

SPRAY CONTROL | 74V1

Total Spray Control



Operators Guide

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

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, trans missive , 480 x 272 pixels 400 cd/m ² max brightness , 400:1 max contrast H ±60°, V ±55° max viewing angle, resistive touch screen
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®

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74V1 SPRAY CONTROLLER

OVERVIEW

The Farmscan Ag Spray controller 74V1 was developed to provide advanced spray control capabilities whilst maintaining an extremely simple **Tile & Tab** 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.

The optional switch box controller incorporates 5 or 10 section control switches, master on/ off control and up/ down rate control.

Spray control kits can be supplied with or without pressure relief, flow control valve and 3, 5 or more section valves.

A large colour LCD touch screen provides all the information required to operate the device in one view including direct readouts for rate, speed, tank level, trip area, trip volume, time and pressure (optional). Special icons & widgets indicate active control options.

Spray records are maintained for virtually an unlimited number of paddocks (memory dependent) in the **Jobs** screen and may be exported in CSV format via USB to a Windows or Apple-based record keeping program.

The controller may be operated in automatic, manual or GPS (Slave/ Task) mode - variable rate map (VRC control via Shape File). In Automatic and Slave mode, the flow control valve responds automatically to speed and pressure variations or partial section shutdown to maintain the target rate. Manual increment and decrement of the target rate is also possible.

In Slave/ Task mode, the controller will accept rate commands from a separate guidance/ task computer linked to GPS and simultaneously report back on rate applied and active sections for the purpose of rate mapping and verification of sprayed area. Some task controllers also allow for Automatic Boom Switching.

In the event of an error, an audible warning alerts the operator by displaying a **red** tile (assuming that this function has been selected on the display) text on a tab which can then be selected to explain the fault.

The 74V1 cab module is connected via CANbus to the flow sensor/ flow control valve and section valves on the sprayer by our UniPOD to provide section controls, a second spray line or dump valve control.

A standard wheel sensor can be supplied for ground speed pickup or a radar speed sensor may be connected using the inbuilt radar interface. Alternatively, a GPS can also be used to provide ground speed.

PARTS LIST

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 (2 Pin Deutsch Style)
	1	Installed onto 7000	Sprayer Software



**** Item D** (CANbus Terminator) – Normally this will have an extension cable connected to this port that runs down to the UniPOD or a “Y” style cable for the Smart switch.

The CANbus terminator will then plug into the harness at the UniPOD end. – **CANbus OUT**

Included in the UniPOD kit:

Qty	Part Number	Description
1	A-UniPOD-Sprayer	UniPOD with Sprayer Software
1	AC-740X or OEM specific part number may apply	UniPOD to Sprayer Sensor Harness.
1	AC-7701	FET Power Terminator (Plugs into Power Relay on UniPOD harness) – This allows the UniPOD to power up only when the monitor is on. (2 Pin Deutsch Style)



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

Smart Switch (optional):

Qty	Part Number	Description
X	7000SS-SPR	Smart Switch with Splitter cable



INSTALLATION OF TERMINAL – SMART SWITCH - UNIPOD

CHOOSING A SCREEN LOCATION

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

Find a suitable place to mount the RAM base (AH-7000). This prevents the controller from swivelling 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 74V1 terminal as described below:

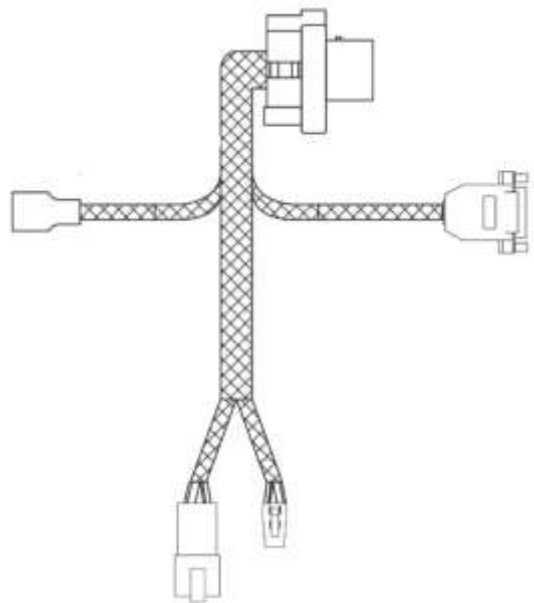
NOTE: A size 4 Allen key is required to attach the mounting plate & RAM mount.

1. Thread the AC-7000 (PLUG end) through the rear RAM mounting plate.
2. Insert plug to the rear of the 74V1 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.



Note the orientation of cable guide on rear plate.

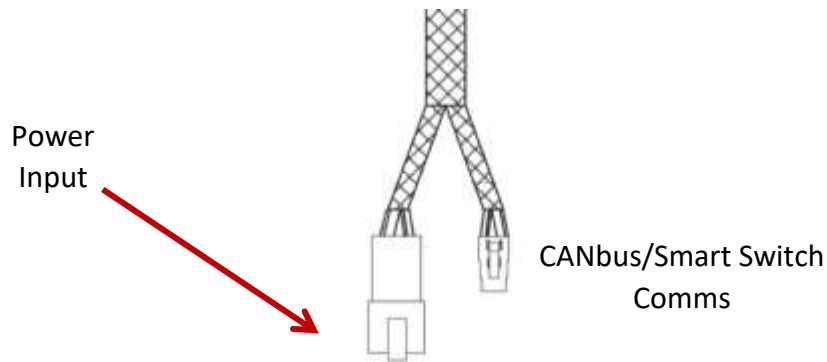
7000 Monitor with RAM Mount & AC-7000 Harness



