To update, an update file must be present on an attached USB device.
      i. Insert USB drive into the USB socket on the AC-7000 harness
      ii. Press Update
      iii. Press BEGIN UPDATE
         1. The update will now be copied from the USB drive to the 7000

Do not attempt this without advise Farmscan Ag service department.

2. **Screen (Calibration)**
   a. This button lets the user calibrate the touchscreen
   b. Follow the prompts as indicated (WARNING: Calibrating the touchscreen requires the 7000 series software to restart upon completion).



3. **Reset**
   Using the reset menu allows for the following.



1. **Create backup image**
   a. Once you are happy with the setup of the 7300, you can create an "Image" of the device. This will allow you to recall a DEFAULT setups if something were to happen to your settings.

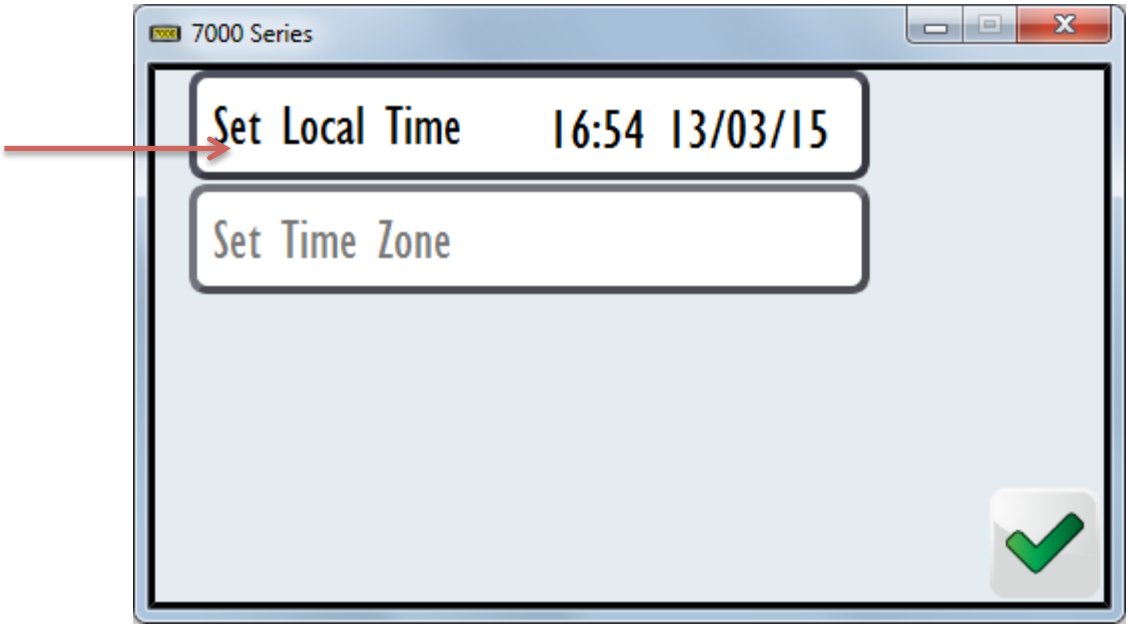
2. **Reset to backup image**
   a. Re loads the Image that was created in step 1

3. **Complete Reset**
   a. Returns the unit to Farmscan Ag default settings (WARNING: All settings will be lost).

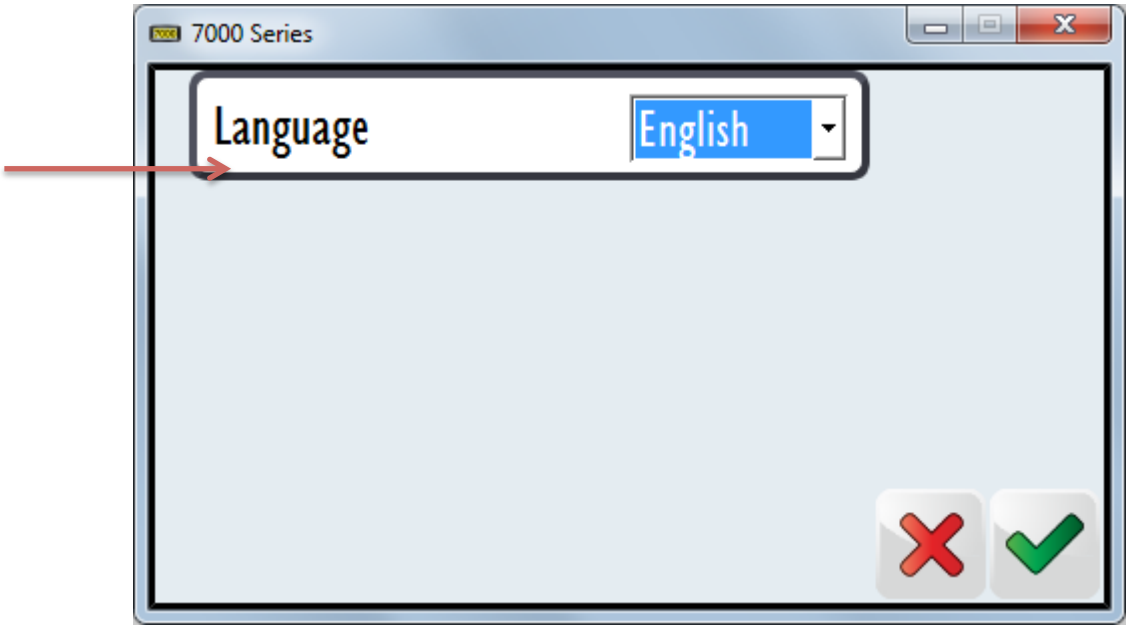
4. **Import BIN file from USB**
   a. You can restore the BIN file (settings) of the 7300. This contains the calibrations and complete setup
   b. Insert a USB drive into the AC-7000 cable, follow the prompts

5. **Export BIN File to USB**
   a. You can backup the BIN file (settings) of the 7300. This contains the calibrations and complete setup
   b. Insert a USB drive into the AC-7000 cable, follow the prompts

4. **Time**
    a. Allows you to update the Date & Time according to your time zone
    b. Change to your local time as required



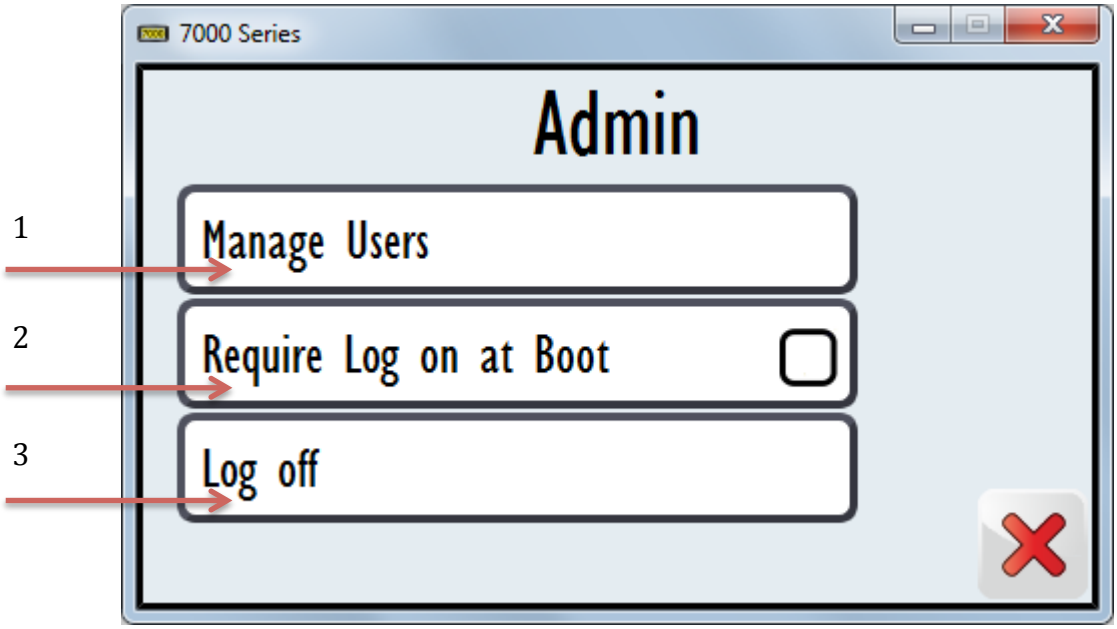
5. **Lang**
    a. Allows you to change the language used.
    b. Select local language as required



MAINTENANCE > USERS (4-2)

(Settings > Maintenance > Users)

The 7000 has the ability to lock out certain features by creating users and assigning permissions. If users are being used, this will be displayed if you choose to export the job data into CSV later on down the track into other farm management software.

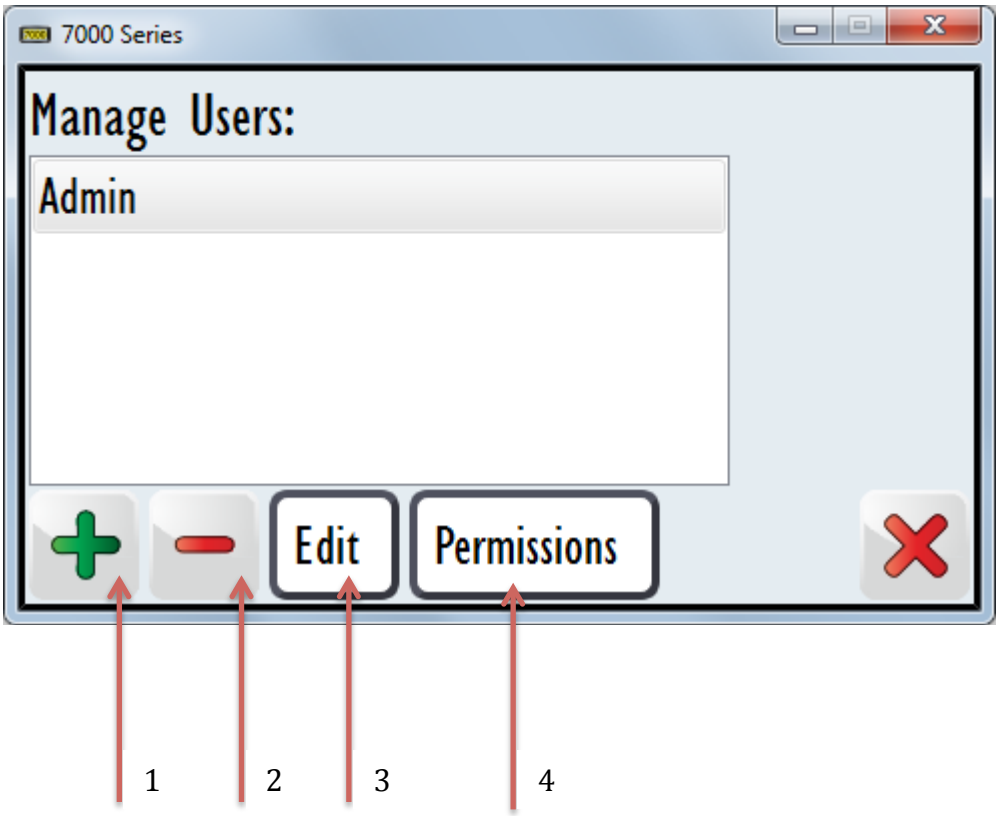


1. **Manage Users**
    a. Allows the "Administrator" to add, remove, edit & give permissions to each user on the 7000.

2. **Require Log on at Boot**
    a. If this box is checked, upon startup of the 7000 device the user will be required to select their username and enter a password to continuing using the 7000

3. **Log off**
    a. When any changes are made by the admin, pressing the "Log Off" will reboot the 7000 and return to the Login screen for the user to select their name and enter their password.

Manager Users (1)



1. **Click on the + button to ADD a New User**
   a. Enter a username : i.e. John
   b. Enter a password : i.e. West (password is CaSe sensitive, be carefull with Uppercase and Lowercase)

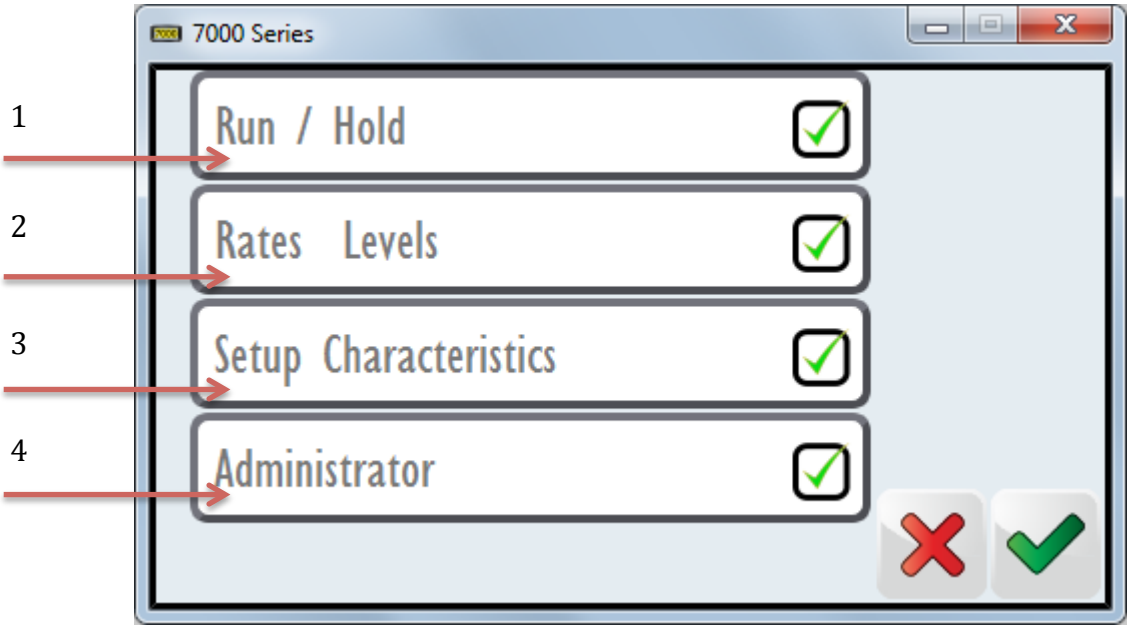
2. **Click on the – button if you wish to REMOVE a User**

NB : You will need to be logged in as ADMIN to do this. If you are not the admin, select LOG OFF in the previous screen and enter your password to make any changes.

3. **Click on the EDIT button if you wish to change a username or password of the selected user**

NB : You will need to be logged in as ADMIN to do this. If you are not the admin, select LOG OFF in the previous screen and enter your password to make any changes.

4. Permissions
    a. Select PERMISSIONS to allow or deny particular users certain task they can or cannot change while using the 7000



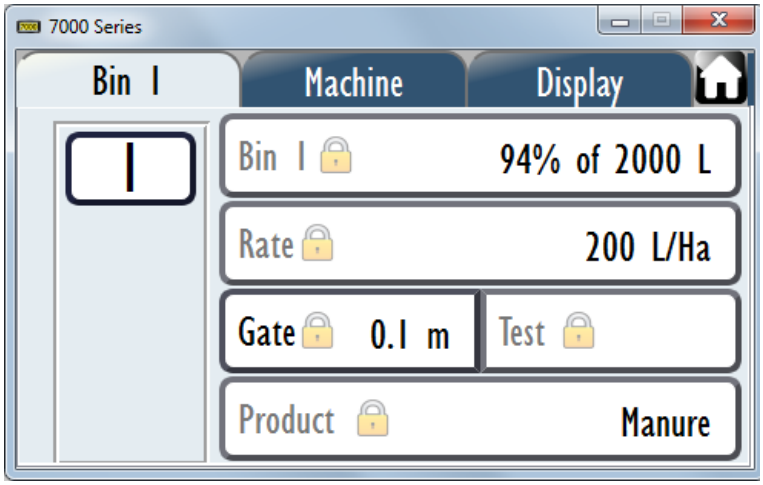
1. Run/Hold
    a. Allows or Denies the logged in user to manually select Run/Hold if tile is active from the front screen.
    It is recommended that all users have Run/hold permission

2. Rates Levels
    a. Allows or Denies the logged in user to adjust rates and reset bin/tank levels

3. Setup Characteristics
    a. Allows or Denies the logged in user to change working widths, calibrations, screens etc.

4. Administrator
    a. Allows or Denies the logged in user to have complete Administrator rights and no restrictions are in place

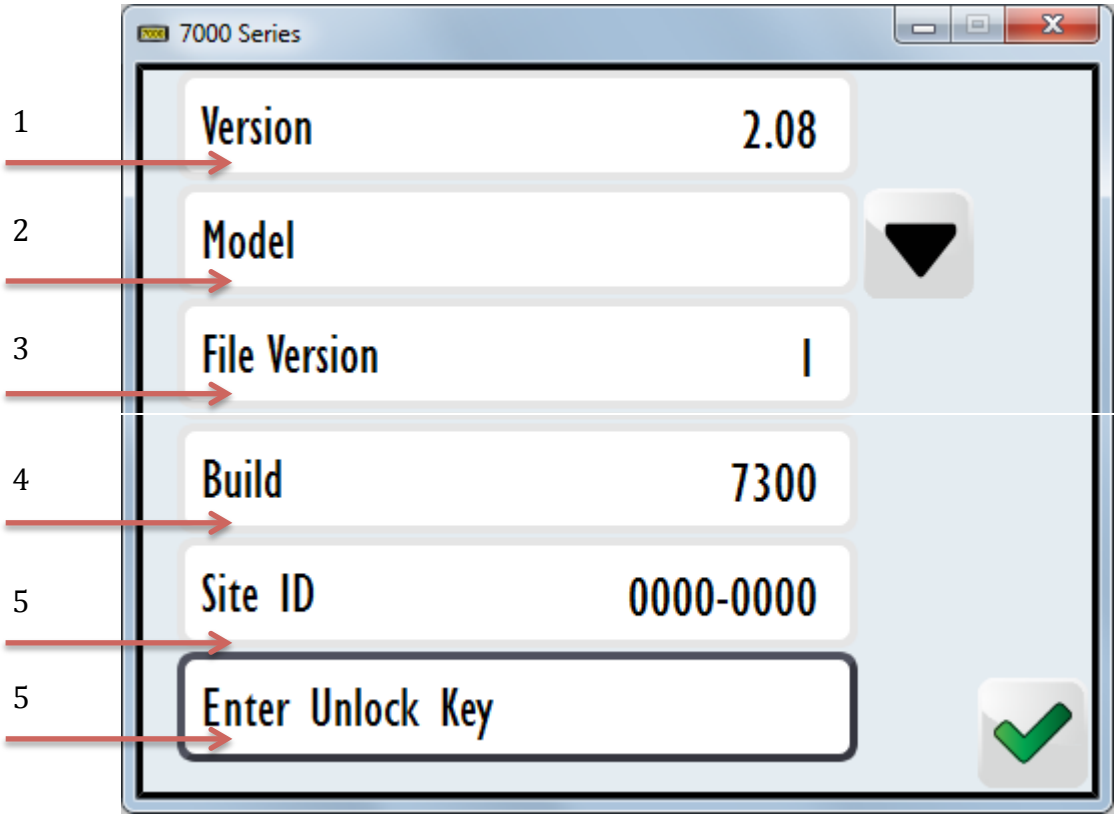
Example below of Restricted Fields that need permissions to change.



MAINTENANCE > ABOUT (4-3)

(Settings > Maintenance > About)

The about menu gives an overview of the software installed, version & build number, unlock codes installed. You maybe directed to this screen by a Farmscan Ag technician if requested.



1. **Version**
   a. Displays Version of software installed on the 7000

2. **Model**
   a. Display model version if applicable

3. **File Version**
   a. Displays file version if applicable

4. **Build**
   a. Displays build version (7300 = Spreader Controller)

5. **Site ID**
   a. Displays the site ID used to create an unlock code

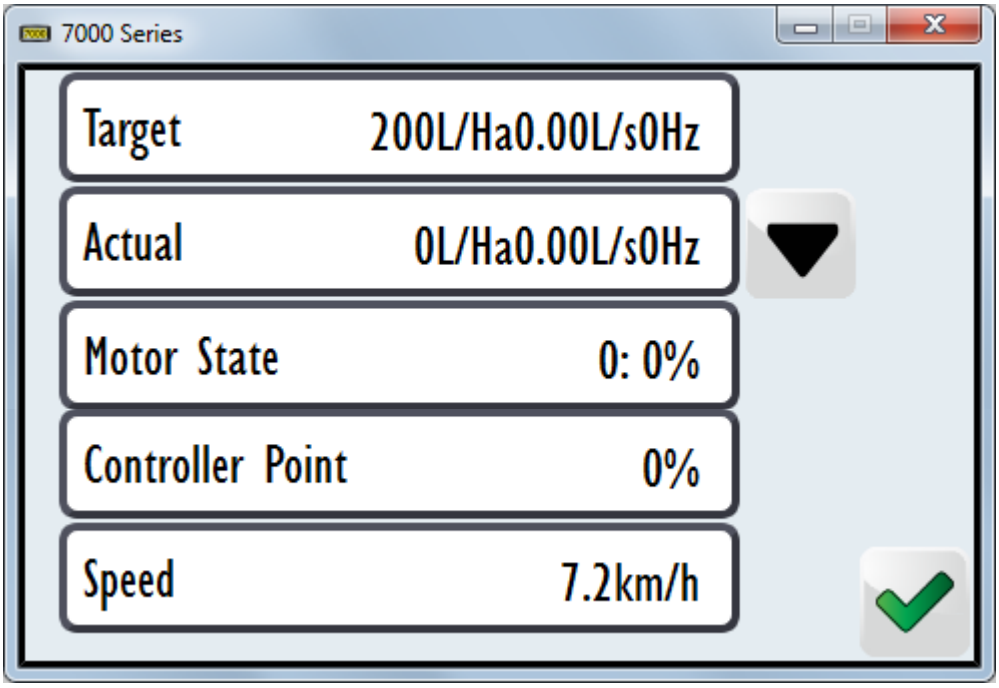
6. **Enter Unlock Key**
   a. Enter the unlock key when directed to unlock further features on the 7000
   b. Follow the onscreen prompts

MAINTENANCE > TEST (4-4)

(Settings > Maintenance > Test)

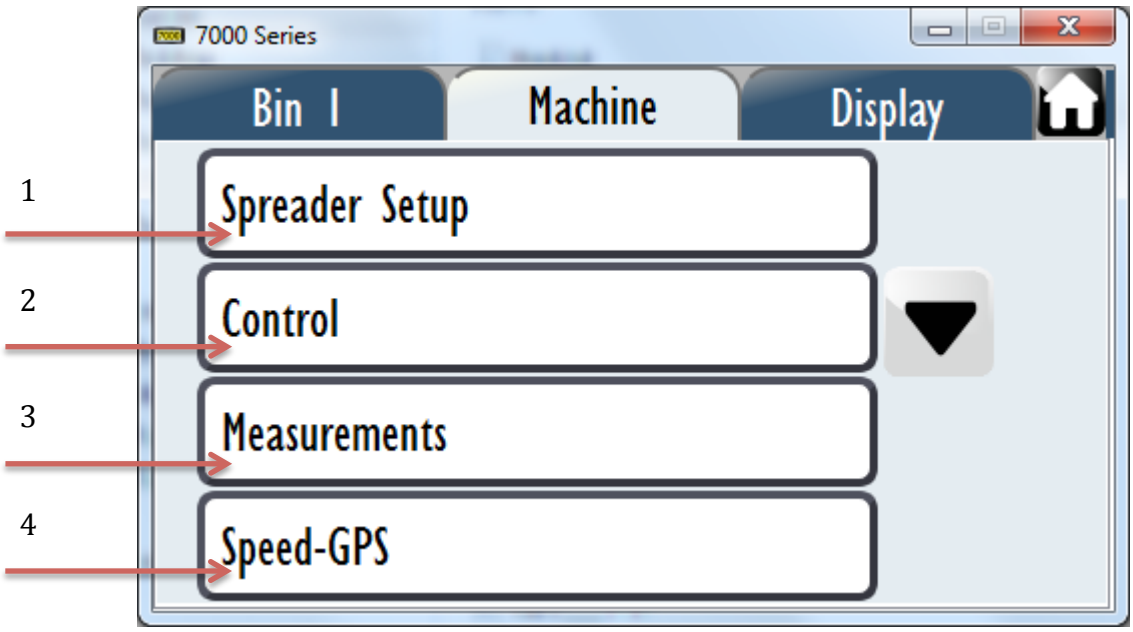
The Test menu is used for diagnostic purposes only.