AC-7000 Cab Harness

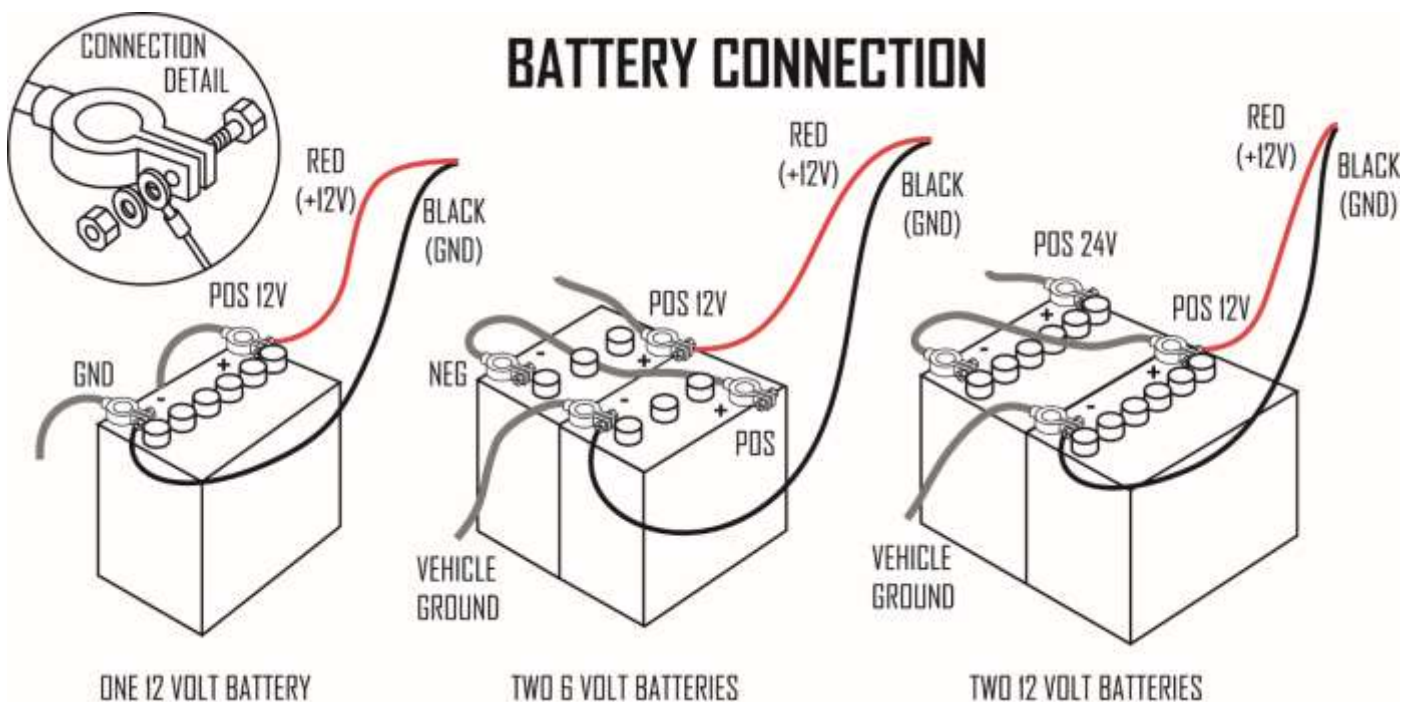
CONNECTION TO POWER

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



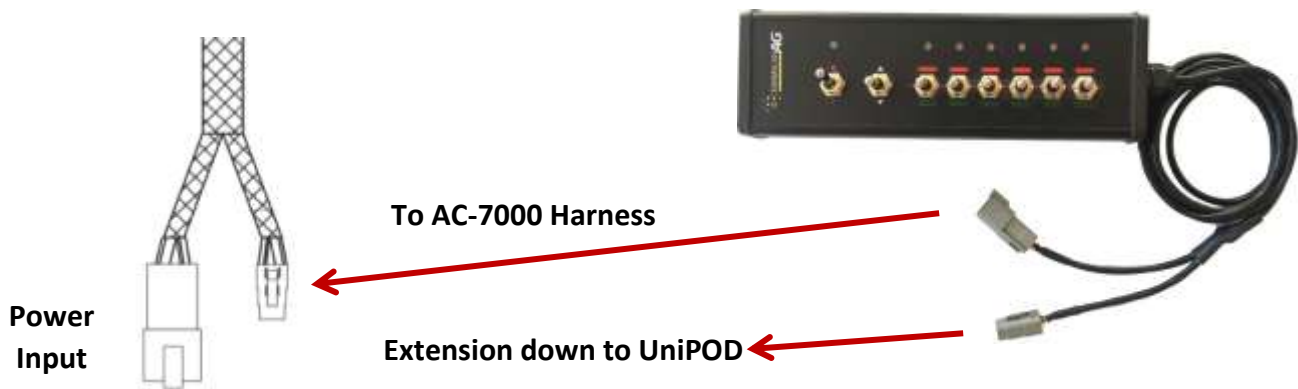
Follow the guidelines below when connecting to power:

- 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 SMART SWITCH & UNIPOD

Located on the AC-7000 harness is a 4-way (Female) Deutsch style plug, used for CANbus communications to the Smart Switch & UniPOD



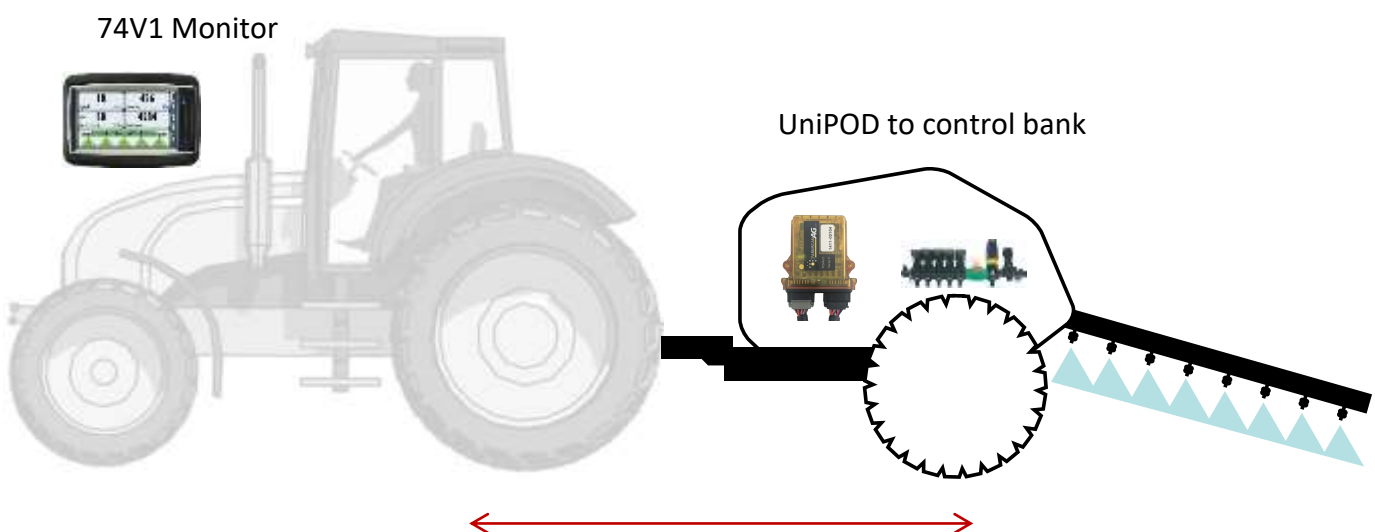
Connect the inline “Y” cable from the Smart Switch into the CANBus IN on the harness as shown above. The other end will connect to an extension cable down to the UniPOD on the implement.

RUNNING THE CABLES

From the CANbus IN/OUT on the AC-7000 cab harness or Smart Switch “Y”, run the main CANbus Extension (AC-2012-XX) to the rear of the tractor and connect into CANbus IN connector on the AC-740X harness connected to the UniPOD.

NOTE: Extra CANbus extension cables are available to purchase for connection between tractor and UniPOD on the implement.

NOTE: 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.



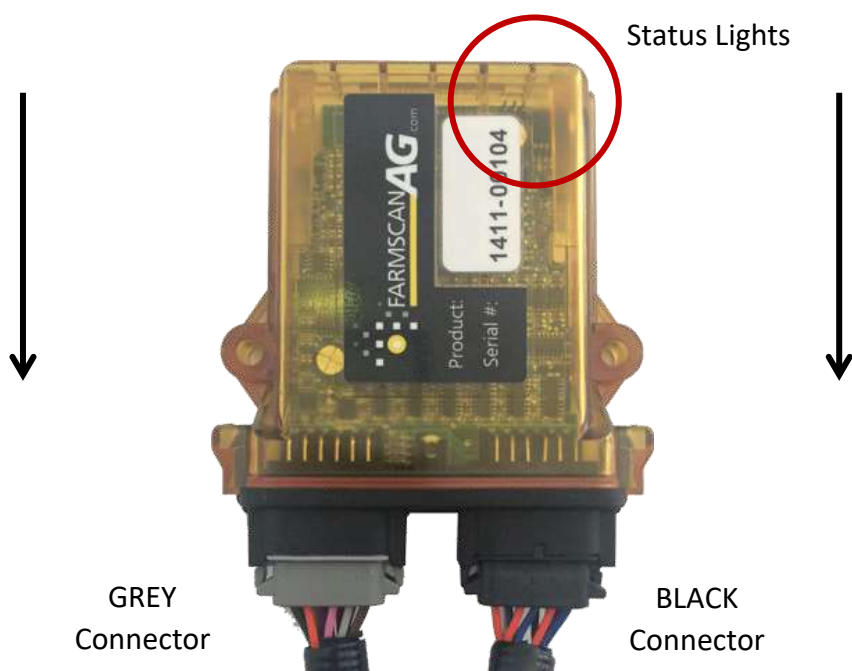
Run CANbus cable from Monitor to UniPOD.

Extensions cables are available for purchase.

MOUNTING THE UNIPOD

A UniPOD (ECU) & sensor adapter harness (AC-740X) is supplied with all systems to provide connection points for sensors.

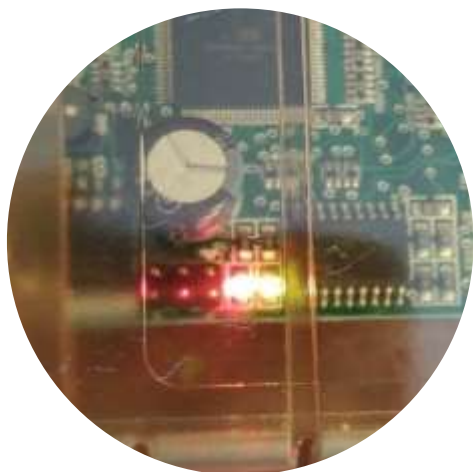
- Ensure the UniPOD is mounted as per example below.
- Ensure that all cabling leaving the UniPOD faces downwards, so as to prevent water entering the UniPOD or connections.
- It is recommended, if possible, to mount the UniPOD in a position sheltered from the weather.



Refer to [Page 100](#) for UniPOD Pinouts

UNIPOD STATUS LIGHTS

The UniPOD has two (2) status indicator lights located at 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

INSTALLATION (SENSORS)

WHEEL SENSOR FOR GROUND SPEED

(Farmscan Ag Part # 1007P Kit)

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 sprayer. The magnet activates the sensor as it sweeps past.

The spray controller requires at least one wheel pulse per second from the sensor.

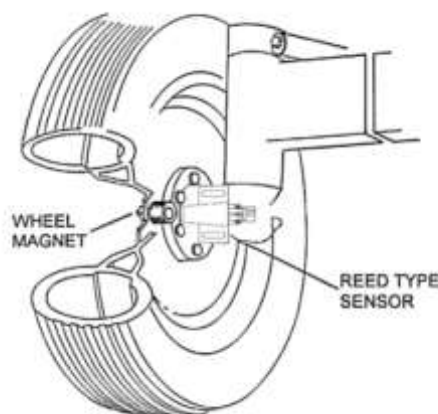
NOTES:

- In circumstances where an extremely large wheel is working at slow speeds (less than 5kph), additional wheel magnets may be fitted at equal spacing's.
- Any sprayers that do not have a non-driven ground wheel can use a GPS speed sensor as an alternative.

WHEEL SENSOR INSTALLATION PROCEDURE

To install wheel sensor:

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 centre 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 sprayer loom connector marked 'wheel'. **(Farmscan Ag Part # 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

(Farmscan Ag Part # T-185)

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

An optional GPS Sensor kit is available or if you have existing GPS system that can output NMEA strings this can be used also. The following NMEA Strings are required if you choose to use your own GPS:

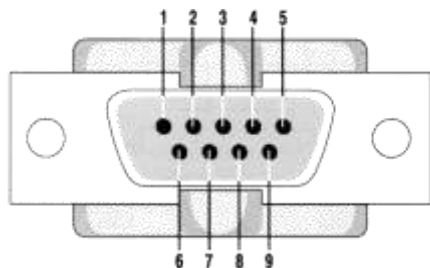
NMEA Strings: GPVTG, GPGGA, GPRMC

Baud Rate: 19200 kbps

Rate: 5 Hz (Minimum)