You may be directed to this screen by a Farmscan Ag technician if requested.



MACHINE SETUP

Navigate into the 'Machine' tab of the Setup Menu
(Settings > Setup > Machine)



- **Spreader Setup (1)**
  - Number of Bins
  - Gates per Bin
  - Belts per Bin
  - Number of Spinners

- **Control (2)**
  - A. Control Speeds (Minimum, Slow Hold, Prime)
  - B. Auxiliary Setup (Only used when Variable Rate is enabled & Installed)
  - C. Gate Setup (Gate Specs, Sensor Setup)
  - D. Belt Setup (Roller Diameter, Pulses per Rev, Belt Motor Setup)
  - E. Spinner Setup (Sensor Type & Setup, Spinner Control and configuration)

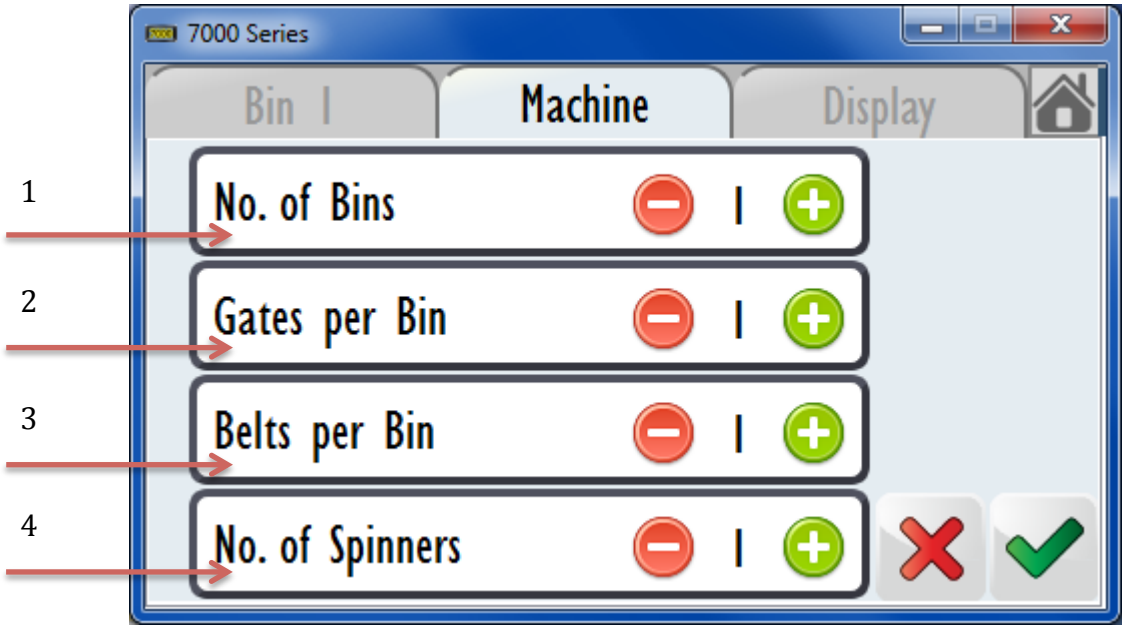
- **Measurements (3)**
  - Setup Spread Width
  - Setup Spread Width Increment

- **Speed/GPS (4)**
  - Setup/Calibrate Wheel Sensor (Set to Primary)
  - GPS (Set to Primary) & View NMEA strings
  - Radar Input/Setup
  - Serial GPS Setup

- **CANbus (Press 'Down' Arrow to reveal)**
  - Confirm connection to UniPOD
  - Confirm connection to Smart Switch Box
  - Check supply voltage to UniPOD
  - Reset CANbus

SPREADER SETUP (1)

Navigate into the 'Machine' tab of the Setup Menu
(Settings > Setup > Machine > Spreader Setup)



1. **Number of Bins**
    a. Number of Bins (Compartments or Hoppers) on Spreader
    b. Select '+' or '-' to add or remove bins

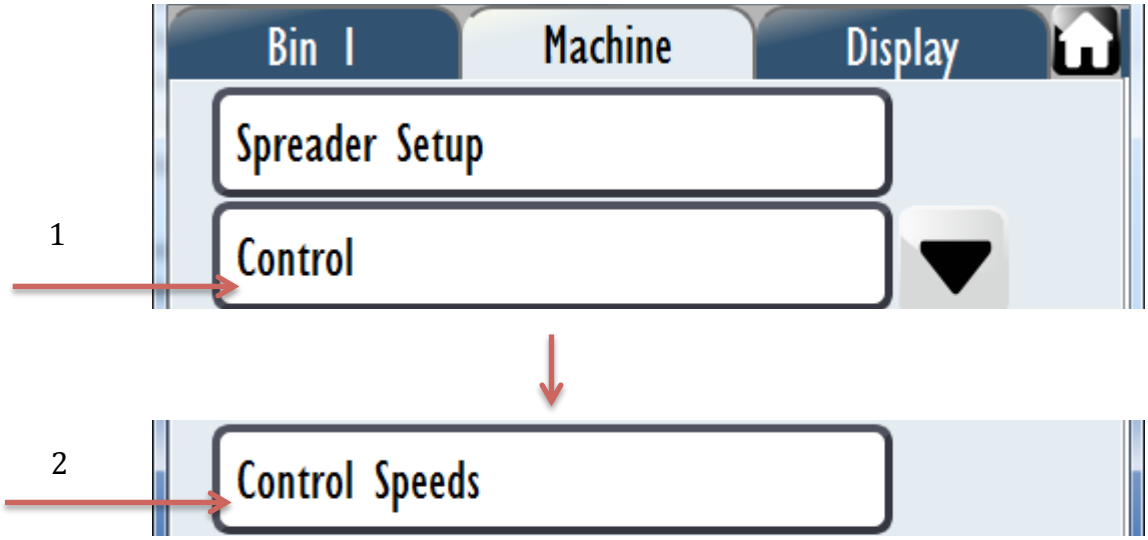
2. **Gates per Bin**
    a. Number of discharge gates per bin
    b. Select '+' or '-' to add or remove gates

3. **Belts per Bin**
    a. Number of product discharge belts per bin
    b. Select '+' or '-' to add or remove belts

4. **Number of Spinners**
    a. Number of spinners on machine
    b. Select '+' or '-' to add or remove spinners

CONTROL (2)

Navigate into the 'Machine' tab of the Setup Menu
(Settings > Setup > Machine > Control (1) > Control Speeds (2)).

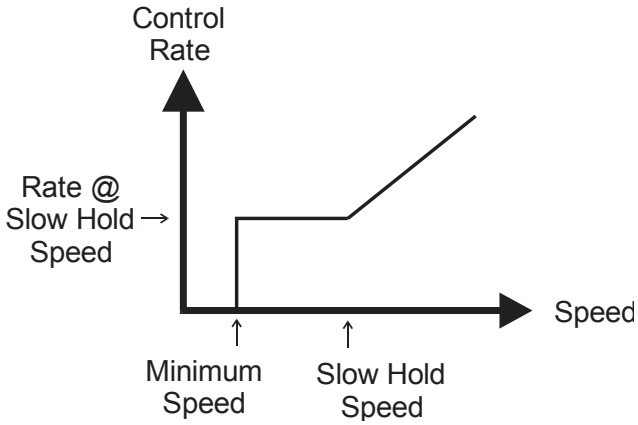


Control speeds, allows the user to adjust Minimum start speeds, slow hold & prime functions of the Spreader.

Control Speeds (2A)

1. **Minimum Speed**
   a. If the implement drops below this speed then the Spreader will revert to HOLD mode..

2. **Slow Hold Speed:**
   a. The slow hold function is used to avoid loss of Spreading coverage caused by loss of product flow from the belt to the spinners when travelling too slowly.
   b. If the implement is travelling below this speed (but above the Minimum Speed) then belt control is regulated as if the implement were travelling at the Slow Hold Speed.
   c. <u>Slow hold is an optional function</u> that can be set to operate at a minimum belt speed required to give a consistent throw off the spinners.



Operating with slow hold active will mean the product is being <u>over applied</u> and may cause damage to crop!

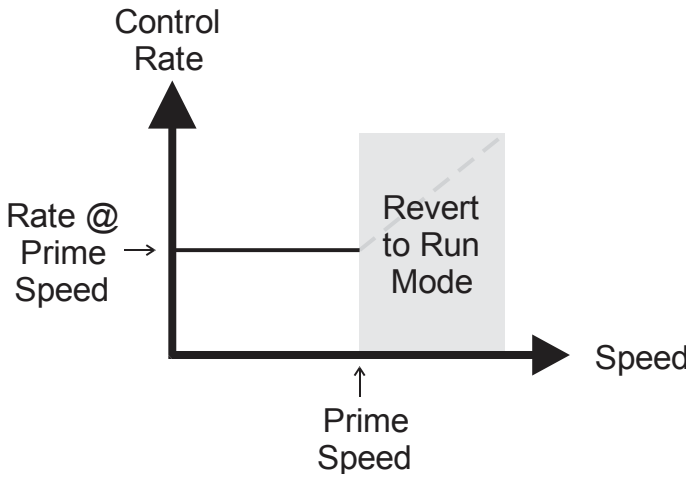
Prime Mode operation explanation:

The Prime Mode operation turns on the Spreader (Belts and Spinners (if applicable)) before speed is detected from the speed sensors. This allows product to begin metering before moving off preventing any missed areas due to a metering lag. The flow will be regulated as if the implement was travelling at the Prime Speed. If the implement exceeds the Prime Speed or the Prime Time then the flow will be regulated normally.

1. **Enable Prime**
   - **a.** If Prime Mode is enabled, activating Spreader control will enter Prime Mode instead of Run Mode.

2. **Prime Time**
   - a. If Prime Mode is entered, after this number of seconds the Spreader control will revert to Run Mode.
   - b. <u>If Prime Time is set to 0 seconds, it will remain in Prime Mode indefinitely.</u>

3. **Prime Speed**
   - **a.** When in Prime Mode, the flow control is regulated as if the implement was travelling at the Prime Speed.
   - **b.** If the implement exceeds the Prime Speed, Spreader Section control will revert to Run Mode.

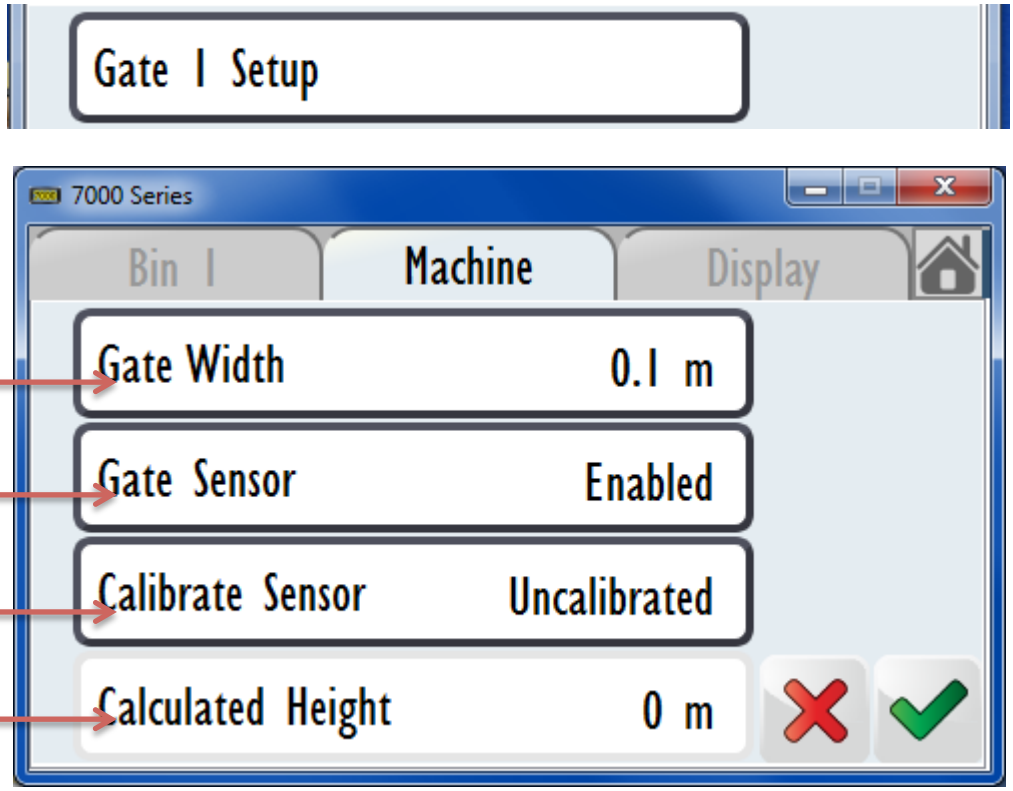


Auxiliary Setup (2B)

No setup required while in spreading mode. This can be left as default

Gate Setup (2C)

Navigate into the 'Machine' tab of the Setup Menu **(Settings > Setup > Machine > Control > Gate Setup)** and select 'Gate X Setup' (Where X is the Gate Number)

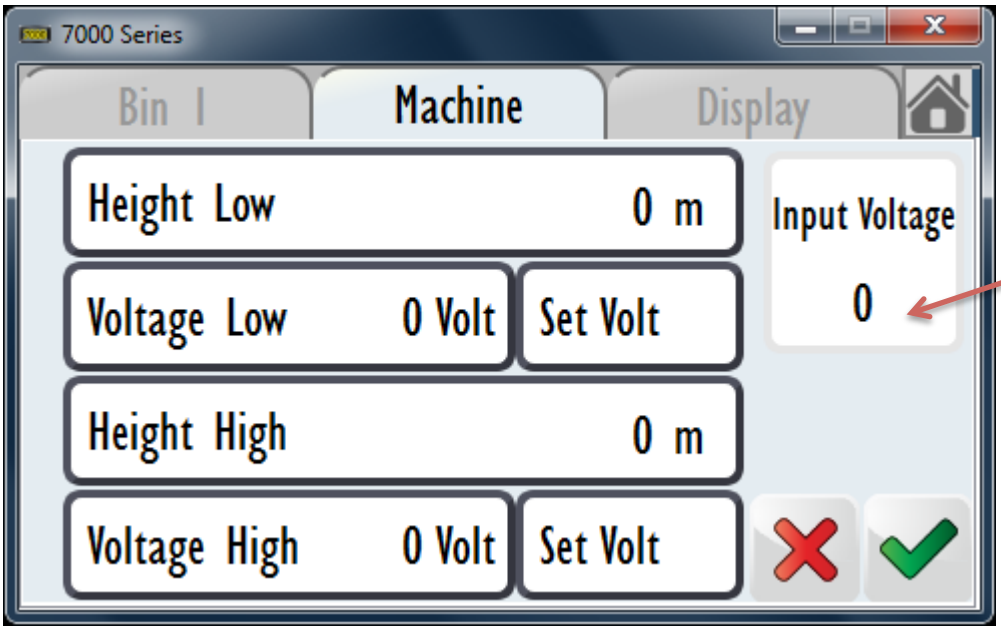


1. **Gate Width**
    a. Select to enter the width of the gate opening
    b. Unit of measurement can also be changed
    c. Select 'Done' when completed.

2. **Gate Sensor**
    a. Toggle to enable or disable the gate sensor
        i. When Disabled, Calibrate sensor will be Greyed out.
        ii. When Enable, Calibrate the sensor as per example.

Calibrate Gate Sensor

3. **Calibrate Sensor**
    a. Select to calibrate the gate height sensor.



Height Low : Input the lowest height the unit will need to display

Voltage Low : You can either :

1. Manually add the Voltage low (As per manufacture specifications) or
2. Adjust the gate manually to the Height Low point & Press **SET VOLT** this will take the value from the input voltage and automatically insert

Height High : Input the highest height the unit will need to display

Voltage High : You can either :

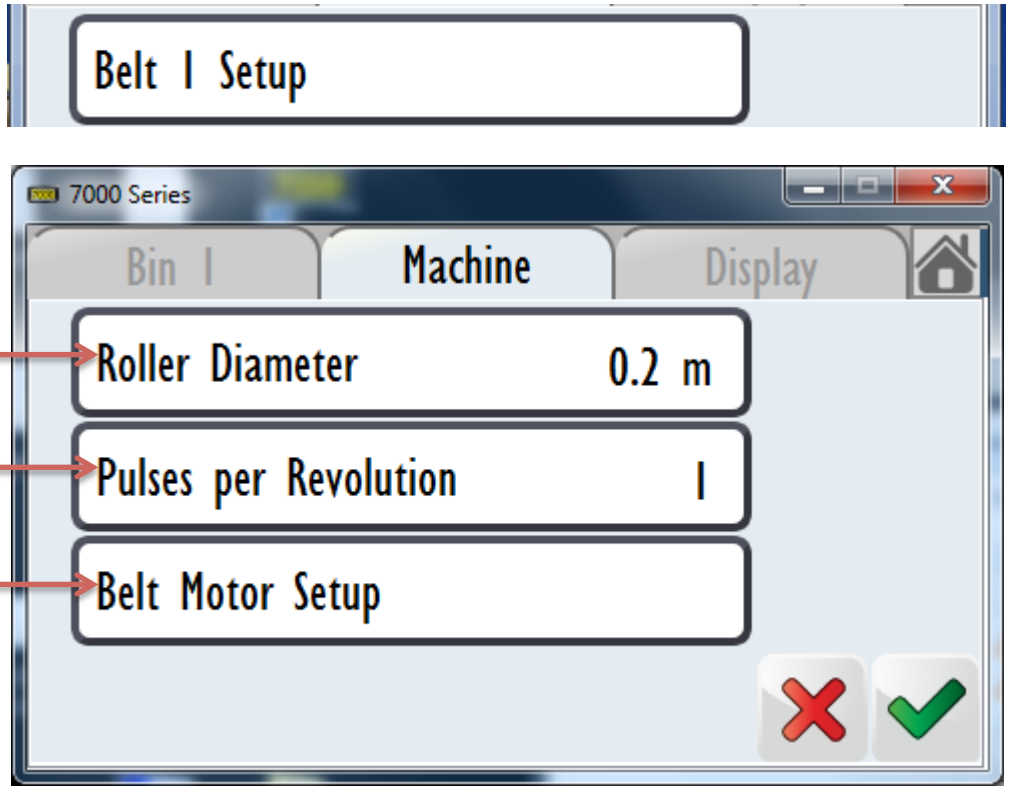
1. Manually add the Voltage high (As per manufacture specifications) or
2. Adjust the gate manually to the Height High point & Press **SET VOLT** this will take the value from
the input voltage and automatically insert

4. **Calculated Height**
    a. Displays the height of the gate opening as determined by the sensor.
        i. If Enables and calibrated as above

Repeat the above process if multiple Gate sensors are installed.

Belt Setup (2D)

Navigate into the 'Machine' tab of the Setup Menu **(Settings > Setup > Machine > Control > Belt Setup)** and select 'Belt X Setup' (Where X is the Belt Number)

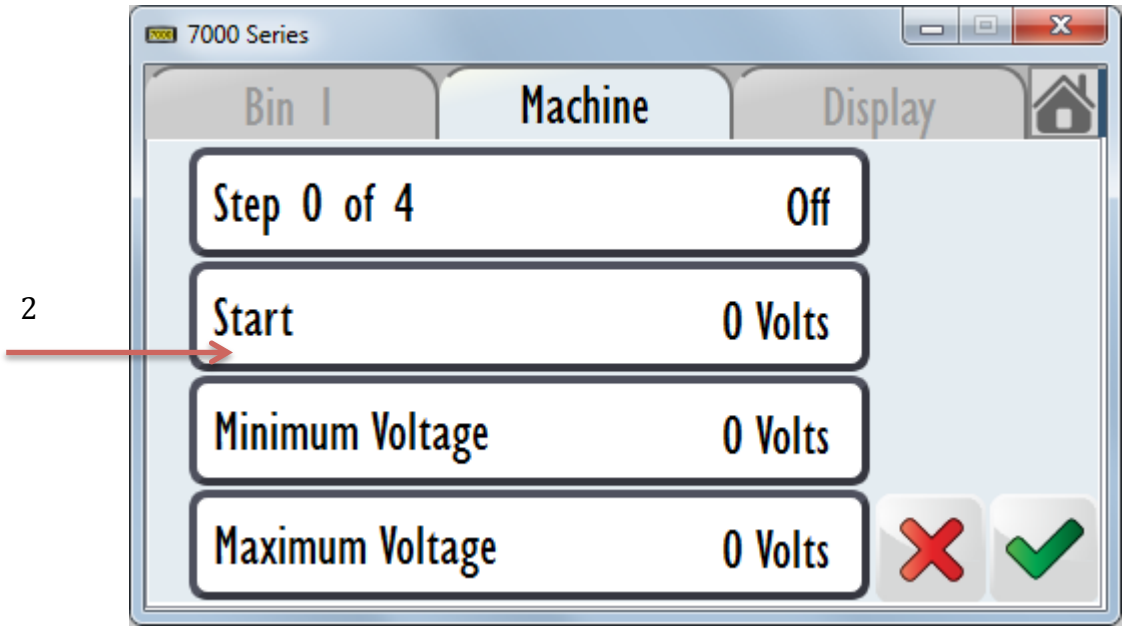


1. **Roller Diameter**
    a. Select to enter the diameter of the belt roller
    b. Unit of measurement can also be changed
    c. Select 'Done' when completed.