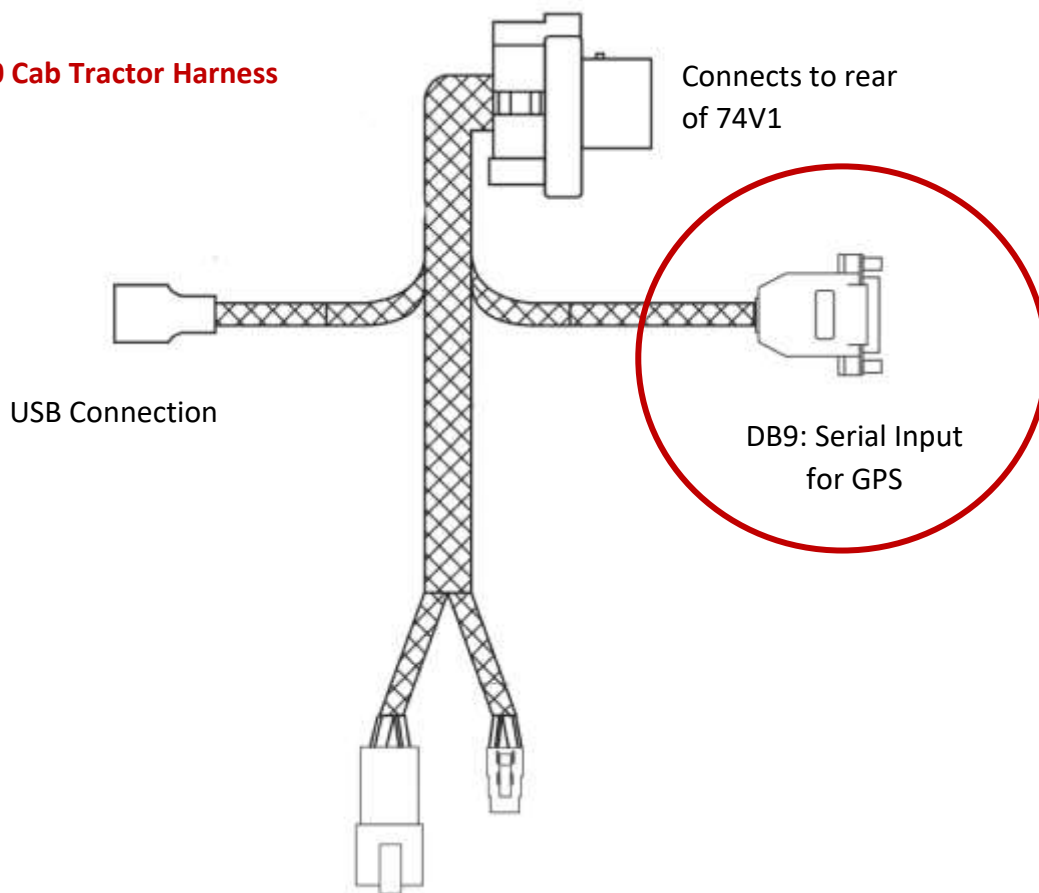
A DB9 serial connector is located on the AC-7000 loom for GPS input.

Pin outs used are as follows: Pin 2 (RX) Pin 3 (TX) Pin 5 (GROUND)



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 Cab Tractor Harness



CONTROL BANK INSTALLATION

3 & 5 SECTION KITS

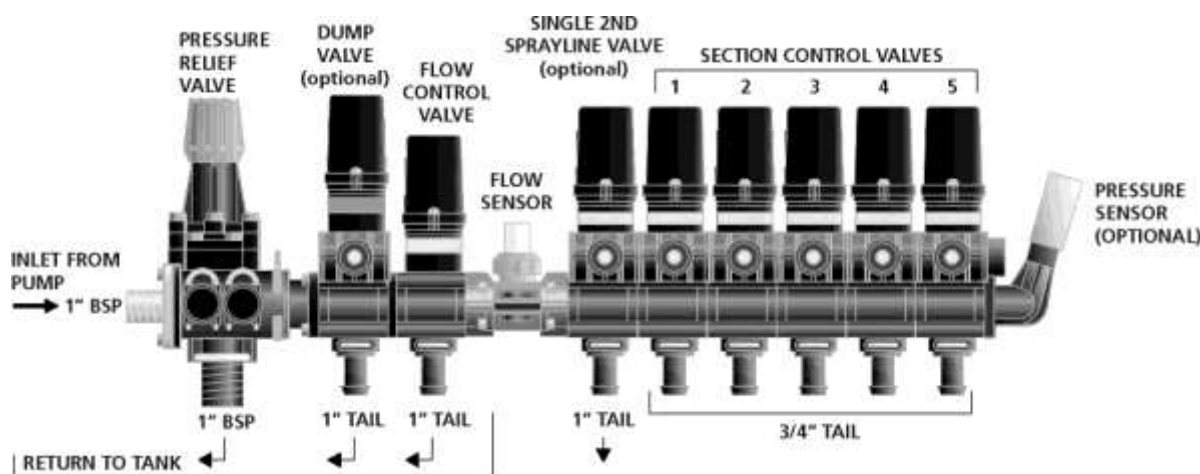
The Farmscan Ag standard 3 and 5 section spray controller kit can be supplied with a pre-assembled control bank that includes: pressure relief valve, proportional control valve, flow sensor and section control valves ready to install on boom sprayers and low volume orchard/vineyard sprayers.

AA-74V1/3 Valve Bank Kit 3 Section Complete.

AA-74V1/5 Valve Bank Kit 5 Section Complete.

The optional dump valve and second spray line valve/s (**AH-602/G**) will be included in the control bank if **ordered** with the original equipment, otherwise the control bank will need to be disassembled and fitted with longer threaded rods and bolts to accommodate any optional extra valves.

The control bank must be installed on the sprayer in an upright position as shown in the diagram, or undercover if mounted any other way. Mounting brackets on the control bank may be relocated as necessary.



NOTE: Alternative hose tails or threaded outlets are available separately.

Section/Dump Hose tail Outlet Options: **Section/Dump Only Threaded Outlet Options:**

AH-628 ½" Hose tail
 AH-629 ¾" Hose tail
 AH-630 1" Hose tail

AH-620 ¾" BSP male outlet

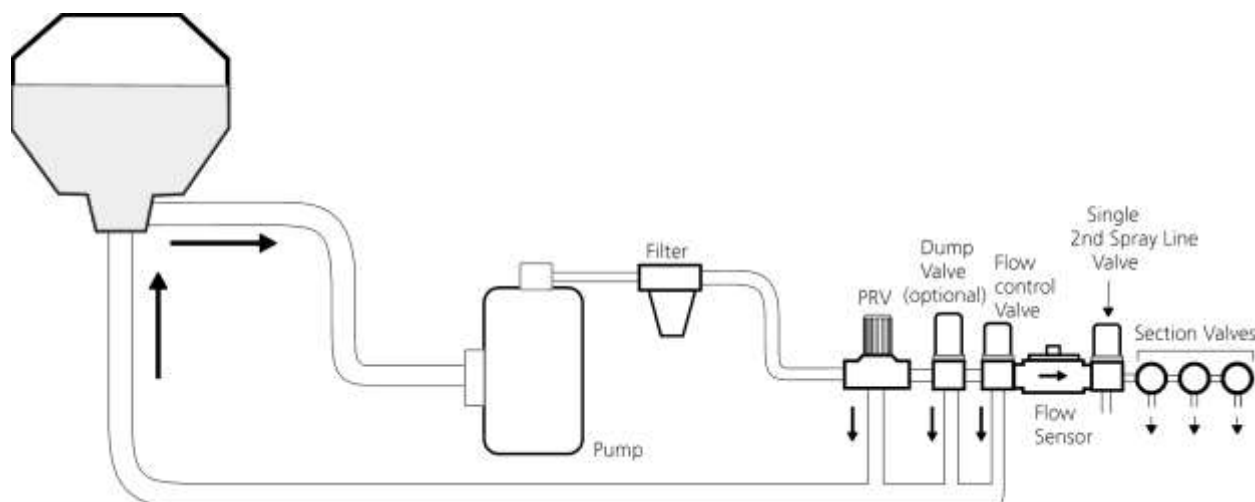
The 74V1 is designed to work with almost any spray valve on the market today. If you do not wish to use our preferred option please contact us for compatibility. Valve adapters maybe required.