2. **Pulses per Revolution**
    a. Select to enter the number of pulses per revolution of the Spreader Belt sensor
        i. I.e. – how many times does the magnet and sensor pass during one pass, if fitted.

3. **Belt Motor Setup** ***(Only needs to be setup if using the 7300 in control mode)***
    a. Select to calibrate the belt motor
    b. Use Auto Calibrate and follow the onscreen instructions
        i. Designed to automatically find the functional voltage range of the motor. The auto calibrate function will find the lowest voltage the will still allow the motor to turn. It will also find the highest voltage that provides an increase in output of the motor.

1. Select Auto Calibrate
2. Press START
    a. The calibration will now be done in 4 steps



Step 1 : (Start) Starts applying voltage to the motor

Step 2 : (Minimum) Makes sure the motor is functioning and records temporary minimum

Step 3 : (Maximum) Records the highest function output to a voltage

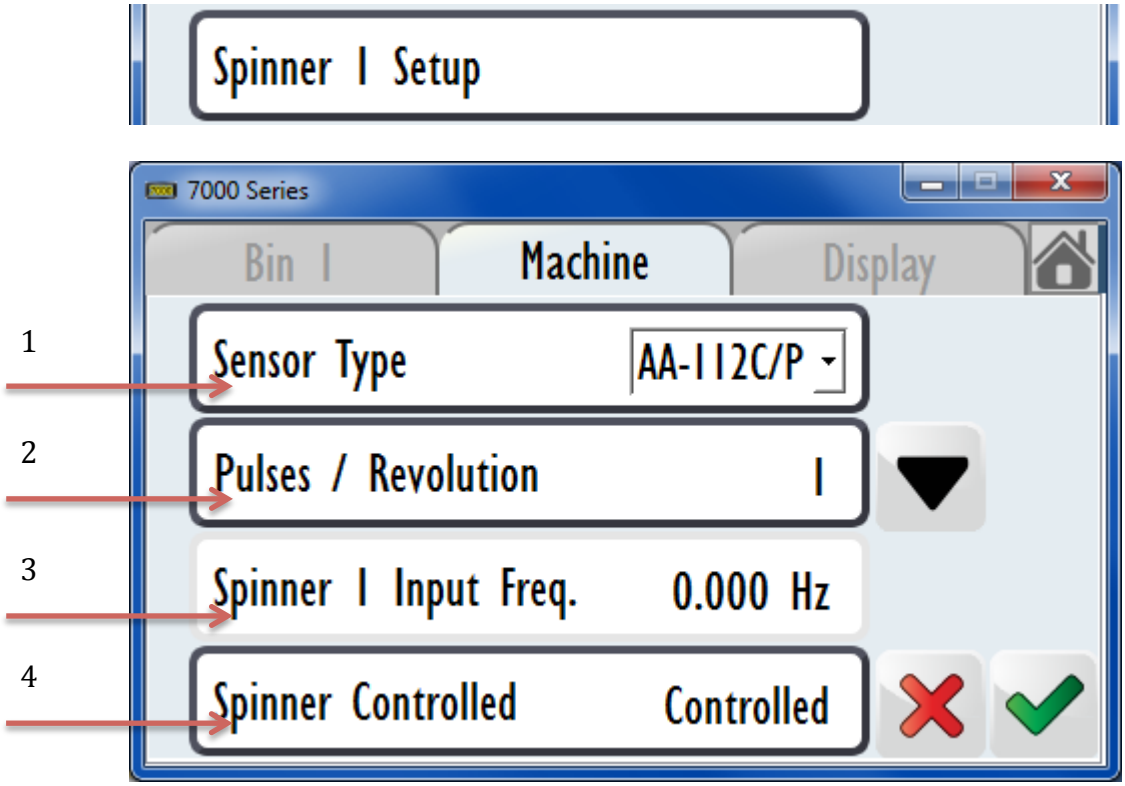
Step 4 : (Minimum Confirm) Records a more accurate minimum that still produces output.

After the test has been done, confirming will write these values to the motors settings. You can then view the values it finalises by viewing the Minimum and maximum voltages part of the motor.

The advanced settings page, which includes deadband & span will need to be adjusted separately if direct by a Farmscan Ag technician. These values can be left as default.

Spinner Setup (2E)

Navigate into the 'Machine' tab of the Setup Menu **(Settings > Setup > Machine > Control > Spinner Setup)** and select 'Spinner X Setup' (Where X is the Spinner Number) - If there are less spinners than your current configuration see "Spread Setup" in this guide.



1. **Sensor Type**
   a. Use the dropdown menu to select the type of sensor used to monitor the spinners

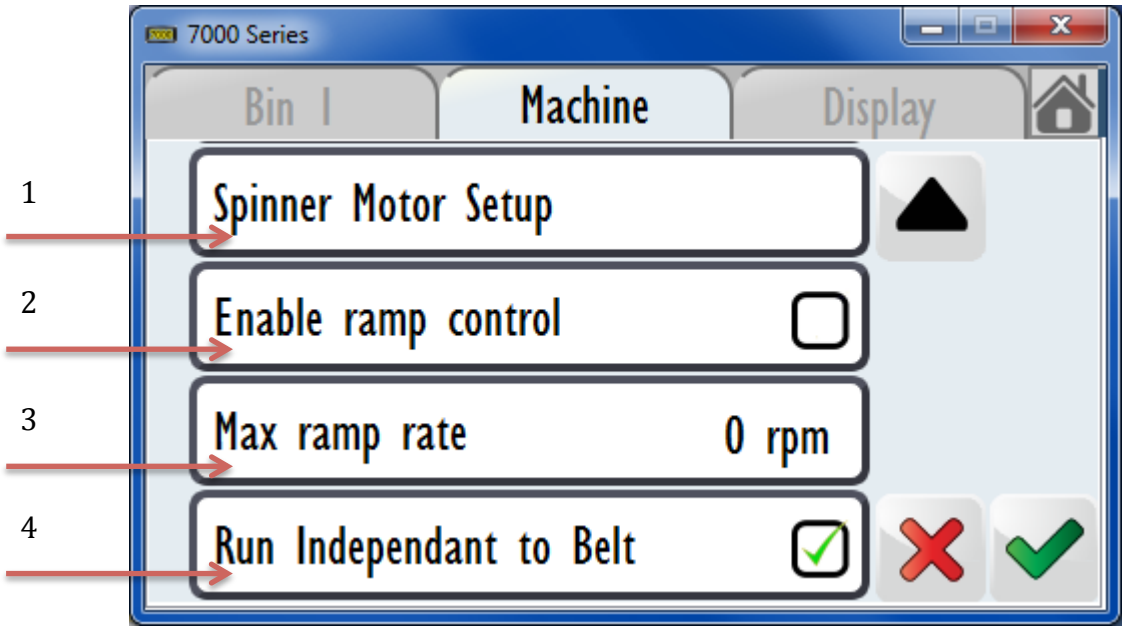
2. **Pulses per Revolution**
   a. Select to enter the number of pulses per revolution of the Spreader Spinner sensor

3. **When the spinner is "working" a live readout will be displayed**

4. **Spinner Controlled**
   a. Toggle to control or monitor the spinners

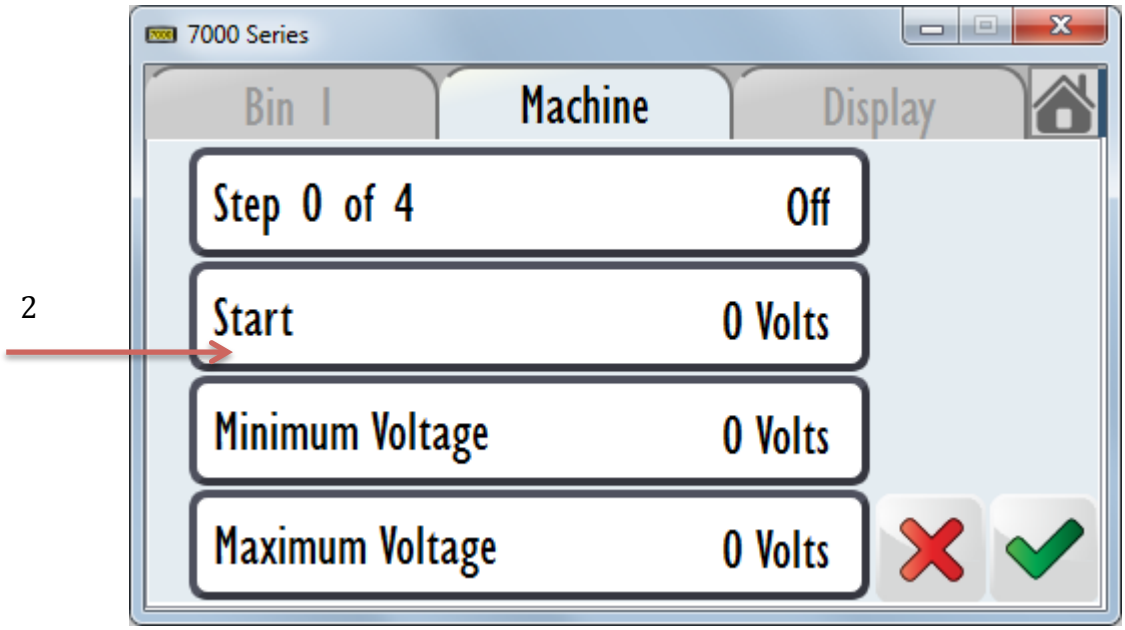
*If using in **MONITOR MODE**, no further setup is required.*

*If using in **CONTROL MODE**, Press the 'Down' arrow to scroll through more setup options*



1. **Spinner Motor Setup**
    - **a.** Select to calibrate the spinner motor
    - **b.** Use Auto Calibrate and follow the onscreen instructions
        - **i.** Designed to automatically find the functional voltage range of the motor. The auto calibrate function will find the lowest voltage the will still allow the motor to turn. It will also find the highest voltage that provides an increase in output of the motor.

1. Select Auto Calibrate
2. Press START
    a. The calibration will now be done in 4 steps



Step 1 : (Start) Starts applying voltage to the motor

Step 2 : (Minimum) Makes sure the motor is functioning and records temporary minimum

Step 3 : (Maximum) Records the highest function output to a voltage

Step 4 : (Minimum Confirm) Records a more accurate minimum that still produces output.

After the test has been done, confirming will write these values to the motors settings. You can then view the values it finalises by viewing the Minimum and maximum voltages part of the motor.

The advanced settings page, which includes deadband & span will need to be adjusted separately if direct by a Farmscan Ag technician. These values can be left as default.

2. **Enable Ramp Control**
   Select to determine whether the spinners will use a slow start mechanism.
   This will give a gradual slow to fast response of the spinner

3. **Max Ramp Rate**
   Select a maximum ramp rate, this allow the hydraulics to start slowly.
   The higher this value the faster the spinners will approach the target rate.

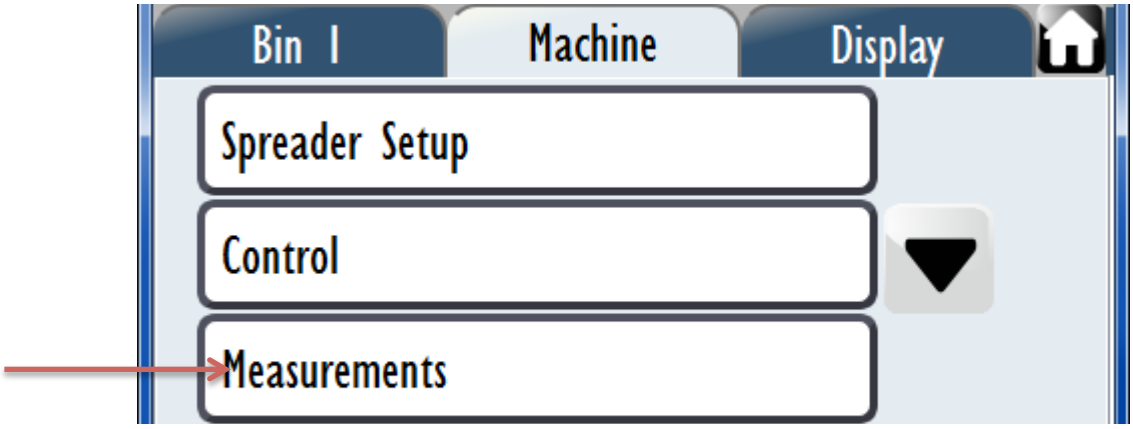
4. **Run Independent to Belt**
   Select to run the Spreader Spinners independent of the Spreader belt. This will enable the spinners to function while the system is in hold mode.

WARNING: This means spinners will NOT be stopped via critical alarms.

Please consider the repercussions of this setting before enabling.

MEASUREMENTS (3)

Navigate into the 'Machine' tab of the Setup Menu
(Settings > Setup > Measurements)

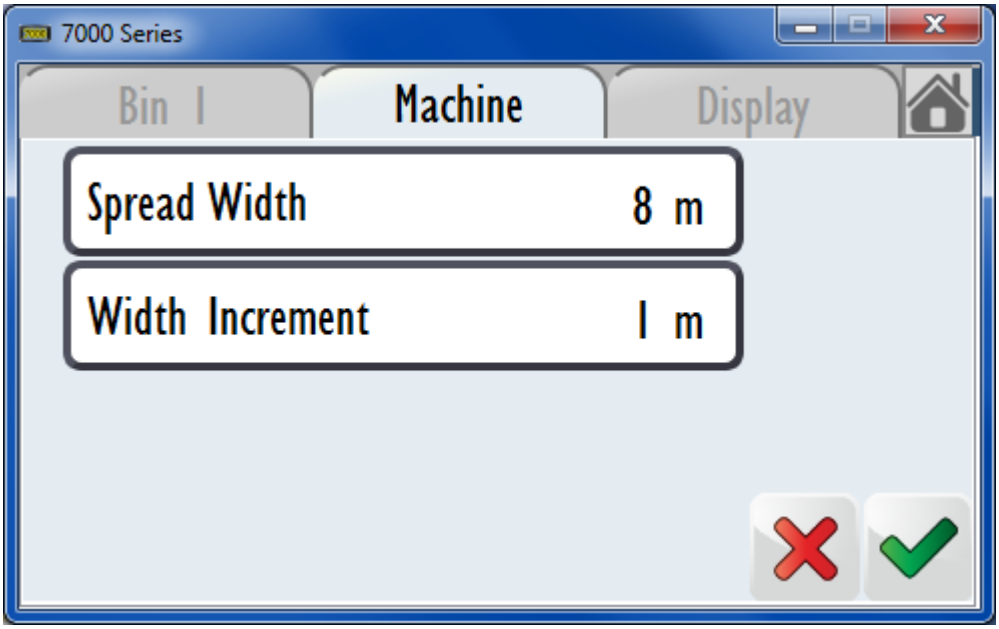


To configure the Spreader widths, follow these steps:

1. Navigate into the Machine tab of the Setup Menu **(Settings > Setup > Machine).**
2. Select the 'Measurements' button.

Spread Width

1. To setup the spread width:
    a. Select the 'Spread Width' button.
    b. Enter the value and unit, Select Done.

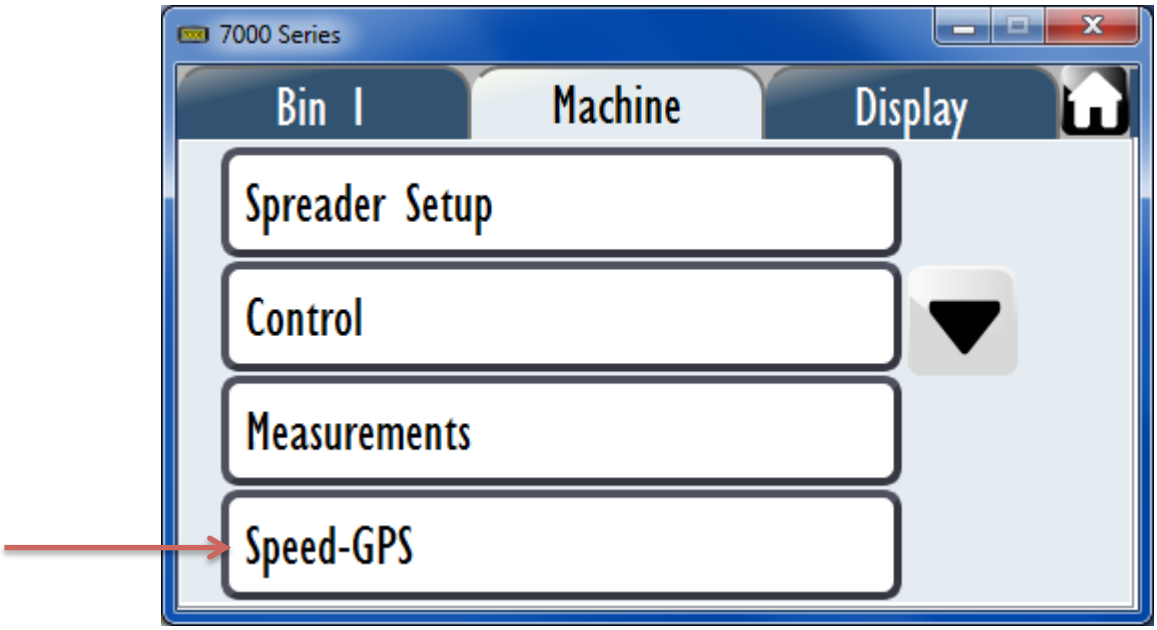


1. To setup the spread width increment: (Front Screen step rate from front Tile)
    a. Select the 'Width Increment' button.
    b. Enter the value and unit, Select Done.

This the step size of the front screen tile for spread width.

SPEED-GPS (4)

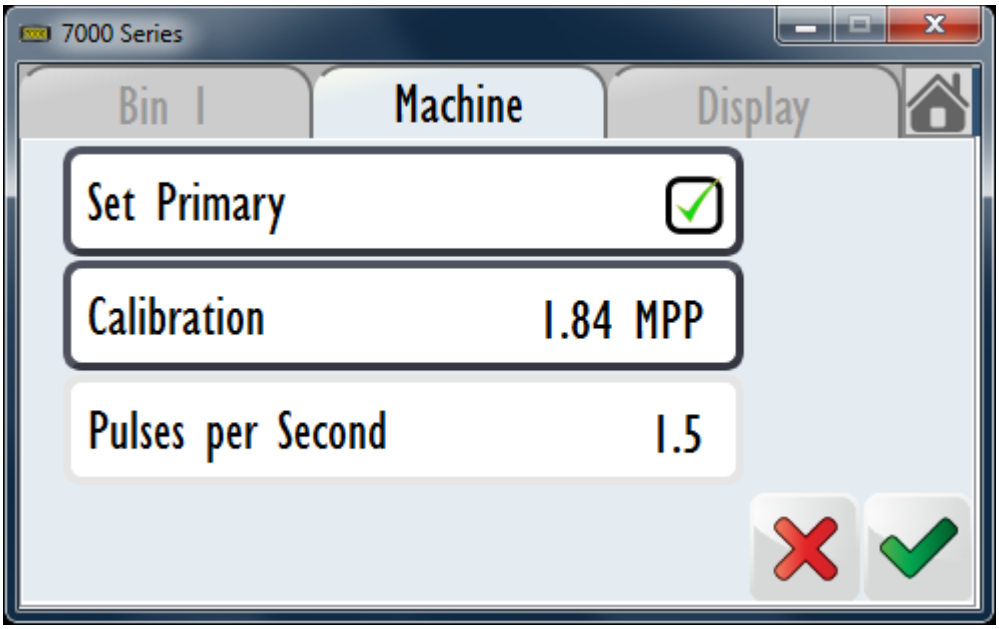
Navigate into the 'Machine' tab of the Setup Menu
(Settings > Setup > Speed-GPS)



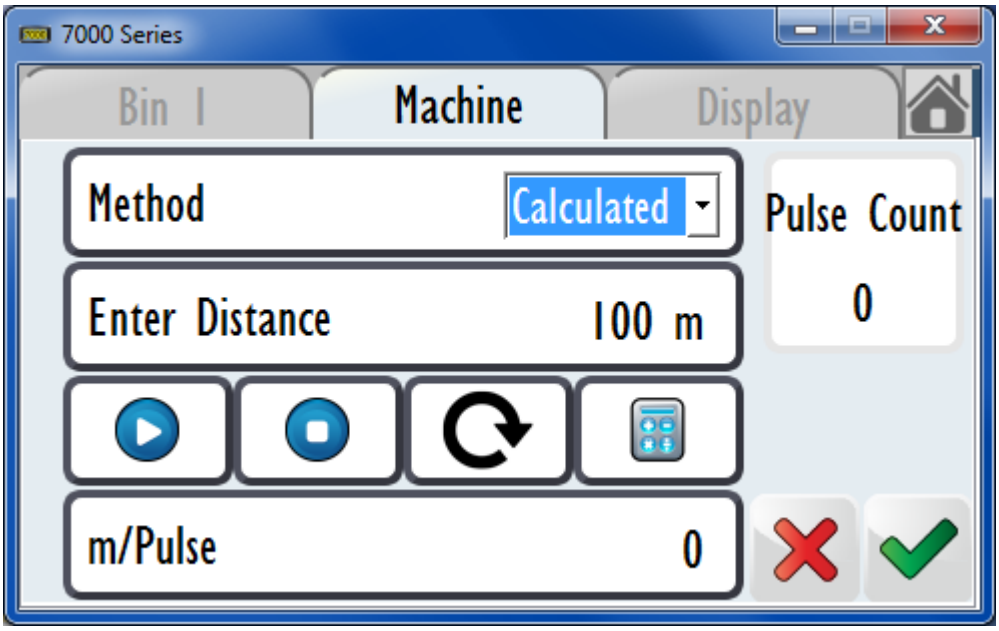
The 7300 has the ability to have GPS Speed input OR a standard magnet/sensor input for ground speed. Setup options are below.

Wheel Sensor (Display Speed Correctly)

1. Navigate into Speed-Gps Menu **(Settings > Setup > Machine > Speed-GPS)**
2. Navigate to Wheel Sensor
3. Place a **Tick** next to (**SET Primary**)



Calibration (Wheel Sensor)



This screen is used to Re-calibrate your wheel factor if you find your speed is not displaying correctly.