CONTROL OPTIONS

BYPASS CONTROL

The flow control valve regulates a proportion of material back to the tank, thereby controlling the volume of material delivered to the section controls.

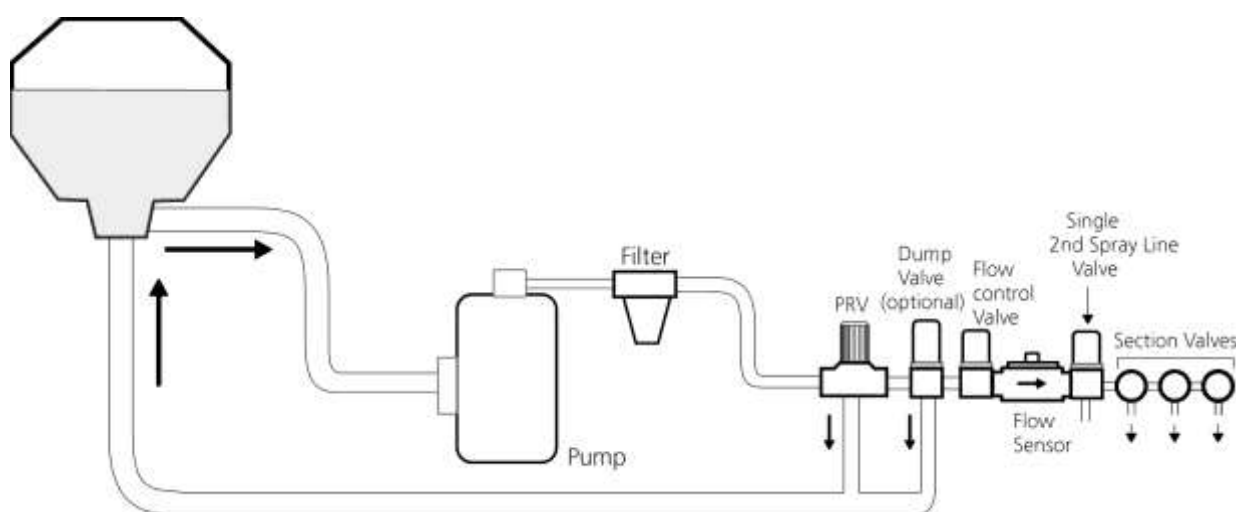
NOTE: Suitable for broad acre boom sprays and high volume air blast sprayers.



DIRECT CONTROL

Used to throttle (restrict) the main delivery line thereby regulating the volume of material delivered to the section controls.

NOTE: Suitable for ultra-low volume applications from 1 L/min – 80L/min.



EXPLANATION OF COMPONENTS

PRESSURE RELIEF VALVE (PRV)

(Farmscan Ag Part # AH-608/G)

The PRV is essential for safe and accurate operation of a positive displacement pump. The PRV is used to set the maximum pressure available to the flow control valve and protects the system by relieving excess pressure back to tank when the section controls are switched off.

NOTE: Failure to use a PRV in a spray system using a positive displacement pump may result in pump damage.



FLOW CONTROL VALVE

(Farmscan Ag Part # AH-600/G)

The spray controller is designed to operate a DC motorised flow control valve fitted downstream of the PRV, operating using either proportional or direct flow control to regulate the main delivery line feeding the flow sensor and section control valves.



FLOW SENSOR

(Farmscan Ag Part # AA-230/A | 10-100L/min)

The flow sensor provides continuous feedback to the spray controller, which regulates the flow control valve to maintain the required volume of liquid delivered to the section valves.



NOTES:

- All liquid delivered through the flow sensor must go to the section control valves only, i.e. no return line back to tank or pump can be installed in front of the flow sensor.
- The sprayer must operate within the minimum and maximum operating range of the flow sensor, otherwise erratic and/ or inaccurate control may result.
- Check required minimum and maximum flow rate BEFORE installing the equipment.

Alternative flow sensors are available.

Flow rate calculation:
$$\frac{\text{Rate (L/Ha)} \times \text{Speed (km/h)} \times \text{Width (Metres)}}{600} = \text{L/Min}$$

Example:
$$\frac{50\text{L/Ha} \times 12 \text{ Kph} \times 12\text{m}}{600} = 12\text{L/min}$$

SECTION VALVES

(Farmscan Ag Part # AH-602/G)

The section valves are controlled by the on-screen widget or smart switch box switches to provide partial or complete shutdown of the spray boom sections.

3 wire motorised valves: +12V = Red, Black = Negative, Colour = Trigger

2 wire solenoid valves: +12V = Unused, Black = Negative, Colour = Trigger

NOTE: 2 wire motorised section valves require an inline adapter (**Farmscan Ag Part Number # A-2091**) to reverse the polarity when switching from 'on' to 'off'.



SECOND SPRAY LINE (OPTIONAL)

A second spray line is activated automatically when the first spray line reaches a pre-set maximum pressure or speed, thereby allowing greater flexibility in working speeds and additional capacity to change rates on the go.

The second spray line can be activated at a pre-set speed (equivalent to the first spray line reaching maximum pressure), when using the optional pressure sensor, the second spray line is activated at a pre-set pressure or by flow (refer to the maximum litres/min your nozzles can maintain)

Using pressure activation (e.g. 300kpa/43psi) avoids the need to change the set activation point when changing rates.

When using speed-based activation, the second spray line must be fitted with the same size nozzles as the first spray line. Choose nozzles suitable to achieve target rates at lower working speeds then allow double the maximum speed or rate to calculate the full operating range.

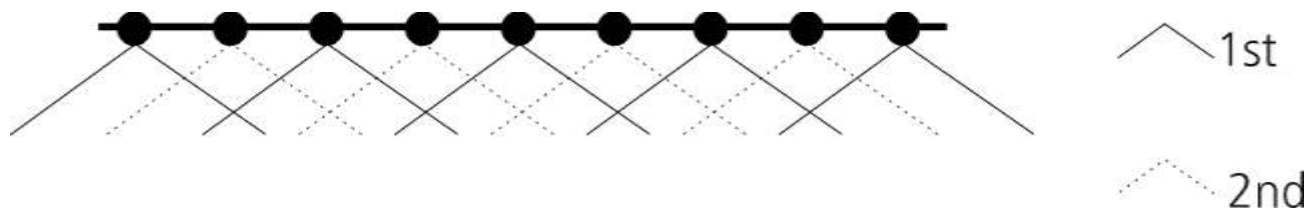
When using pressure-based activation, you can choose single step or multi step operating mode:

- With single step operation, fit the same size nozzles in both the first and second spray line as above.
- With multi step operation, the first spray line is fitted with nozzles one size smaller than the second spray line. The controller will automatically select first, second or both spray lines to maintain operation within the desired pressure range.

NOTE: When choosing to use 2nd Line control you must purchase the **AC-7410** (10 section harness) to ensure enough outputs are available. Please contact Farmscan Ag Support to discuss your options.

SECOND SPRAY LINE PLUMBING

The second spray line is fitted to the spray boom with nozzles positioned at half centers to the first spray line (e.g., if using 50cm or 20inch spacing's for the first line, the second line nozzles should be placed at 25cm or 10inch intervals.) See example diagram below.



The second spray line can be plumbed as a single section covering the entire boom width or alternatively split into multi sections to match the first spray line sections.

SINGLE SECOND SPRAY LINE (MATRIX MODE)

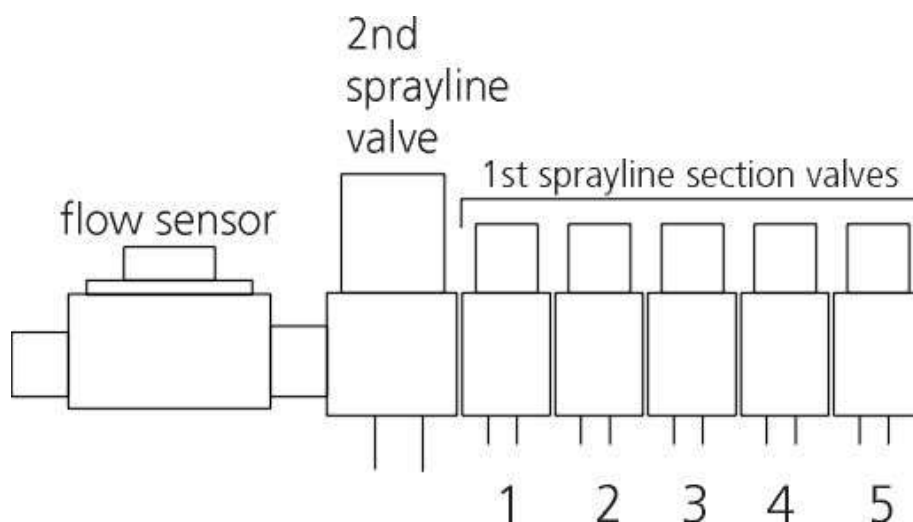
A single second spray line is adequate in high speed broad acre spraying where section shutdown is relatively infrequent. The controller will automatically shut down the second spray line if one or more of the first spray line section valves are switched off.

A single second spray line requires one large section valve to activate the second spray line.

All the second spray line nozzles must be inter-connected on **one** independent hose with multiple infeed points to equalise pressure over the whole width.

The second spray line section valve must tee off the main delivery line after the flow sensor and flow control valve.

3 wire motorised valves: Red = +12V Black = Negative Colour = Trigger



SPLIT SECOND SPRAY LINE (INDIVIDUAL MODE)

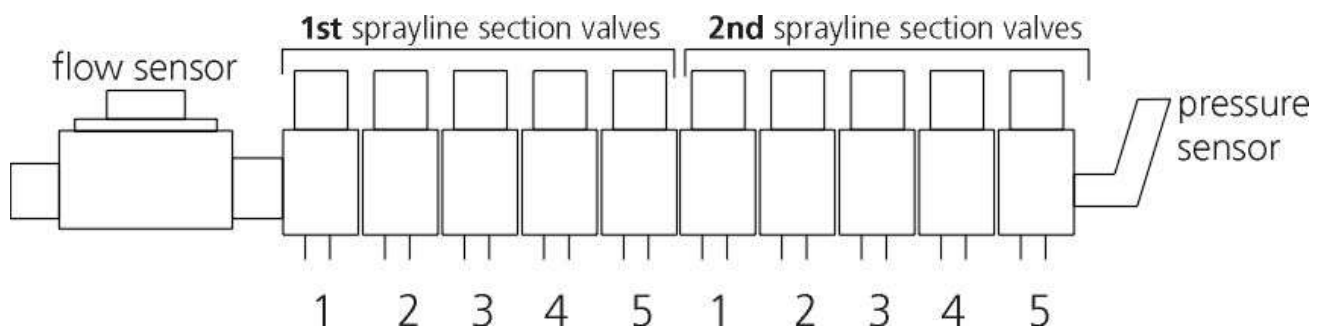
A split second spray line is necessary when sections are frequently shutdown during operation.

A split second spray line requires a separate section valve for **each** section of the second spray line.

Each second line section valve must feed the matching width as covered by each first spray line section valve.

The first and second spray line section valves should be plumbed onto a common manifold and must tee off the main delivery line after the flow sensor and flow control valve.

3 wire motorised valves: Red = +12V Black = Negative Colour = Trigger



PRESSURE SENSOR (OPTIONAL)

(Farmscan Ag Part #: AA-114 Pressure Sensor | 0 - 600kpa/85psi)

The pressure sensor measures spray line pressure at the section manifold to provide a pressure readout and to control the slow hold and second spray line functions (if used).

Using a mechanical pressure gauge fitted to the spray boom as a reference, the pressure sensor reading can be adjusted to compensate for line loss between the control bank and the spray boom.

DUMP VALVE (OPTIONAL)

(Farmscan Ag Part # AH-602/G)

The dump valve opens automatically whenever the sprayer stops or when all section valves are switched off. This option reduces reliance on the pressure relief valve to greatly reduce back pressure on a positive displacement pump.

NOTE: The dump valve should be installed **before** the flow control valve. (Refer page 13 for example)



CONNECTIONS

(Farmscan Ag Part # AC-7405 “5 Section” or AC-7410 “10 Section”)

A CANbus loom connects the 74V1 to the UniPOD. The UniPOD connects to the controlled elements (flow control valve, section valves, dump valve etc.)

Connect the labelled connectors on the loom to their respective sensors (flow, wheel and pressure) or equipment (section valves and control valve).

NOTE: Only connect power **after** all other installation steps are complete.

THIS FINISHES THE EXPLANATION OF COMPONENTS

START GUIDE

The 74V1 will be set up with basic screens and layouts provided by factory defaults. Factory defaults may differ if the 74V1 is setup OEM specific.



For optimal setup of the 74V1, the steps below should be performed in the following order:

- Set up CANbus/UniPOD [PAGE 45](#) (If the Auto Detect fails)
- Set up your machine [PAGE 31](#)
- Set up your implement/section widths [PAGE 39](#)
- Set up your wheel/GPS input [PAGE 41](#)
- Set up your tank [PAGE 50](#)
- Set up your flow meter [PAGE 57](#)
- Set up your alarms [PAGE 71](#)
- Set up your jobs [PAGE 64](#)
- Set up/change your screen layout [PAGE 87](#)

74V1 GENERAL OVERVIEW

The following pages are intended to provide a brief overview only.

Setup instructions can be found by following the page numbers as described on the previous page.