To calibrate the Wheel Speed sensor, follow these steps:

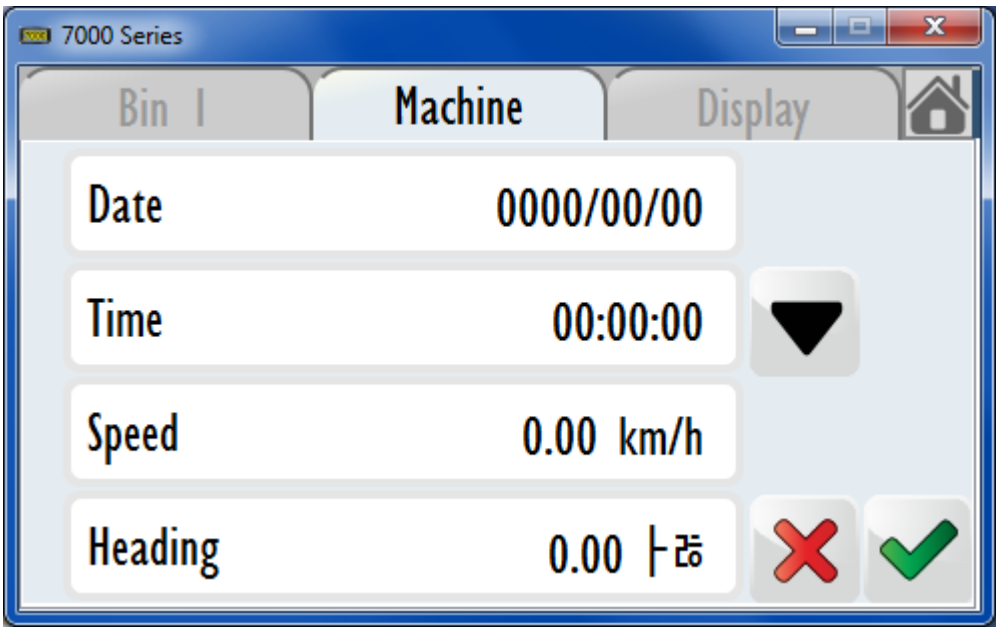
1. Measure out a set distance on the ground for calibration (greater than 10m). – Peg both start and end points.
2. Align magnet and sensor by moving forward
3. Mark a point on the tire that corresponds with the start point
4. Select the 'Calibration'
5. Make sure the '**Method'** drop down box has '**Calculated'** selected.
6. Select the '**Enter Distance**' button, enter the distance (from step 1) the wheel will travel during the calibration.
7. Select the '**Play'** button.
8. Drive along the measured distance (from step 1).
9. Stop at the pegged point, lining up the bottom of the tire with the finished peg point
10. Select the '**Stop'** button.
11. Select the '**Calculate'** button (the calculator symbol).
12. Select the **Tick**, keep Selecting the **Tick** until out to the '**Machine' tab** of the Setup Menu.

Alternatively, you can change the method to **MPP** (Meters per pulse) and enter a known factor.

1. Align magnet and sensor by moving forward
2. Mark a point at the bottom of the tyre and on the ground (Normally bottom centre)
3. Drive one full rotation of the wheel and stop when marked point on tyre is centre bottom
4. Measure between the two points
5. Insert the measurement into the m/pulse.

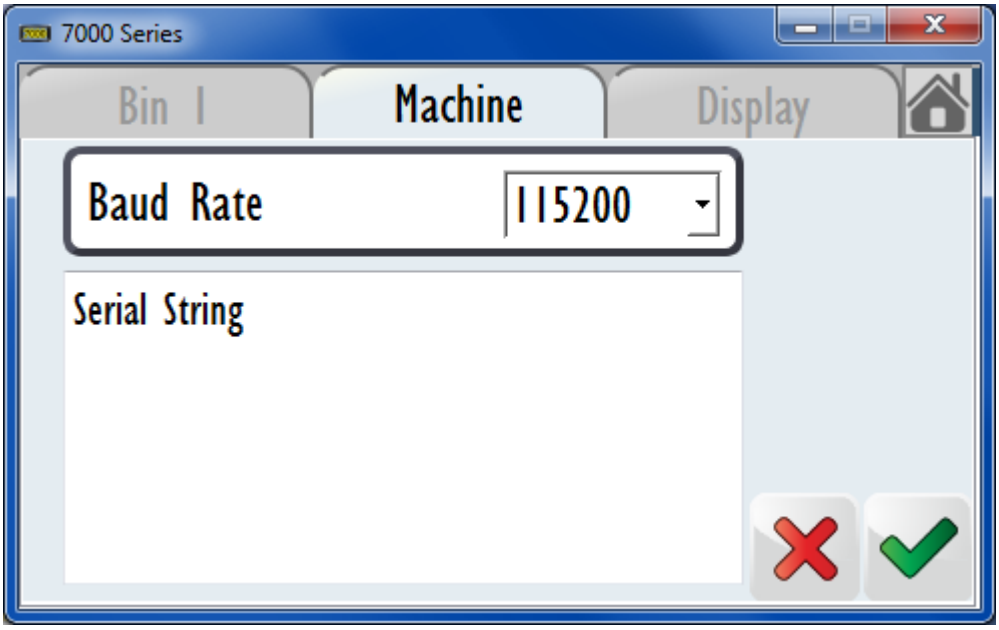
GPS

If you prefer to use GPS input for ground speed ensure the previous SET PRIMARY against the wheel is NOT selected. When entering this menu and GPS connected to the serial port of the AC-7000 cable data should appear in the window below. If not Refer to serial setup below. NMEA message required are GGA, VTG & RMC



Serial setup

The serial setup menu allows you to view RAW GPS data from your receiver. Set the correct Baud rate as specified from your external GPS or guidance system to view this data and ensure correct setup of your GPS.



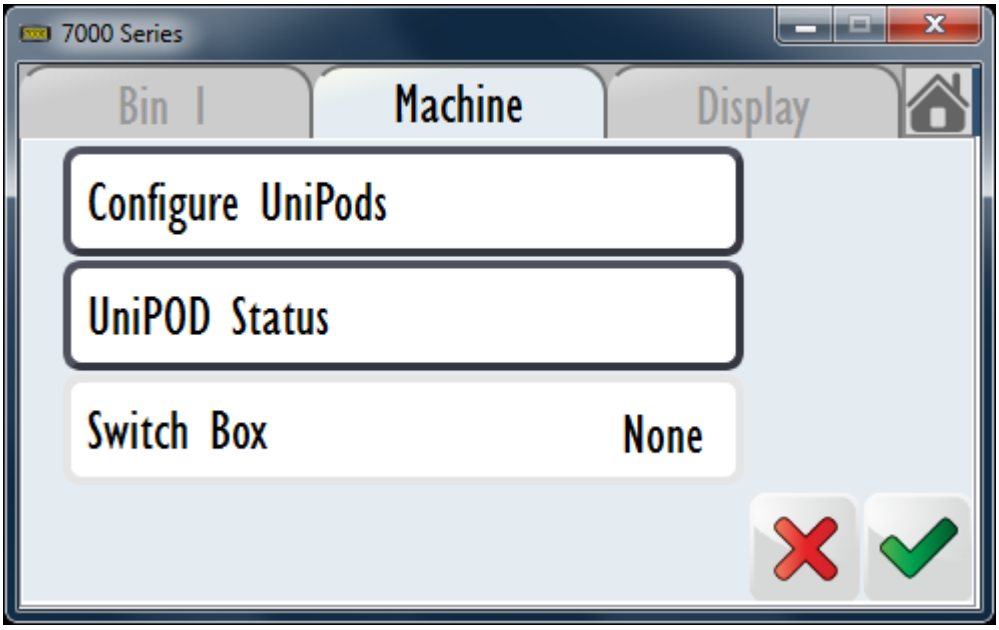
CANBUS

Navigate into the 'Machine' tab of the Setup Menu
(Settings > Setup > CANbus)

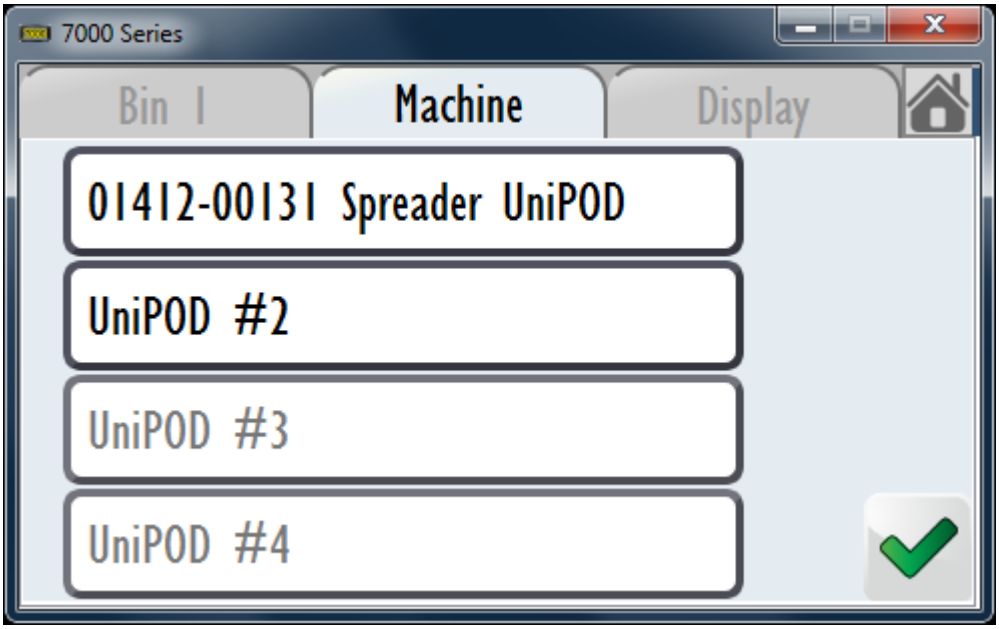
The CANbus menu allows you to confirm the connection status & voltage to the UniPOD along with smart switch if attached.

If multiple UniPOD's are attached to the 7000 system, the order of the pods can be configured here.

If directed by a Farmscan Ag technician the ability to RESET CANBUS is also available.

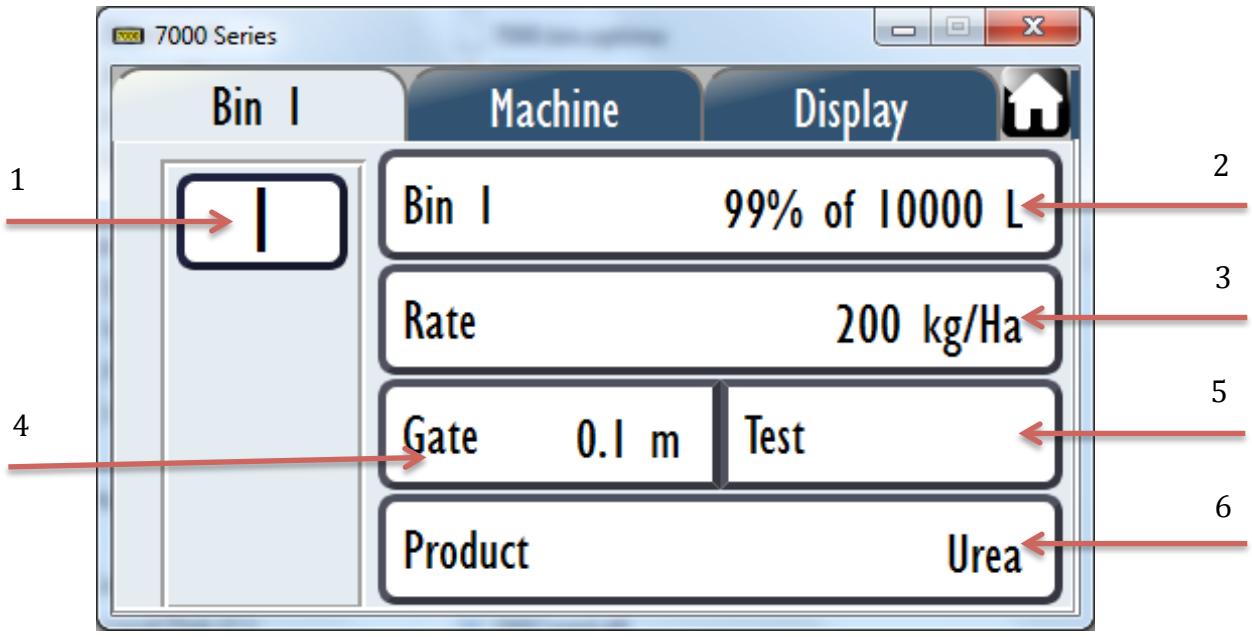


You can also view the "**Status**" of the UniPOD including serial number to ensure correct connection



BIN SETUP

The 'Bin' screen **(Settings > Setup > Bin)** shows a summary of the bin settings.



1. **Bin Number**
   a. Select to show configuration for each Bin (if applicable).

2. **Bin X**
   a. Shows the estimated capacity as a fraction of the total capacity.
   b. Select to configure bin volume and level settings

3. **Rate**
   a. The application rate being applied
   b. Select to adjust desired rate and step rate of belt and spinners (if applicable)

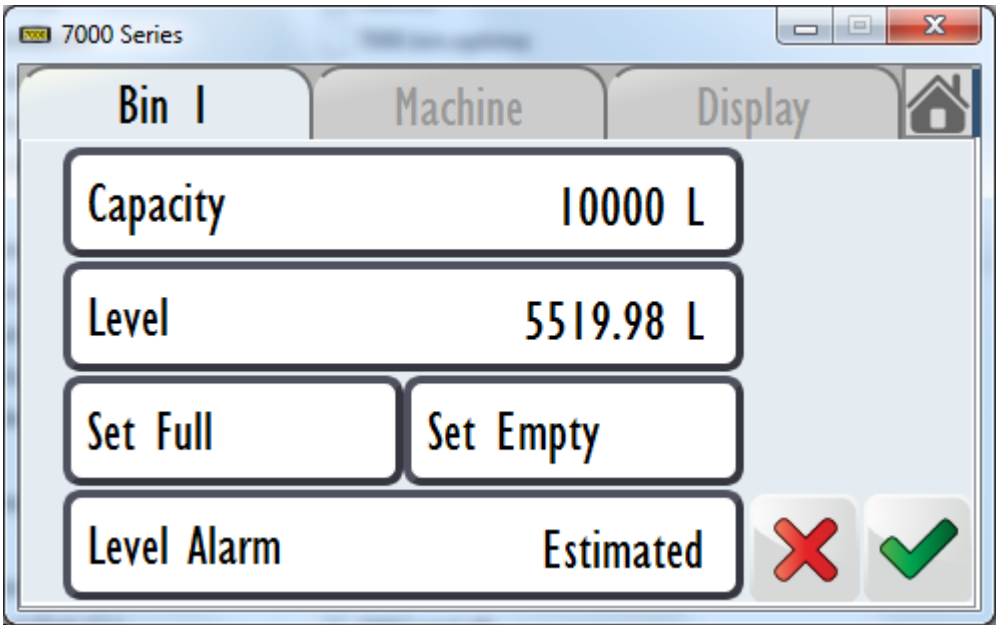
4. **Gate**
   a. Shows the height of the gate opening
   b. Select to change the gate opening height (if manual control) and unit of measure

5. **Test**
   a. Select to enter the 'Test' menu

6. **Product**
   a. Shows the product currently calibrated for
   b. Select to change product and enter calibrations

CAPACITY (2A)

To setup the capacity of a Bin, follow these steps:
Navigate into the Bin tab of the Setup Menu **(Settings > Setup > Bin #)**



1. Select a Bin in the list on the left to select it.

2. Select the '**Bin'** button.

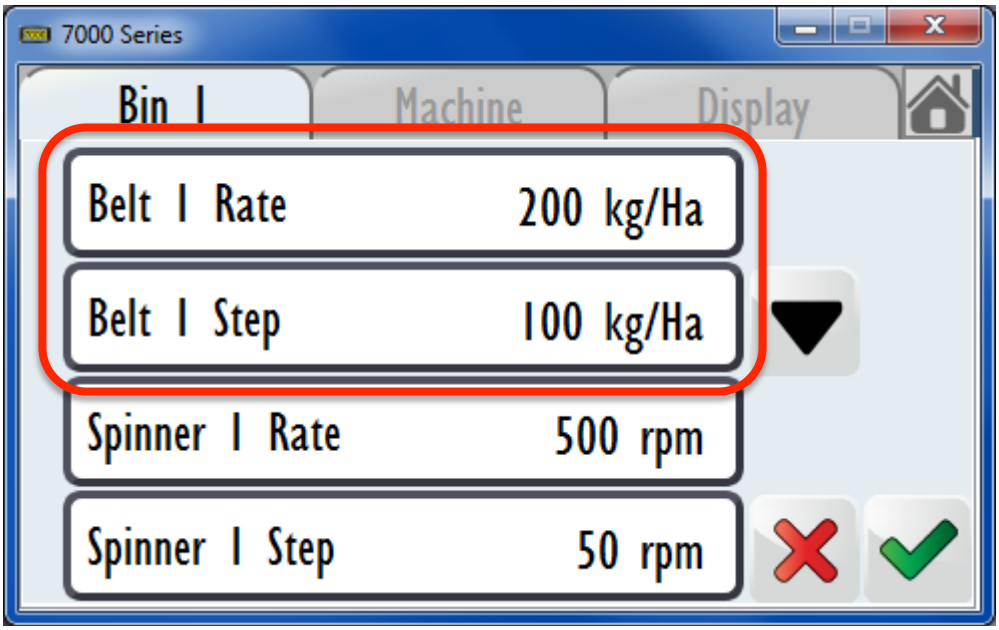
3. Select the '**Capacity'** button.
   a. Enter the volume of the Tank.
   b. Select a unit with the up and down arrows.
   c. Select '**Done'**.

4. To set the level of the tank, do one of the following:
   a. Select the '**Set Full**' button to set the Tank to 100%.
   b. Select the '**Set Empty**' button to set the Tank to 0%.
   c. Select the '**Level Alarm**' button to input the Tank level as either an estimated (computed) or external (bin level sensor).

5. Select the **Tick** button.

BELT RATE (3A)

To set the desired application rate (Belt Rate) for a Bin, follow these steps:
Navigate into the Bin tab of the Setup Menu **(Settings > Setup > Bin)**



1. Select a Bin in the list on the left to select it.

2. Select the '**Rate'** button.

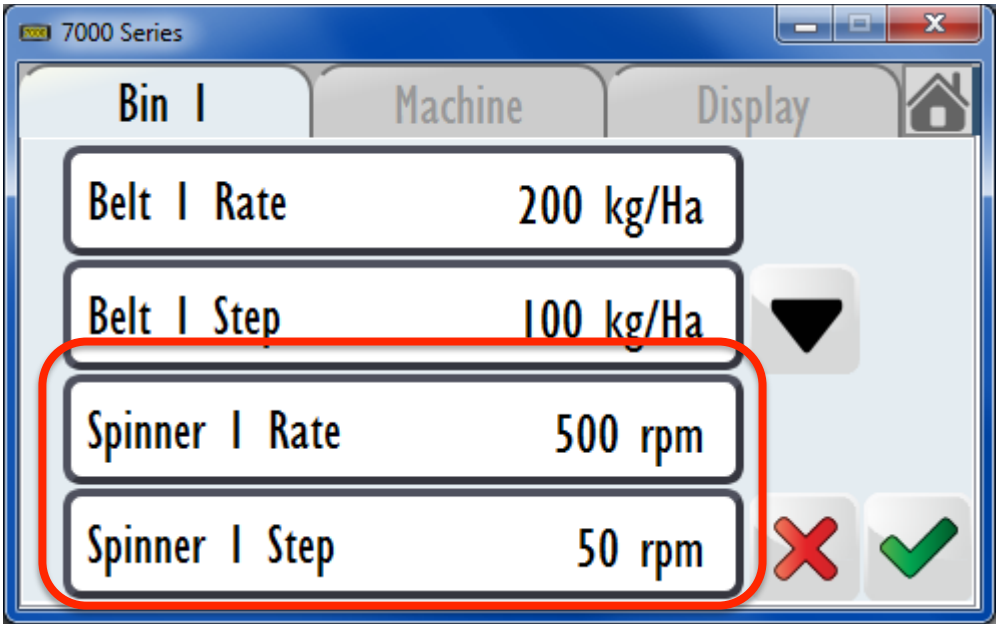
3. Select the '**Belt Rate**' button.
   a. Enter your desired application rate for the Bin.
   b. Use the up and down arrows to select the unit.
   c. Select '**Done'**.

4. Select the '**Belt Step**' button.
   a. Enter your desired application rate step for the Bin
   (NOTE: The step size that the application rate will change by when being adjusted from the front screen).
   b. Select '**Done'**.

5. Select the **Tick** button.

SPINNER RATE

To setup the desired spinner rate for a Bin (if controlled), follow these steps:
Navigate into the Tank tab of the Setup Menu **(Side Menu > Setup > Tank)**



1. Select a Tank in the list on the left to select it.

2. Select the '**Rate'** button.

3. Select the '**spinner rate 1** button.
   a. Enter your desired spinner 1 RPM for the Tank.
   b. Select 'Done'.

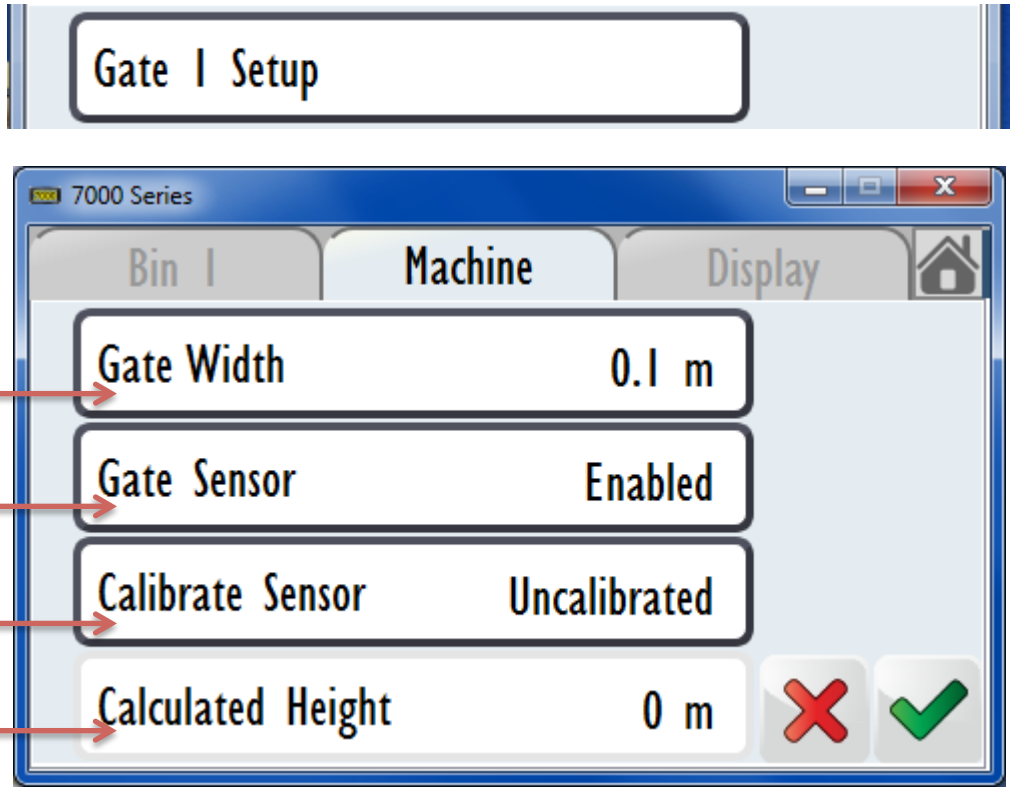
4. Select the '**Spinner 1 Step** button.
   a. Enter your desired RPM step for the Tank
   (NOTE: The spinner RPM will change by step size when being adjusted from the front screen).
   b. Select 'Done'.

5. Select the Tick button.

Repeat the same procedure for Spinner 2 if multiple spinners are enabled

GATE (4A)

Navigate into the 'Machine' tab of the Setup Menu
(Settings > Setup > Machine > Control > Gate Setup) and select 'Gate X Setup'
(Where X is the Gate Number)



1. **Gate Width**
   a. Select to enter the width of the gate opening
   b. Unit of measurement can also be changed
   c. Select 'Done' when completed.

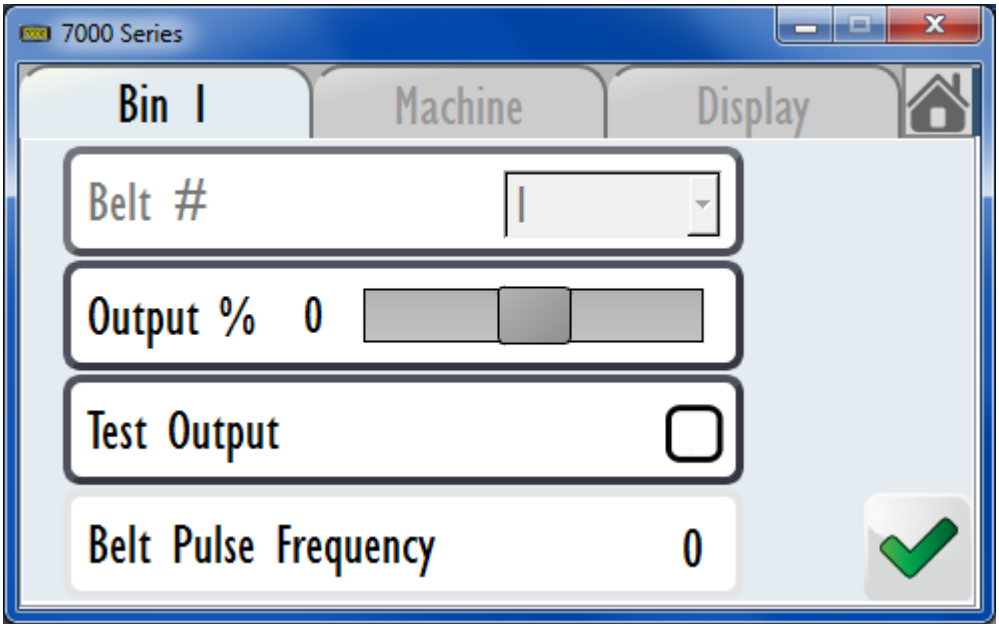
2. **Gate Sensor**
   a. Toggle to enable or disable the gate sensor

3. **Calibrate Sensor**
   a. Select to calibrate the gate height sensor.

4. **Calculated Height**
   a. Displays the height of the gate opening as determined by the sensor.

TEST (5A)

To test the output of a Bin, follow these steps:
Navigate into the Bin tab of the Setup Menu **(Settings > Setup > Bin)**.



The output test allows the user to check the belt control and spinner control (if applicable) are working correctly. By checking the TEST OUTPUT and sliding the Output % bar will allow the belt or spinner control valve to open, operating either the belt or spinners & allow feedback from their speed sensors Currently this is displayed in Pulses per second

- 0% = valve fully closed and no belt movement
- 100% = valve fully open and belt at full speed

1. Select a Bin in the list on the left to select it.

2. Select the '**Test**' button.

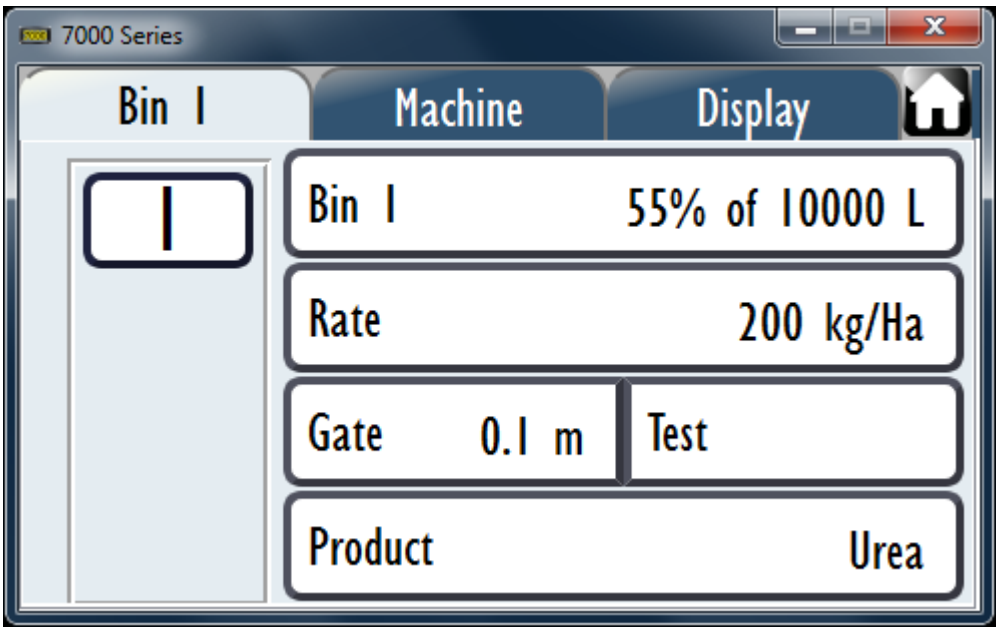
3. Adjust the 'Output %' slider to give the output you desire.

4. Select the 'Test Output' button to turn on the Bin output
   (WARNING: This will turn on the Bin output immediately).

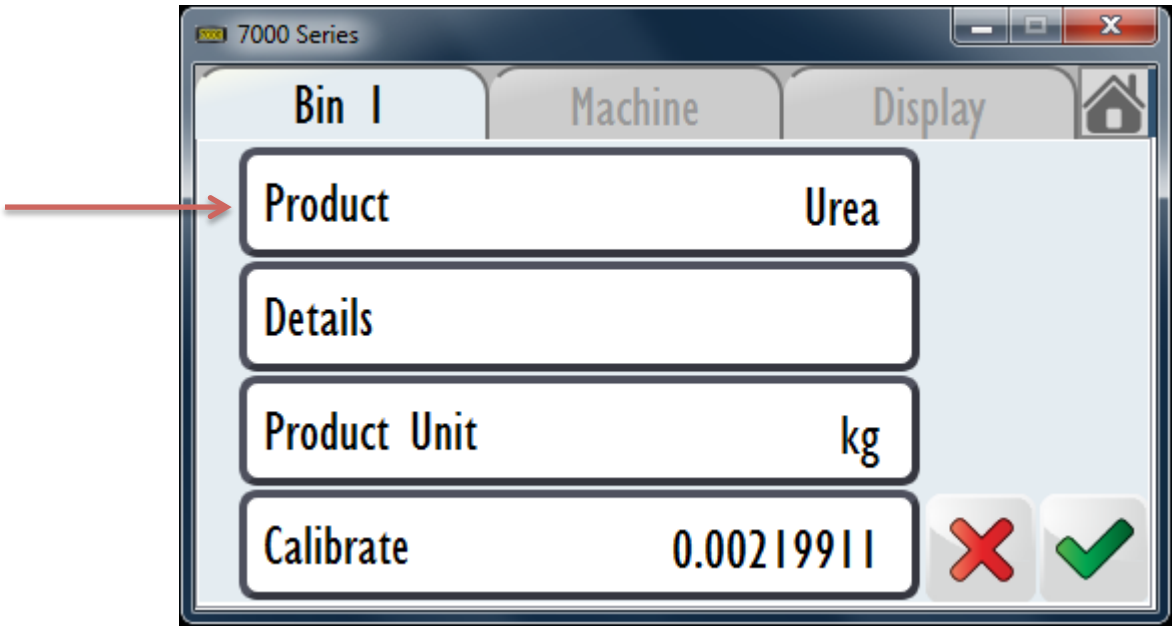
5. Select the '**Test Output**' button again to turn off the Bin output.

6. Select the **Tick** to return out of the test screen.

PRODUCT (6A)



Each product must be calibrated to allow the 7300 to achieve the correct applied rate. The 7300 has the ability to recall multiple calibration factors for multiple machine setups & different bulk densities of each fertilizer being applied and recalled.



PRODUCT (CALIBRATION)

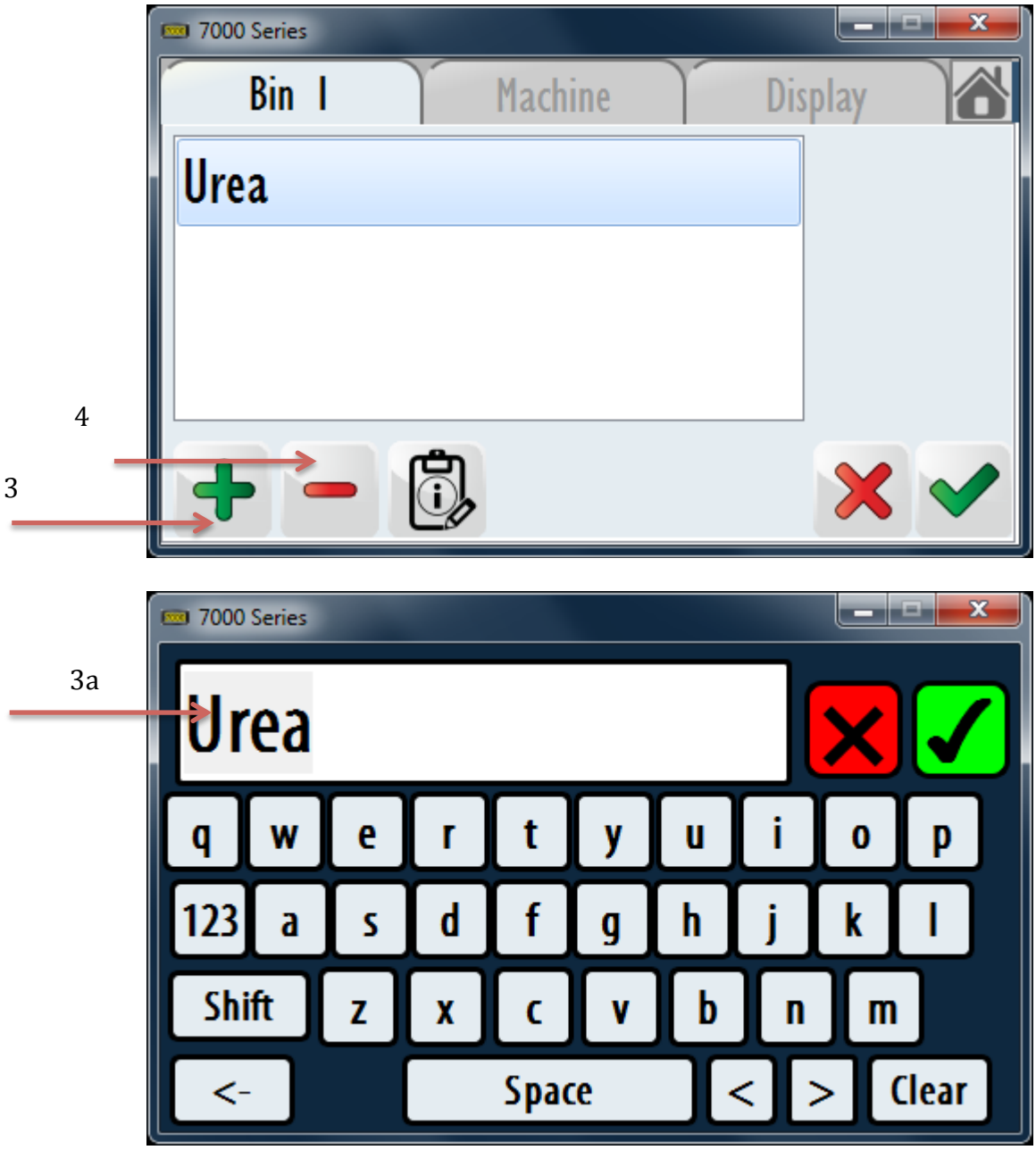
To set the product for a Bin, follow these steps:

1. Navigate into the Tank tab of the Setup Menu **(Settings > Setup > Bin).**
2. Select a Bin in the list on the left to select it.
3. Select the 'Product' button.
4. Select the 'Product' button again.

PRODUCTS (TANK CALIBRATION)

CREATING OR REMOVING A PRODUCT

To create or remove a product, follow these steps:

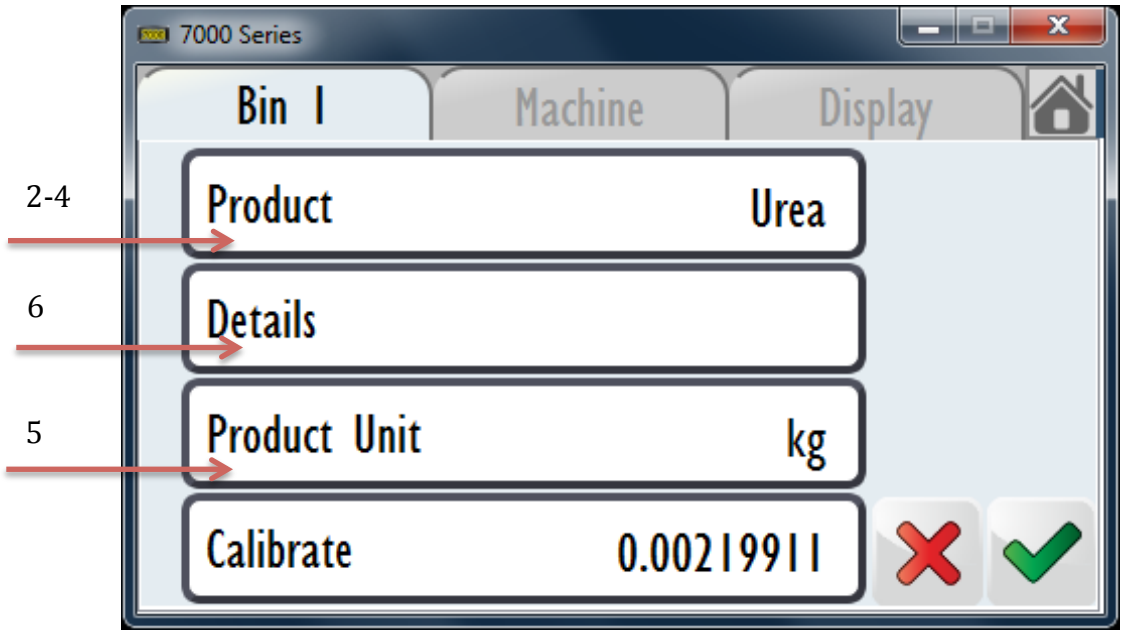


1. Navigate into the Products page **(Settings > Setup > Bin > Product).**
2. Select the '**Product**' button.
3. Select the + button to create a product.
    a. Enter the name of a product.
    b. Select the **Tick**.
4. To remove a product:
    a. Select a product by Selecting on it.
    b. Select the – button.
5. Select the **Tick**.

PRODUCT CALIBRATION

NOTE: When calibrating a product, it will calibrate that product for the specific Bin that it is in. *Make certain that you are in the correct Bin when calibrating the product.*

To calibrate a product for a Bin, follow these steps:



1. Navigate into the '**Bin'** tab of the Setup Menu **(Settings > Setup > Bins)**.

2. Select the Bin you are going to calibrate.
   (NOTE: The calibration will apply for this product in this Bin only, the product in a different Bin will have to be calibrated again).

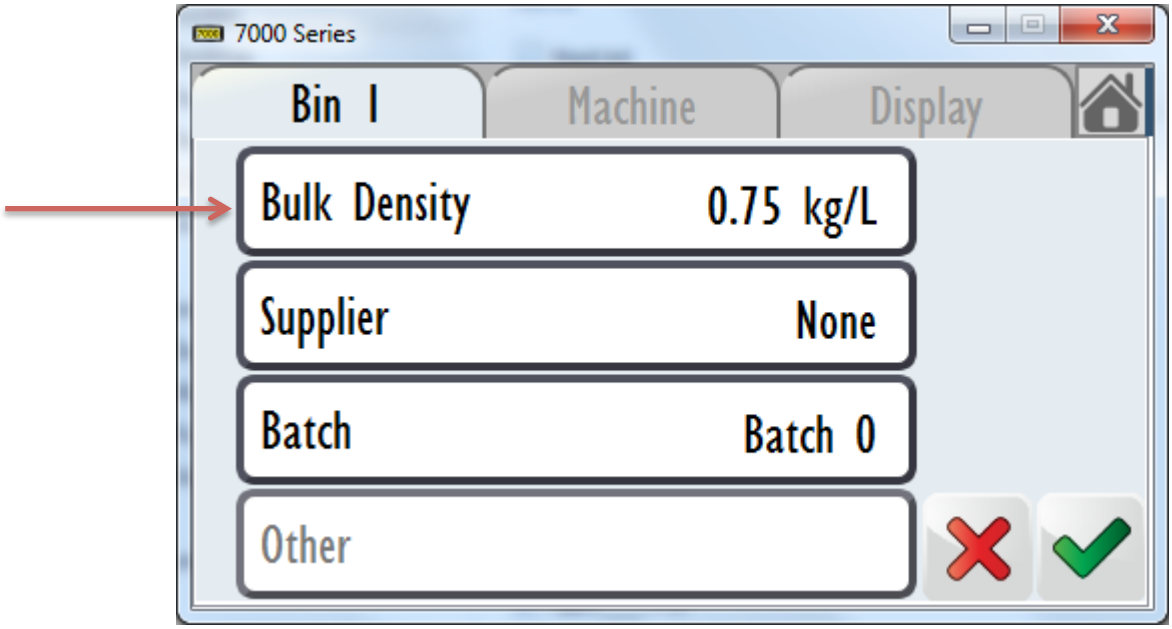
3. Select the '**Product'** button.

4. If the selected Product is not the one you desire to calibrate:
   a. Select the '**Product'** button.
   b. Select a Product out of the list.
   c. Select the '**Tick'** button.

5. Select the Product Unit
   a. Select desired calibration value, ie kg, T or L (Normally kg)
   b. Select the '**Tick'** Button

6. Select the '**Details'** button

CALIBRATION METHOD – BULK DENSITY



To enter the bulk density of the product:

1. Select '**Bulk Density**'
2. Entre the value
3. Press '**Done**'
4. Select '**Tick**'

Determining bulk density

To determine the bulk density of a product:

1. Weigh one litre of product (Example UREA)

If a one litre measuring jug (or similar) is unavailable:

1. Determine the volume (litres) of available container (eg 2-litre ice cream tub)
2. Determine weight of product in level filled container (eg 1.5kg)
3. Divide weight by known volume (eg 1.5kg / 2L = 0.75 kg/L)

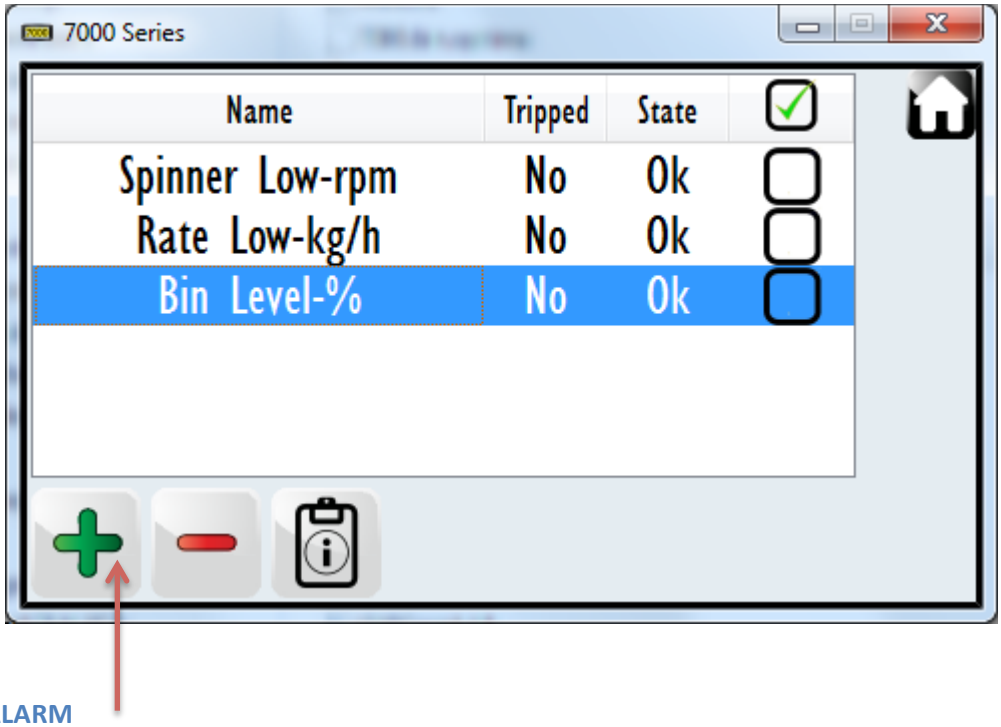
Supplier and batch

Supplier details and batch numbers can be stored if required for Quality Assurance (QA)

2. Select '**Supplier**' or '**Batch**'
3. Enter details
4. Select '**Tick**'
5. Select '**Tick**'

ALARMS

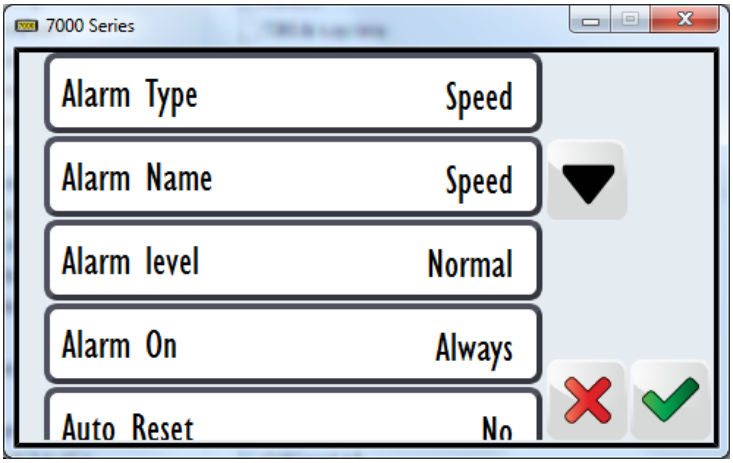
Alarms can be created to give a visual and audible warning to the user or if critical, put the system in "HOLD" mode, when a recordable value (speed, Tank level etc.) exceeds a set limit. The visual indicator is in the form of a highlighted RED tab on the Right hand side of the display and a RED notification on the alarm indicator in the Side Menu.