LED STATUS LIGHTS - OVERVIEW

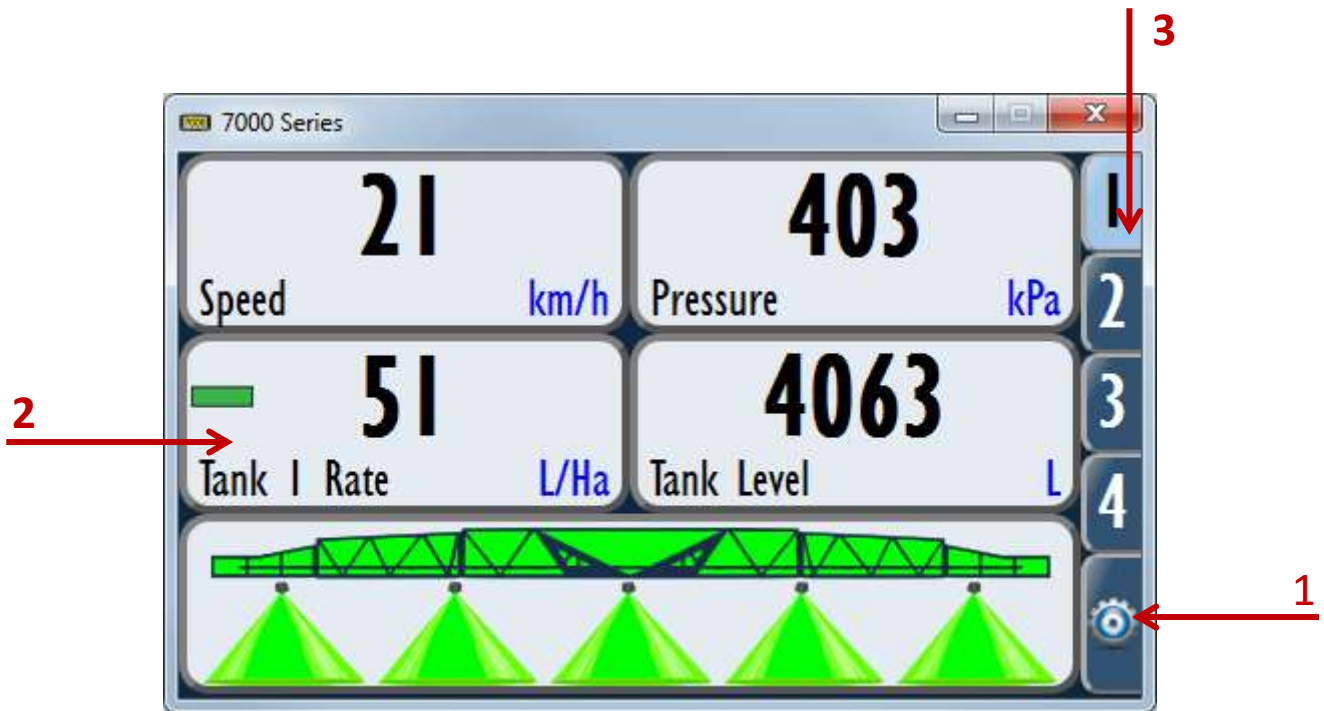
The 7000 has two (2) status indicators on the right hand side of the screen.

These indicators can be useful for troubleshooting and are described below:



Colour	Status	Explanation
Red	Flashing	Software crash (screen freezes)
Red	Solid	Alarm is on and has not been reset
White/Light Blue	Solid	No connection to UniPOD
Blue	Solid	Sprayer in manual RUN mode (Control valve/sections or rate is being calibrated/tested/manually controlled)
Green	Solid	Sprayer in normal RUN mode (Control valve/sections or rate is being calibrated/tested/manually controlled)
Green	Flashing	Sprayer in HOLD mode

FRONT SCREEN - OVERVIEW



1. Settings Menu

- Select the **Settings** tab (represented by the **Settings** icon which looks like a gearwheel) once to display the **Settings** menu.
- Select an option by pressing one of the icons in the **Settings** menu.

2. Display Tiles

- A display tile can show a value/widget, unit and title for any given recorded data (speed, rate, pressure, tank levels, job etc.).
- Individual display tiles can be connected to create larger tiles (for instance, similar to the spray bar widget).
- Display tiles can be edited by holding down a finger for 2 seconds on the tile, then releasing.

3. Front Screen Tabs

- Different tabs display different sets of display tiles to the left of the screen. (In the example above, 4 customisable tabs and 6 tiles are displayed. NB : the bottom 2 tiles are merged to display the "Spray Bar" widget)
- Selecting each tab will change the **Front Screen** display to show the available tiles for that tab.

SETTINGS MENU - OVERVIEW

The **Settings** menu allows for the setup of the 74V1.



Select the **Settings** tab (5th tab) from the **Front Screen** (it looks like a cog).

**1. Setup Menu**

- Select the **Setup Menu** icon to open the **Setup & Settings** menu.

2. Jobs Menu

- Select the **Jobs Menu** icon to open the **Jobs** menu.