CREATING AN ALARM

To create an Alarm, follow these steps:

1. Navigate into the Alarm page **(Settings > Alarms)**
2. Select the + button to Navigate to the Alarm setup page.
3. In the Alarm setup page setup the alarm as to your desire.
   (NOTE: The Alarm options are listed below).



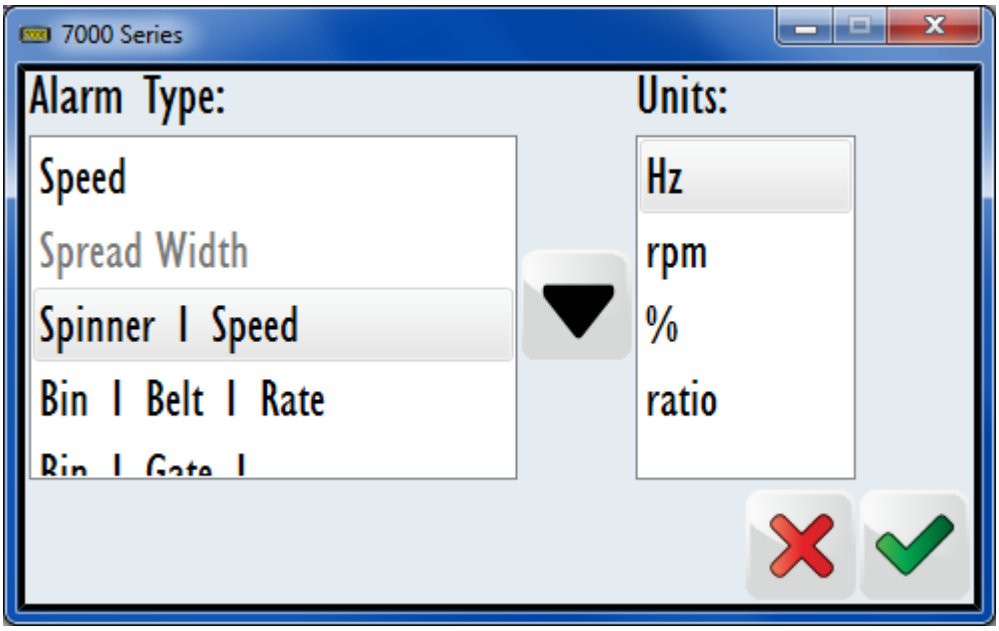
Alarms are available for ALL inputs/Rates/Jobs.

4. Refer to the ALARM Options on the next page before selecting the Tick button

ALARM OPTIONS

An Alarm can be setup with many different options: these are listed and explained here:

1. **Alarm**: Select to go into the value and unit selection page.
    a. Select what value (Speed, Rate, Bin level etc) you wish to alarm.
    b. Once selected choose a unit.



    c. Select the Tick to accept these changes.

2. **Alarm Level** : Select to toggle between '**Normal'** and '**Critical'**
    a. **Normal:** The alarm will run as notification alarm. The system will continue operating but the user will be informed that the typical operating conditions have been breached.
    b. **Critical:** When a critical alarm is triggered, the system will be forced out of run mode into hold mode. These should be considered for safety and also as risk reduction

3. **Alarm On**: Select to toggle between '**Always'** and '**Run only**'
    a. **Always**: The Alarm is always active.
    b. **Run only**: The Alarm will only activate when the implement is running.

4. **Auto Reset**: Select to toggle between '**Yes**' and '**No**'
    a. **Yes:** The Alarm will automatically reset once it is no longer in the 'Alarm' state, the user will not have to select the reset button to reset.
    b. **No:** The Alarm will not reset once it is no longer in the 'Alarm' state, the user will have to select the reset button to reset.

5. **Period**: Select to input a numerical value
    a. Enter a value in seconds for how long the audible warning will sound
    (NOTE: This is only the audible warning, the visual warning will last until reset).

6. **Min**: Select to toggle between '**On**' and '**Off**'
    a. **On:** When the value of the Alarm drops below the given Min Value it will go into the 'Alarm' state.
    b. **Off:** When the value of the Alarm drops below the given Min Value it will not go into the 'Alarm' state.

7. **Min Value**: Select to input a numerical value
    a. Input the minimum value for the Alarm.

8. **Max**: Select to toggle between 'On' and 'Off'
    a. **On:** When the value of the Alarm goes above the given Max Value it will go into the 'Alarm' state.
    b. **Off:** When the value of the Alarm goes above the given Max Value it will not go into the 'Alarm' state.

9. **Max Value**: Select to input a numerical value
    a. Input the maximum value for the Alarm.

ACTIVATE \ DEACTIVATE ALARM

At any stage you can enable/disable the alarm by selecting the row, followed by the green "Tick" box on the right hand side. **(1)**

EDITING AN ALARM

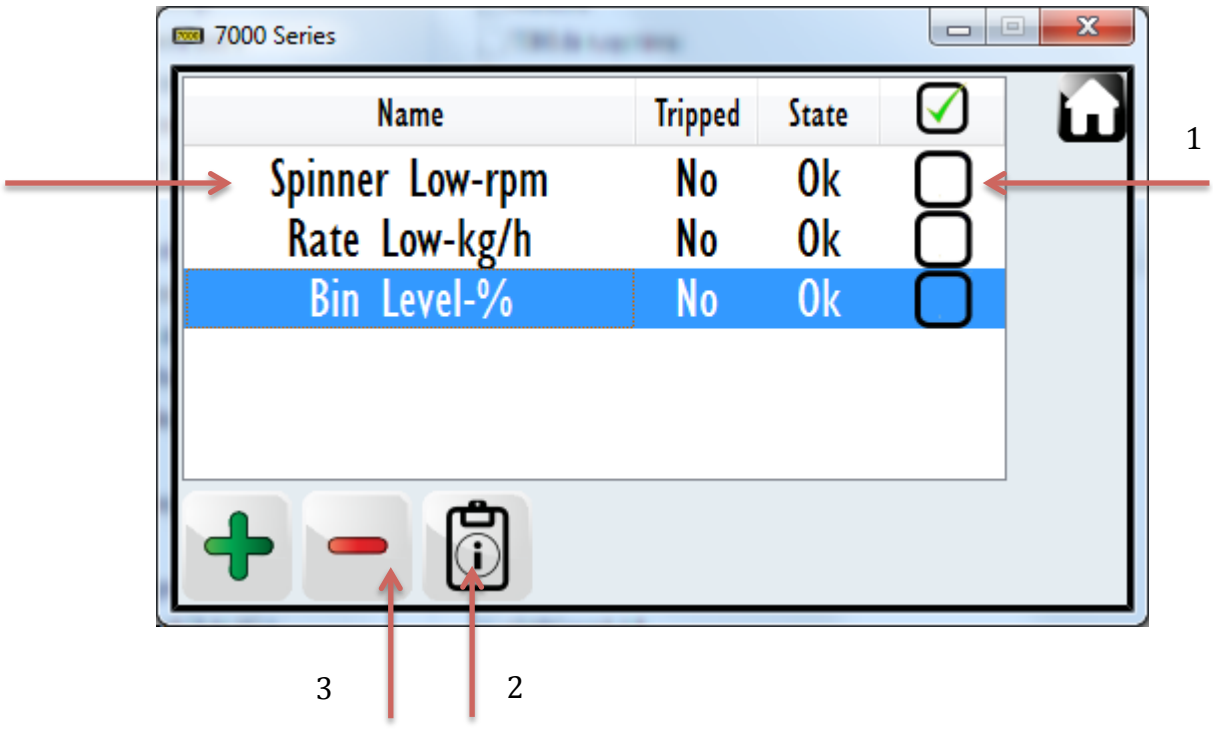
To edit an existing Alarm, follow these steps:

1. Navigate into the Alarm page **(Settings > Alarms)**
2. Select an Alarm in the alarm table to select it **(2)**
   (NOTE: the selected Alarm will highlight blue).
3. Select the 'Edit Alarm' button.
4. Edit the Alarm to your liking (NOTE: The Alarm options are listed above).
5. Select the Tick button.

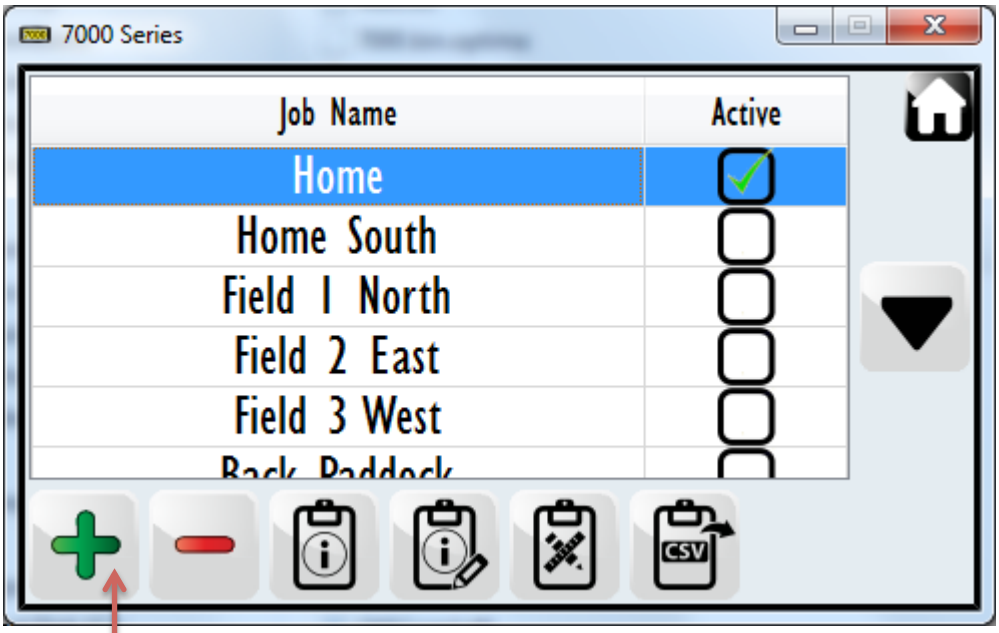
DELETING AN ALARM

To delete an existing Alarm, follow these steps:

1. Navigate into the Alarm page **(Settings > Alarms)**
2. Select an Alarm in the alarm table to select it (NOTE: the selected Alarm will highlight blue).
   Select the – button **(3)** (WARNING: All the Alarm settings will be lost).



JOBS

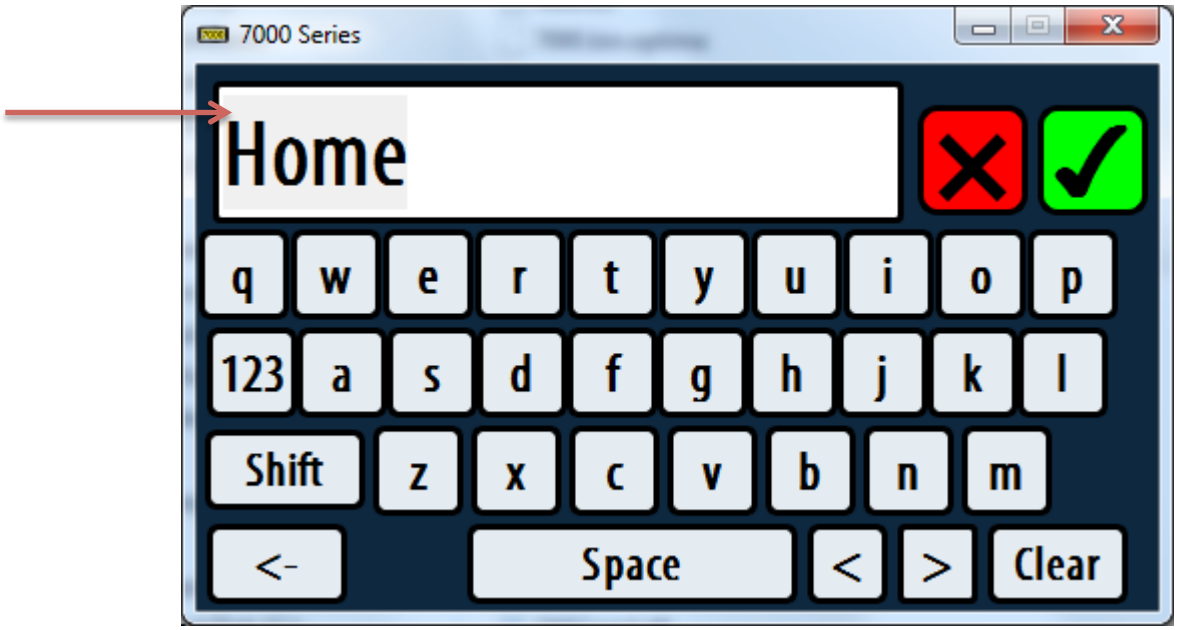


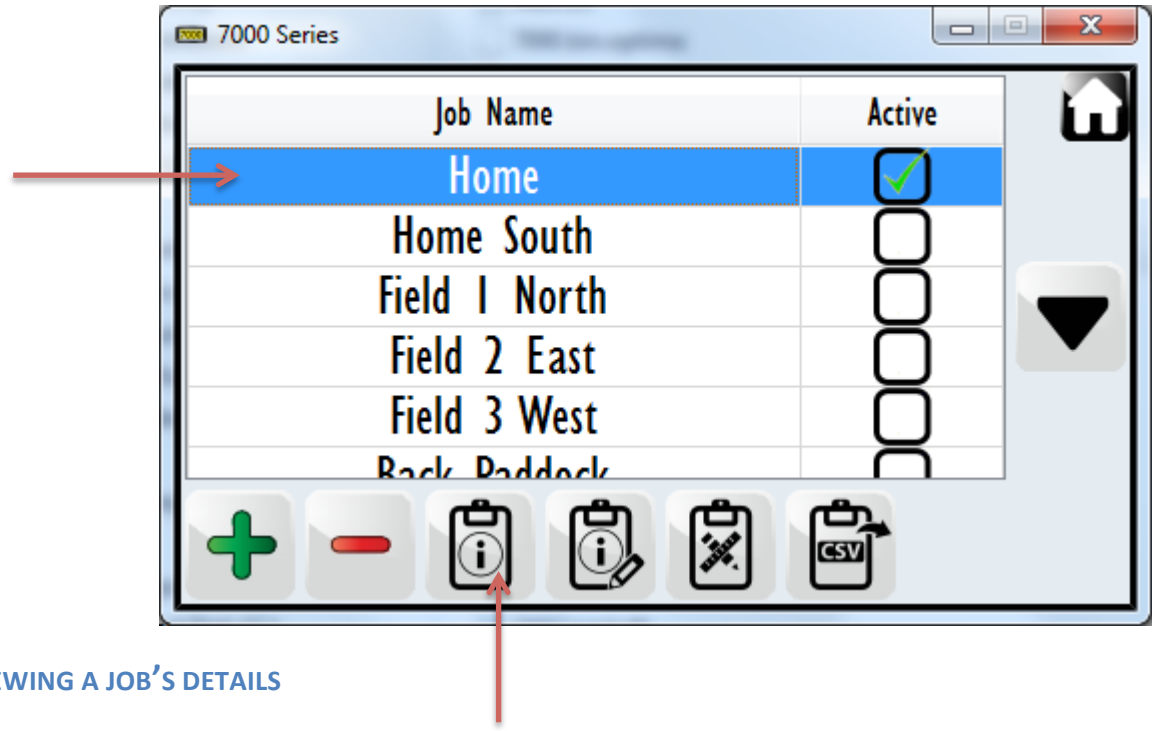
CREATING A JOB

Jobs can be created to record the total and applied duration, distance and area as well as all the applied products.

To create a Job, follow these steps:

1. Navigate into the Job page **(Settings > Jobs).**
2. Click on the + button.
3. Enter your desired Job name.
4. Select the **'Tick'**.

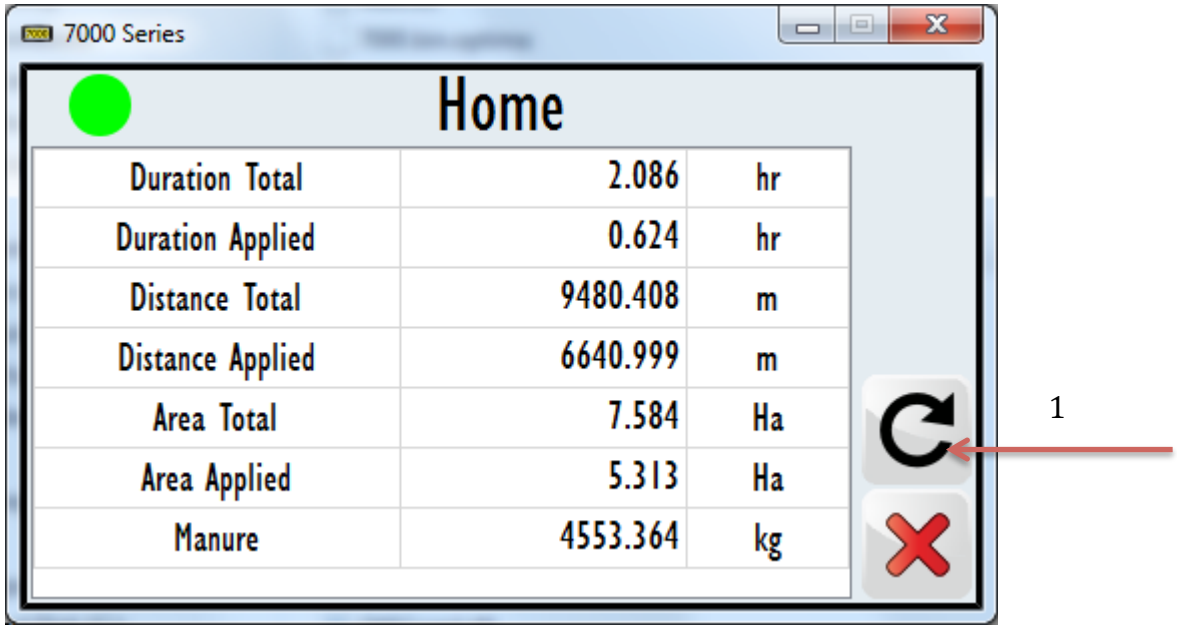




VIEWING A JOB'S DETAILS

To view the details of a Job, such as the total and applied values, follow these steps:

- Navigate into the Job page **(Settings > Jobs).**
- Select on the Job you want to view the details of (it will highlight the Job blue).
- Select on the Job details button.



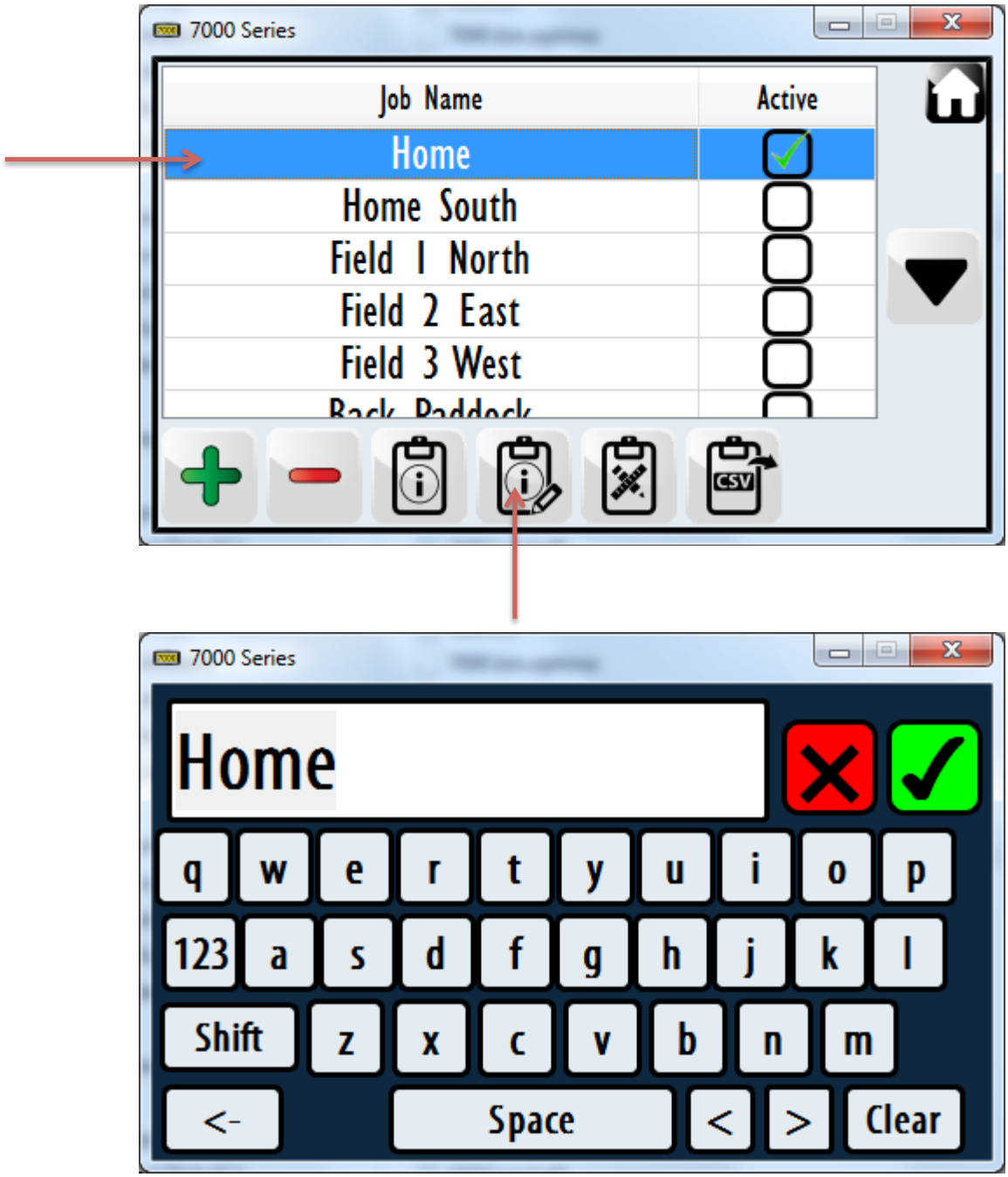
RESETTING JOB DETAILS

You can "Reset" (1) the job details by selecting the **RESET** icon as above. This will "0" all totals.

EDITING A JOB'S NAME

To edit the name of a Job, follow these steps:

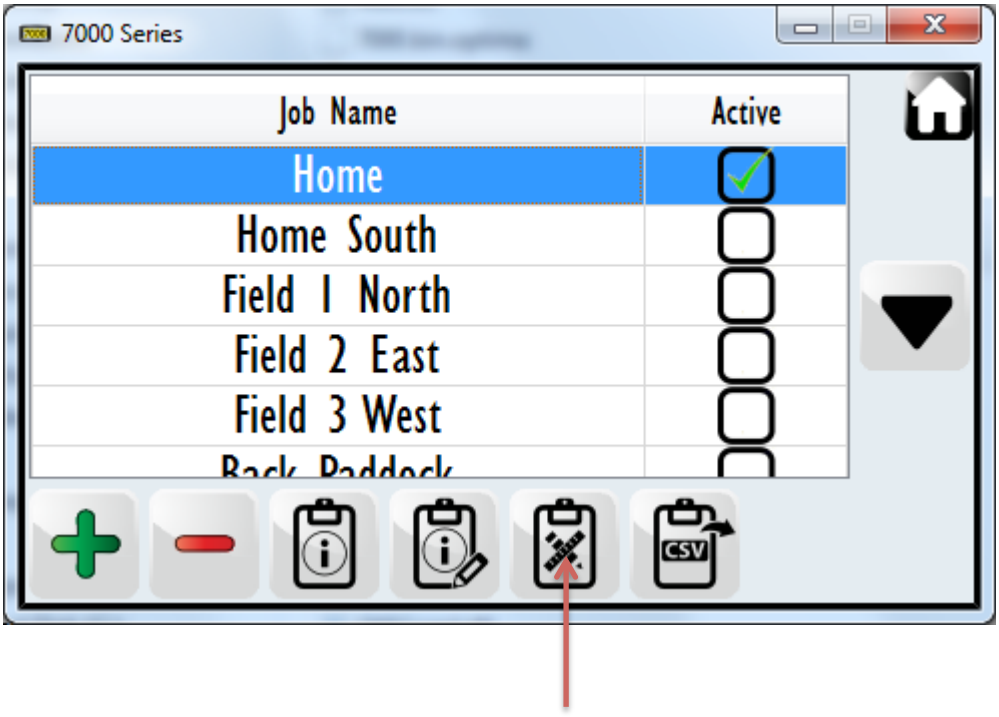
1. Navigate into the Job page **(Settings > Jobs).**
2. Select on the Job you want edit the name of (it will highlight the Job blue).
3. Select the Edit Job Name button.
4. Enter a new name and Select the Tick button.

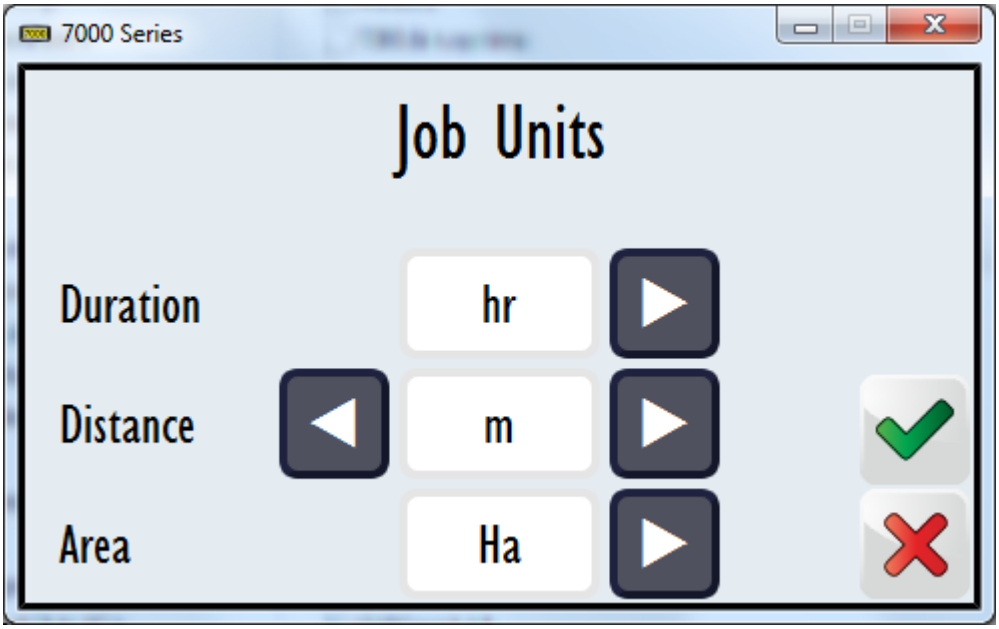


CHANGING JOB DISPLAY UNITS

To change the units that Job details are shown in for all jobs, follow these steps:

1. Navigate into the Job page **(Settings > Jobs).**
2. Select on the Edit Job Units button.
3. Select the <- and -> buttons to change the units used for duration, distance and area.
4. Select the Tick to accept these changes.



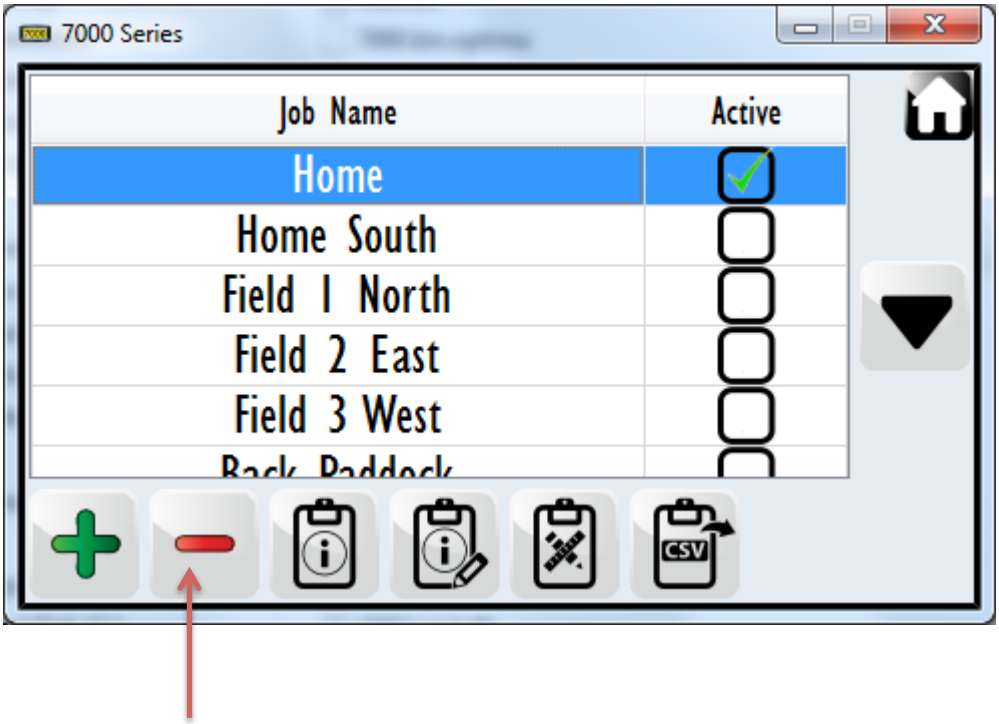


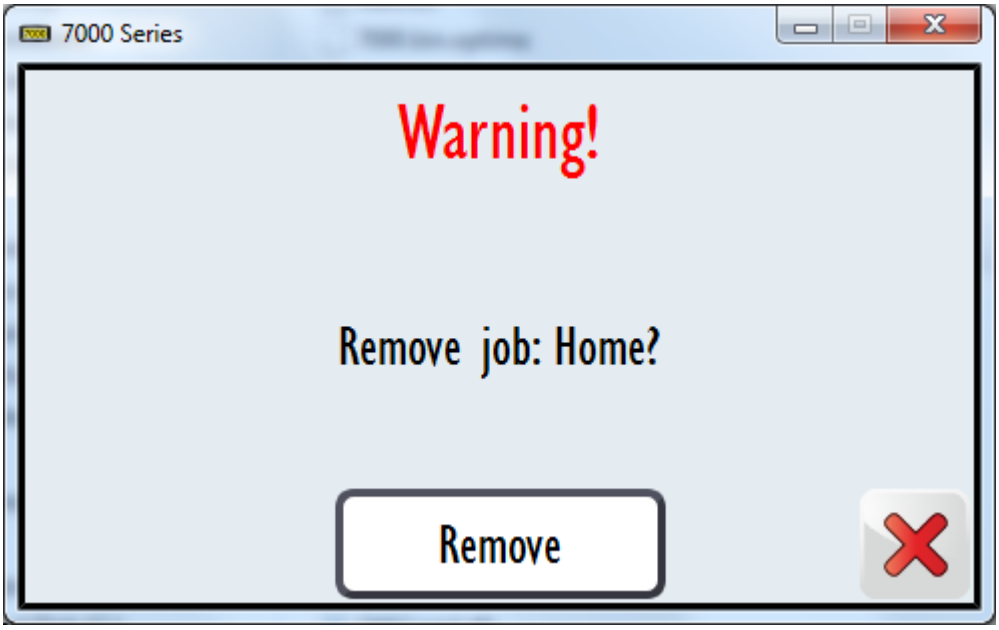
DELETING A JOB

To delete a Job, follow these steps:

1. Navigate into the Job page **(Settings > Jobs).**
2. Select on the Job you want to delete (it will highlight the Job blue).
3. Select on the – button
   (WARNING: You will lose all of the information stored in this Job if you delete it).

Select 'remove' in the warning screen.



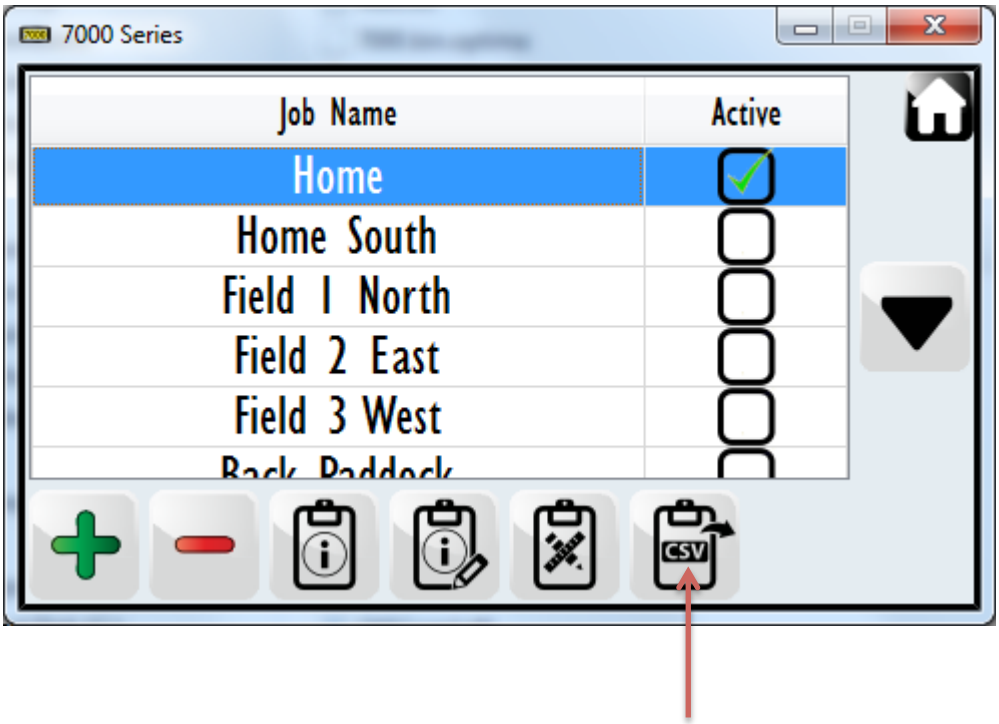


EXPORTING JOBS (CSV)

To Export a Job or Multiple, follow these steps:

1. Navigate into the Job page **(Settings > Jobs).**
2. Insert USB memory sTick in to the AC-7000 in cab harness
3. Select the CSV button.
4. A prompt will determine whether the export was successful.

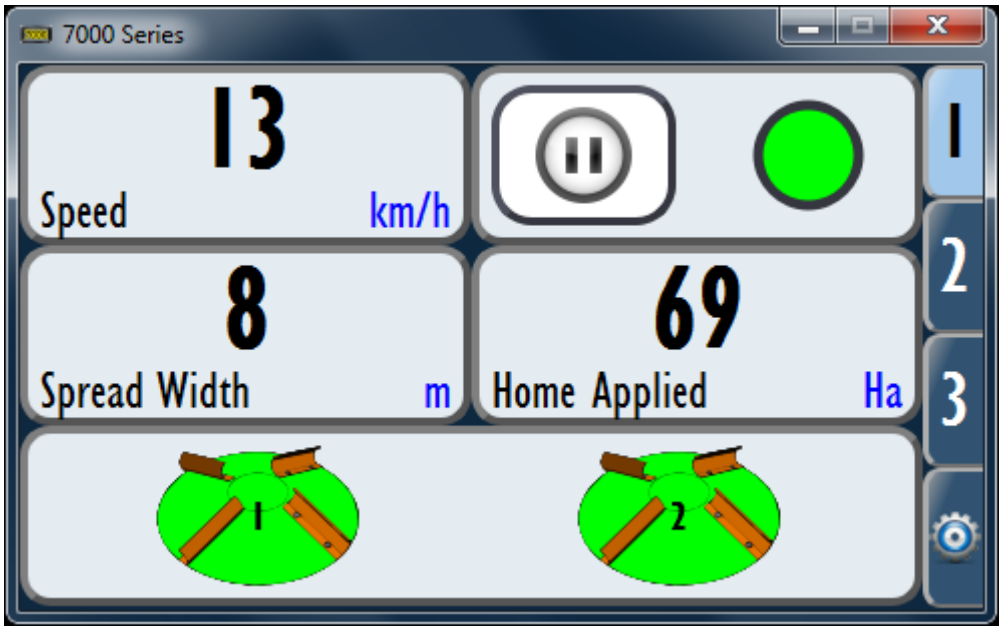
If successful, all job data will now be exported to the USB sTick for viewing in any Farm software that can import a CSV file.



SCREEN & LAYOUT SETUP

FRONT SCREEN | TILES

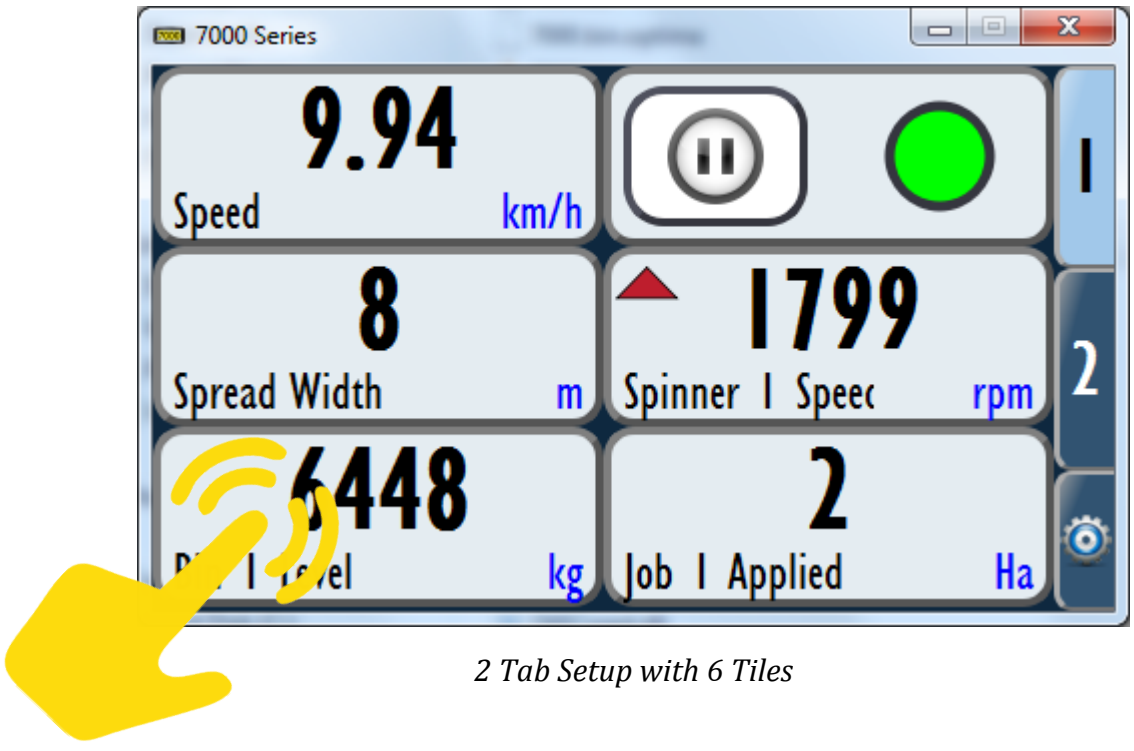
Front screen tiles can be used to display any of the values being recorded or calculated by the system, these include but aren't limited to Speed, Spread Width, Spinner RPM, Coverage etc.



3 Tab Setup with 6 Tiles

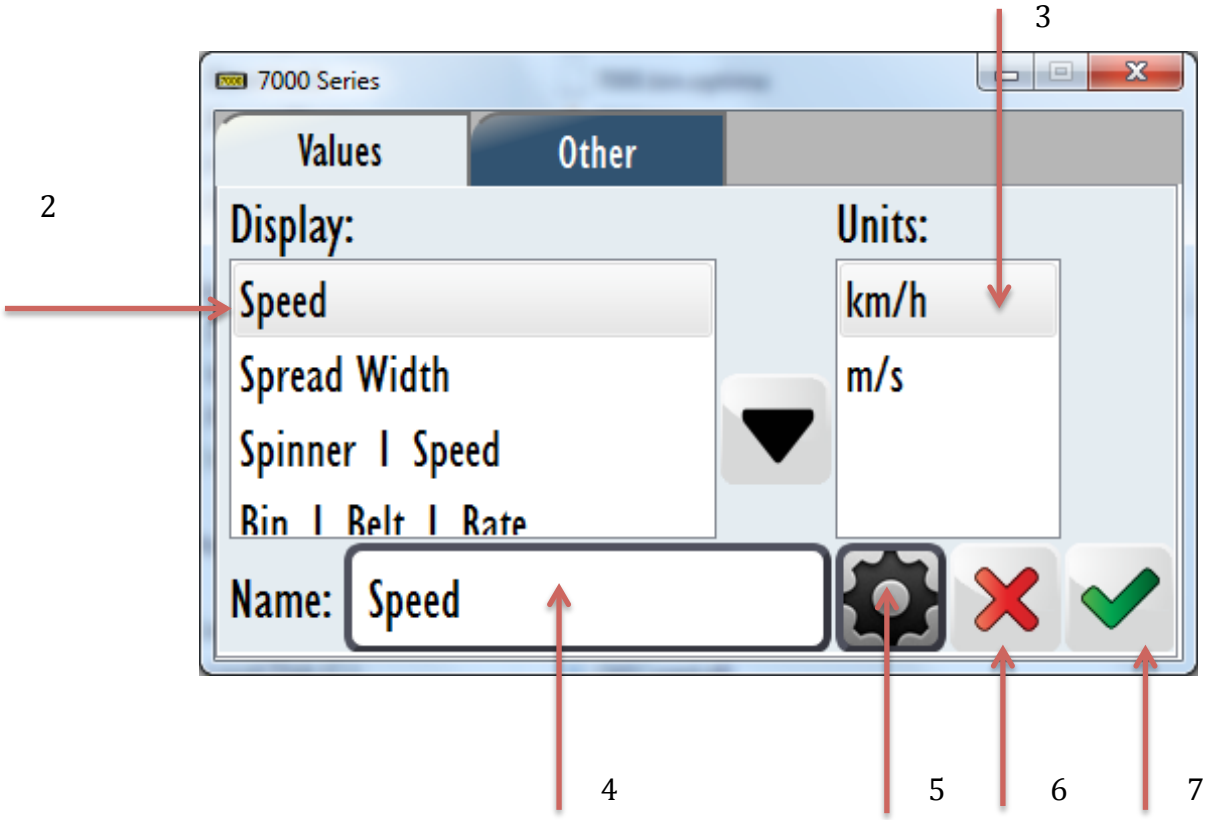
To change what value a tile is displaying follow these steps:

1. Hold finger on the tile you desire to change for ~1 second and release.



2 Tab Setup with 6 Tiles

2. Select what value you wish to display from the display table below by Selecting on the value, the selected value will be highlighted. (Example below would be SPEED)



3. Once you have selected a value select which units you want the value to be shown in from the units table, the selected unit will be highlighted.

4. Give the tile a custom name (if you like) by selecting the Name button (4) and entering the name on the keyboard (Select the Tick once you are done).

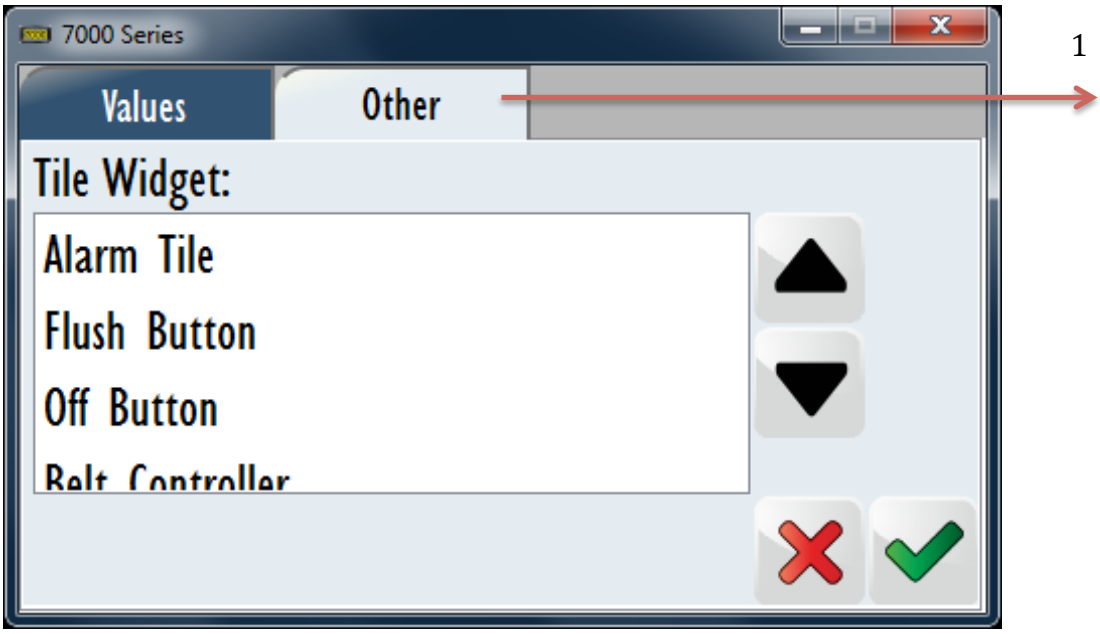
5. Pressing the 'Cog' (5) allows you to set how many decimal places to be displayed and the target point accuracy

6. Select the Tick button (7) to accept these changes and modify the tile or Select the cross button (6) to cancel these changes.

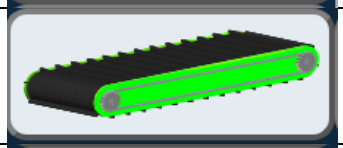
WIDGETS | OTHERS TAB

Tiles can be used to display "Widgets" on individual or joined to multiple tiles for better layout and usage of each screen (Tab). To add an Object tile:

1. Hold finger on the tile you desire to change for ~1 second and release (as described previously) then Select Other (like in the example below)

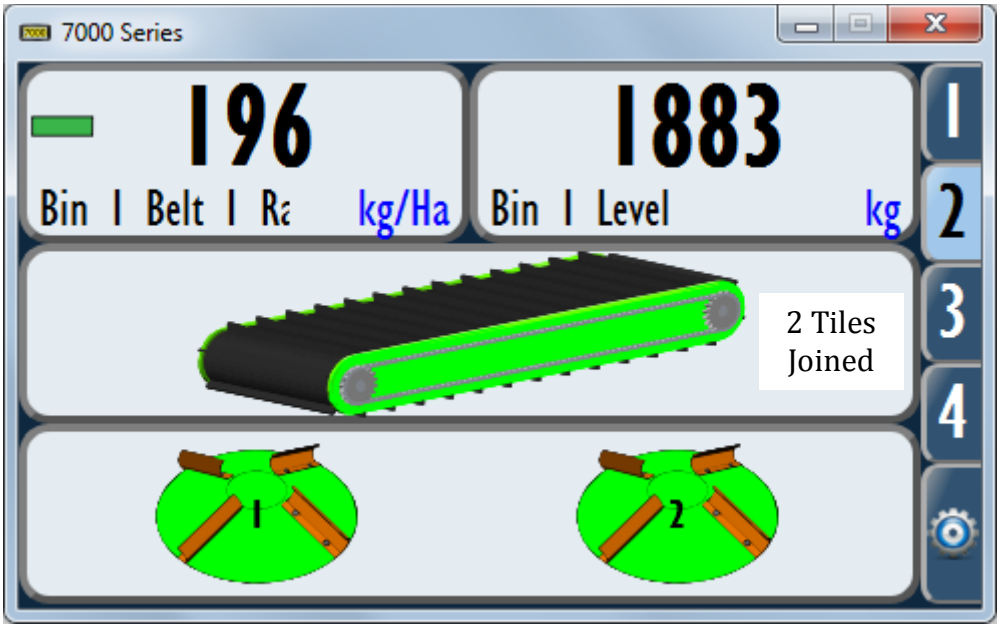


Explanation of Widgets are below :

Run Hold	This is the MASTER Run/hold function. RED/Play = OFF, GREEN/STOP = ON	
Alarm Tile	Displays instant Alarm Notifications for triggered alarms.	
Flush Button	Not Applicable in Spreader Control, however can be used to open EVERYTHING at once.	
Off Button	Displays the "Off" icon, to shutdown the 7000 manually if required.	
Belt Controller	Allows for quick On (Green)/Off (Red) access to belt control	
Spinner Controller	Allows for quick On (Green)/Off (Red) access to Spinner control	
Blank Tile	Allows for blank tile on any page	

MERGING TILES

Tiles can also be joined together (like below) to create bigger tiles for easier viewing of data.



4 Tab Setup with 6 Tiles

In the Example above, the 2 center tiles have both been selected as BELT CONTROLLER

To join tiles together follow these steps:

1. Change a tile to whatever display value and unit you desire (follow previous section's guide).

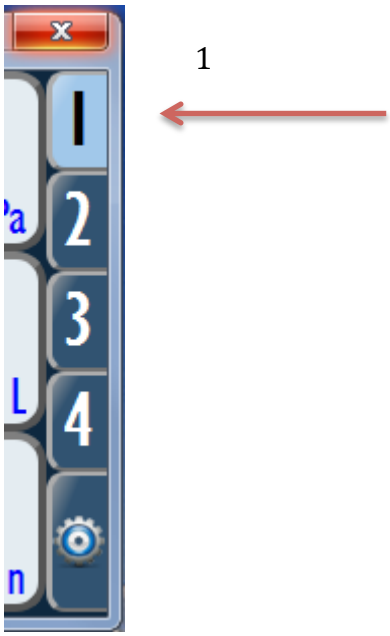
2. Change the adjacent tiles to have the **same display value and unit**
   (NOTE: For adjacent tiles to join they must have the same display value and unit, the name and decimal points does not have to match).

3. Repeat step 2 to join up as many adjacent tiles as you desire
   (NOTE: Tiles can only combine into rectangular or square shapes, they cannot be 'L' shaped).

4. Change the name and decimal places of the bigger tile if you so desire.

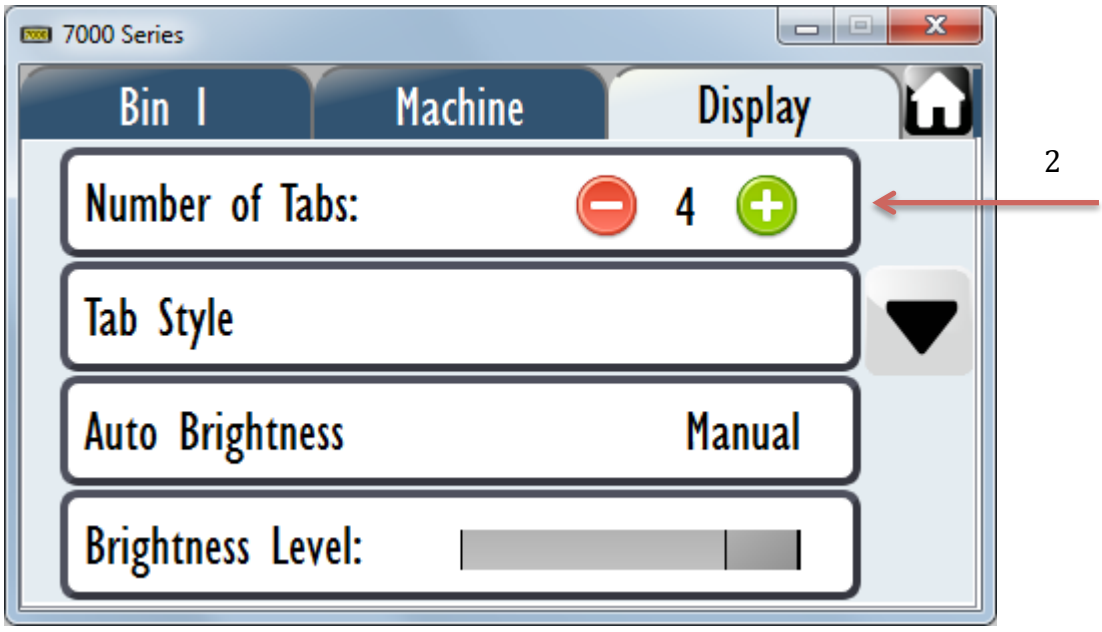
TABS (SCREENS) & TILES

The front screen can have 1, 2, 3 or 4 tabs on it. Each tab can be set up individually to display different information e.g. 4 display tiles, 6 display tiles.



To change the number of tabs on the front screen, follow these steps:

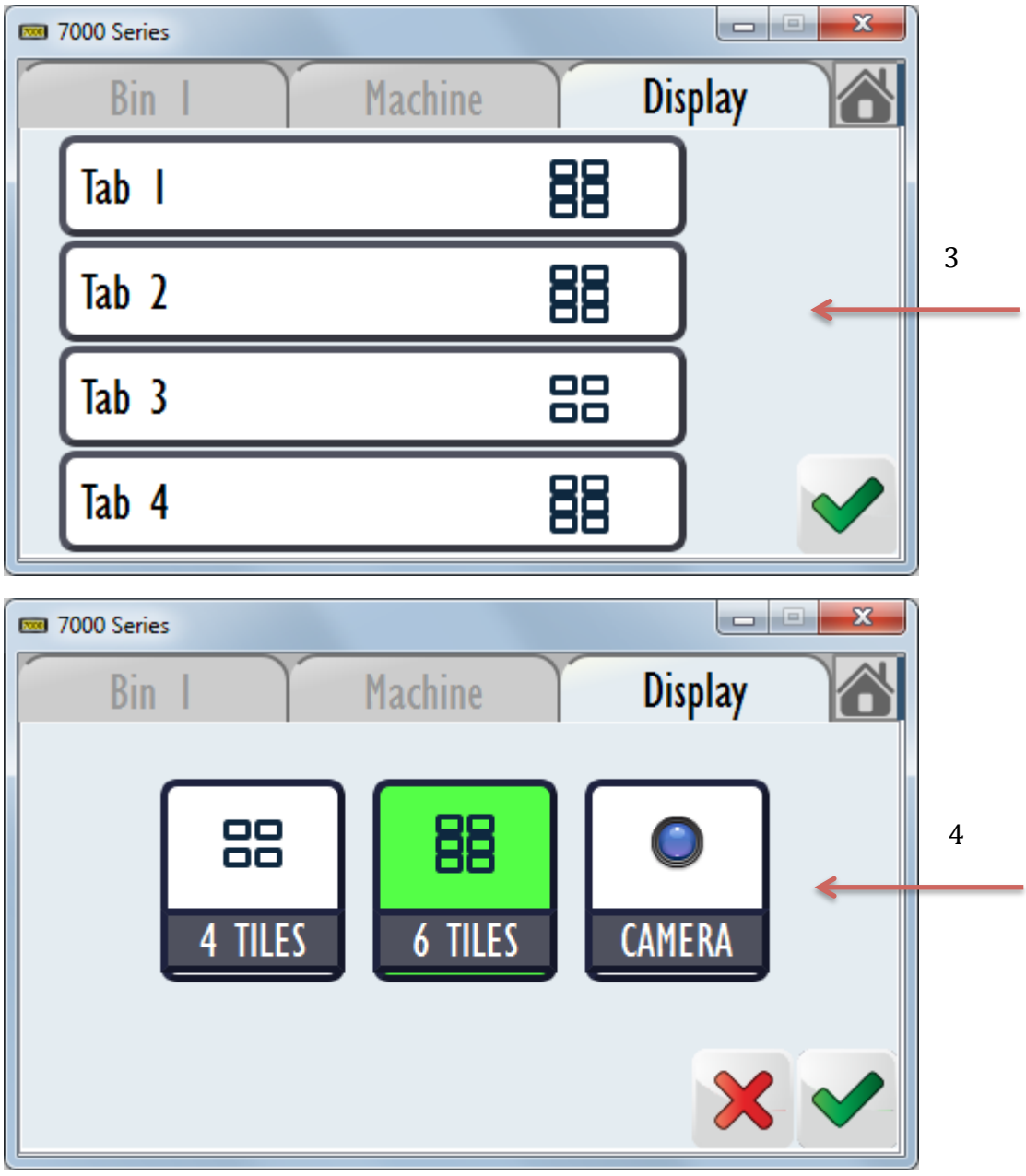
1. Navigate into the Display tab of the Setup menu **(Settings > Setup > Display).**



2. Select the + or – button for the 'Number of Screens' option to change the number of front screen tabs (WARNING: If you remove a tab then any configured tiles will be lost).

To configure the layout or style of each tab is, follow these steps:

1. Navigate into the Display tab of the Setup menu **(Settings > Setup > Display).**
2. Click on the '**Screen Style**' button.
3. Select which Screen (Screen 1/2/3/4) you wish to change and Select that button.
4. Select what screen tile layout or screen configuration (4 tiles, 6 tiles, camera etc).



5. Click the Tick
   (WARNING: If you change a tab screen layout then any display configurations for it will be lost).
6. Click Ok on the warning
   (WARNING: If you change a tab screen layout then any display configurations for it will be lost).
7. Once you have finished changing the Screen layouts click the Tick and exit the Setup menu.

SCREEN BRIGHTNESS (AUTO OR MANUAL)

The brightness of the display screen can be adjusted automatically or by the user.

To change the display screen brightness manually follow these steps:

1. Navigate into the Display tab of the Setup menu **(Settings > Setup > Display).**

2. Adjust the 'Brightness' slider to the left to decrease brightness or adjust the slider to the right to increase brightness.

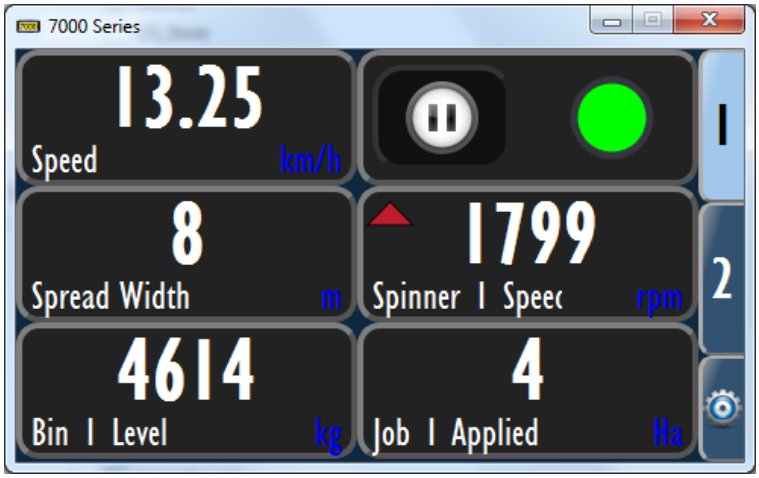
If you prefer, the 7000 has its own brightness indicator to automatically adjust the brightness when external conditions change.

UNIT TYPE

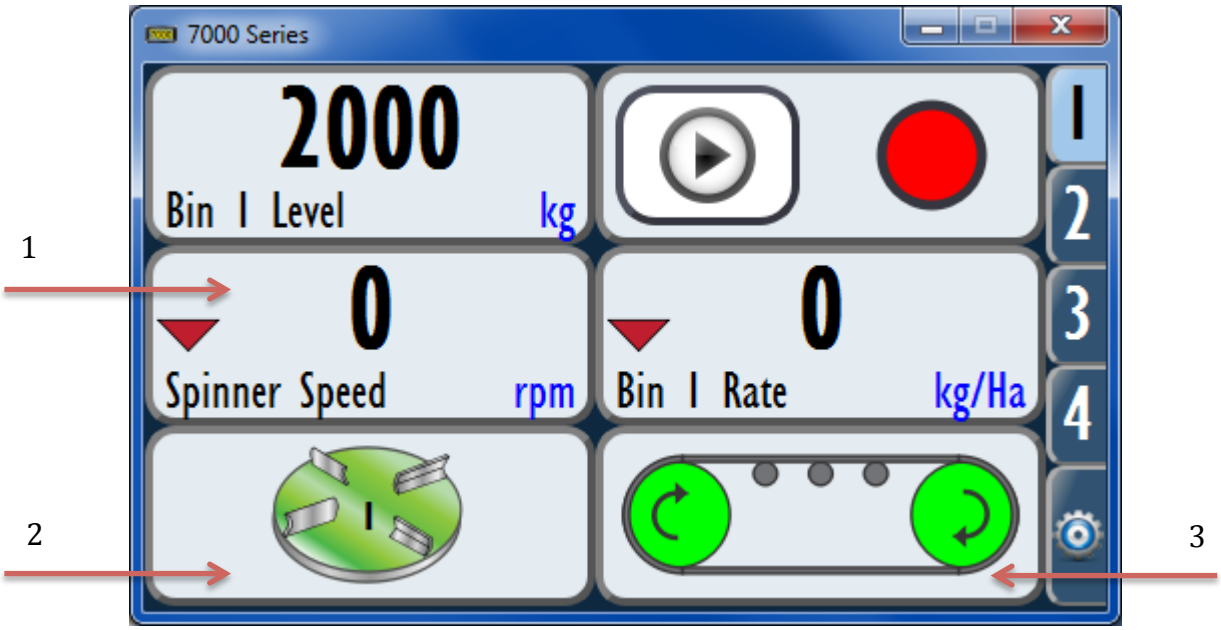
The unit type allows the user to change from **Metric** or **Imperial**.

DAY/NIGHT MODE

This changes the display view of the 7000 for night time or daytime viewing as below.
(WARNING: The 7000 will restart).



FRONT SCREEN CONTROL



SPREADER BELT CONTROL

To setup Spreader Belt Control on the Front Screen tiles, follow these steps (once the sections have been configured from the previous section):

1. Hold finger on the tile you desire to turn into a Spreader Belt control for ~1 second and release.

2. Select the **'Other'** Tab.

3. Select on **'Belt Controller'** from the list.

4. Select the **Tick**.

NOTE: Spreader Control tiles can be joined together to make them bigger just like any other tile.

To turn the Spreader Belt on or off, follow these steps:

1. Select the Spreader Belt Controller button (3).
   a. If the button is red out then the Spreader Belt will be turned OFF.
   b. If the button is green/on (shown) then the Spreader Belt will all operate normally.

SPREADER SPINNER CONTROL

This section is only relevant if Spreader Spinner Control is fitted and enabled

To setup Spreader Spinner control on the Front Screen tiles, follow these steps (once the sections have been configured from the previous section):

1. Hold finger on the tile you desire to turn into a Spreader Spinner Control for ~1 second and release.
2. Select the 'Other' Tab.
3. Select on 'Spinner Controller' from the list.
4. Select the Tick.

NOTE: Spreader Control tiles can be joined together to make them bigger just like any other tile.

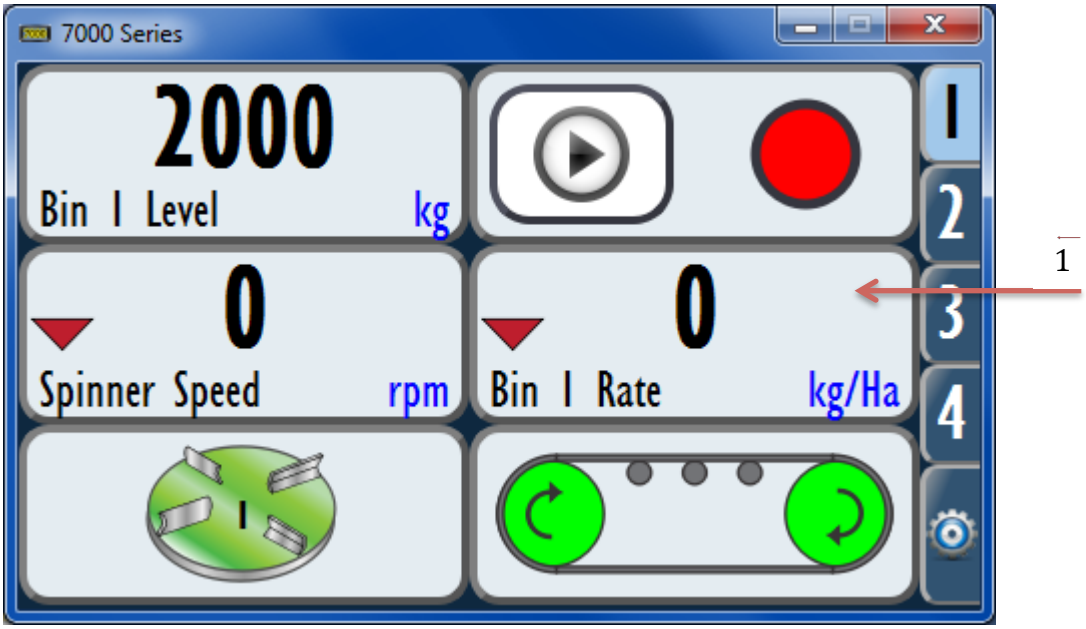
To turn the Spreader Spinners on or off, follow these steps:

2. Select the Spreader Spinner Controller button (2).
   a. If the button is red out then the Spreader Belt will be turned OFF.
   b. If the button is green/on (shown) then the Spreader Spinners will operate normally.

To adjust the speed of the spinners from the Front Screen, follow these steps:

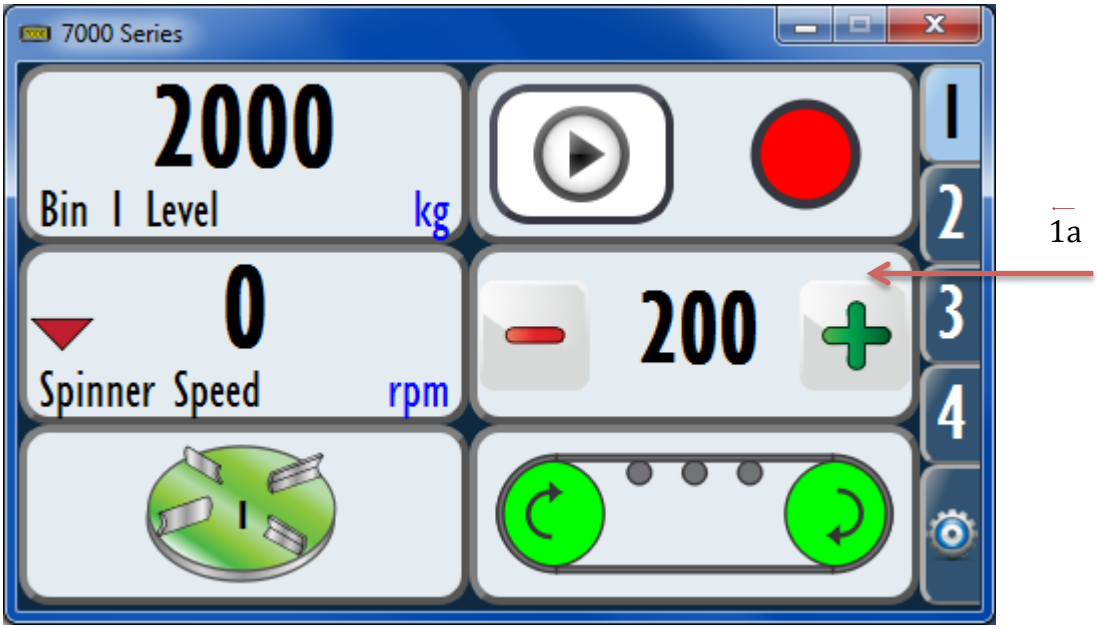
1. If there is no Front Screen Tile showing the value for 'Spinner Speed' then create a tile showing this value (follow directions for setting up Front Screen Tiles).
2. Select the Front Screen tab that contains the 'Spinner Speed' tile (1)
3. Select the tile (1), the tile will now show the desired speed for the Spinners
4. Select the + button to increment the desired speed by the desired speed step ('Step Size' option).
5. Select the – button to decrement the desired speed by the desired speed step ('Step Size' option).
6. Select the tile again to return it to its normal state.

SPREADER APPLICATION RATE



To adjust the application rate for a Bin from the Front Screen, follow these steps:

1. If there is no Front Screen Tile showing the value for 'Bin X Rate' (where X is the number of the Tank you wish to adjust) then create a tile showing this value (follow directions for setting up Front Screen Tiles).
2. Select the Front Screen tab that contains the 'Bin X Rate' tile (where X is the number of the Bin you wish to adjust) (1).
3. Select the tile (1a), the tile will now show the desired application rate for the Bin



4. Select the + button to increment the desired application rate by the desired application rate step ('Step Size' option).
5. Select the – button to decrement the desired application rate by the desired application rate step ('Step Size' option).
6. Select the tile again to return it to its normal state.