3. Alarms Menu

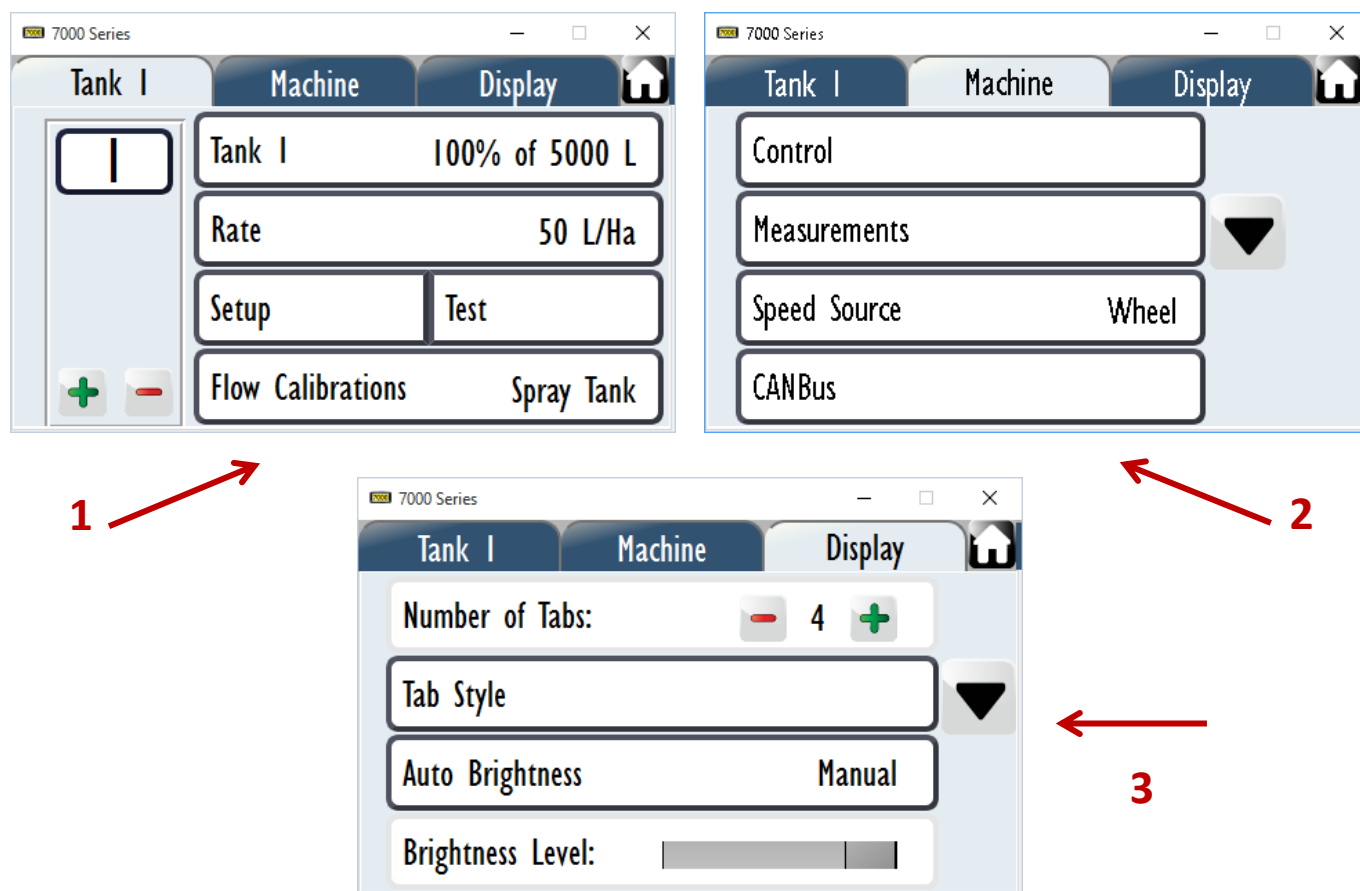
- Select the **Alarms Menu** icon to open the **Alarms** menu.

4. Maintenance Menu

- Select the **Maintenance Menu** icon to open the **Maintenance** menu.

DEVICE MENU OVERVIEW

SETUP (1) – OVERVIEW

**1. Tank Tab**

- Select the **Tank** tab to display it.
- This tab contains settings for the tank, any products associated with the tank and enables product calibration. This also defines the number of tanks the 74V1 is controlling.

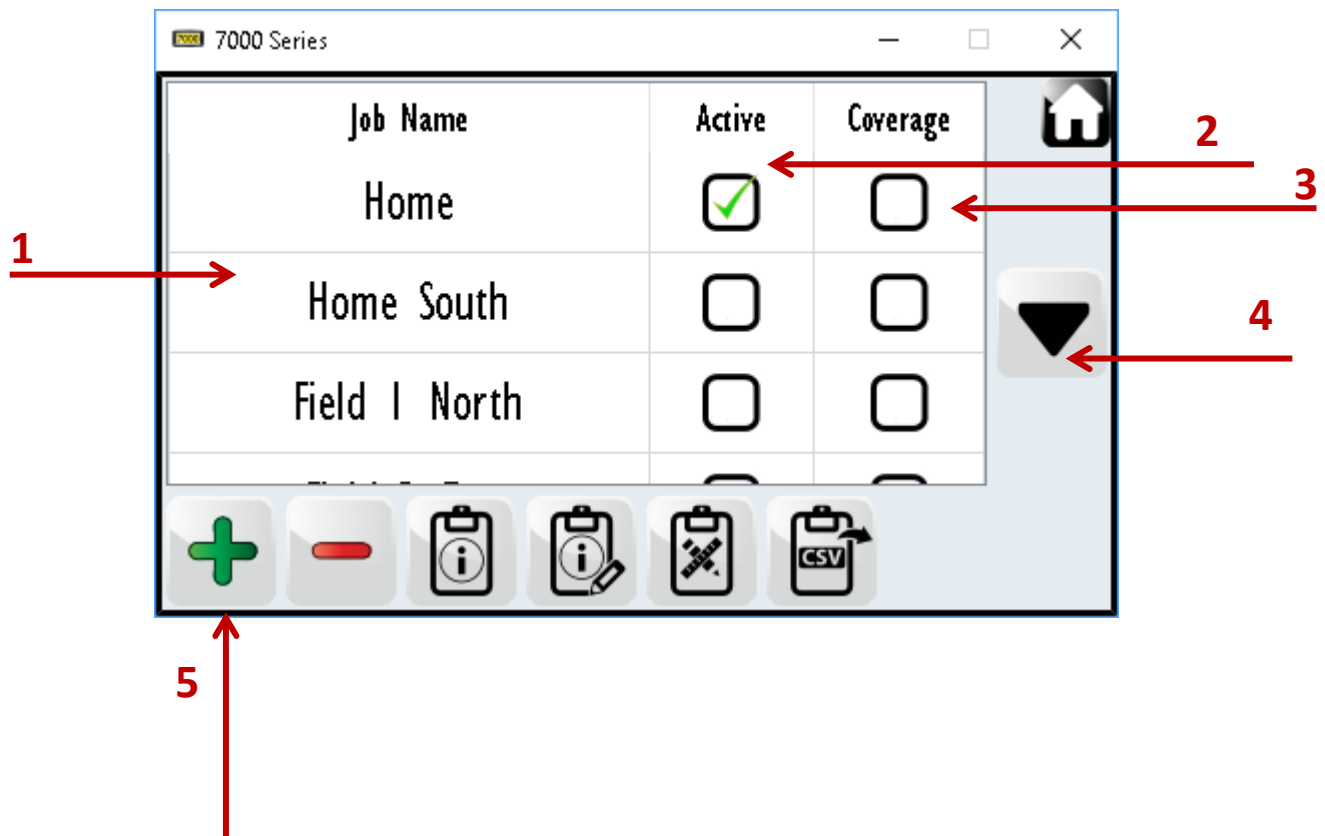
2. Machine Tab

- Select the **Machine** tab to display it.
- This tab contains settings for section widths, flow control response, wheel speed sensor, and CANbus status.

3. Display Tab

- Select the **Display** tab to display it.
- This tab contains the setting for the number of **Front Screen** tabs, how each **Front Screen** tab is set up, the brightness of the display, units of measure & enable/disable day/night mode.

JOBS (2) - OVERVIEW



1. Job Names

- The name of each created Job is displayed in the table.
- Select a Job to view it or make it active (Green Tick).

2. Job Active/ Inactive

- Select (tick) this checkbox to make the job active or inactive. A tick in the box indicates the Job is active and recording data. This also enables data to be displayed on the Front Screen tiles.
WARNING: Inactive Jobs do not record any data & will not display correctly on a Front Screen Tile.

3. Coverage

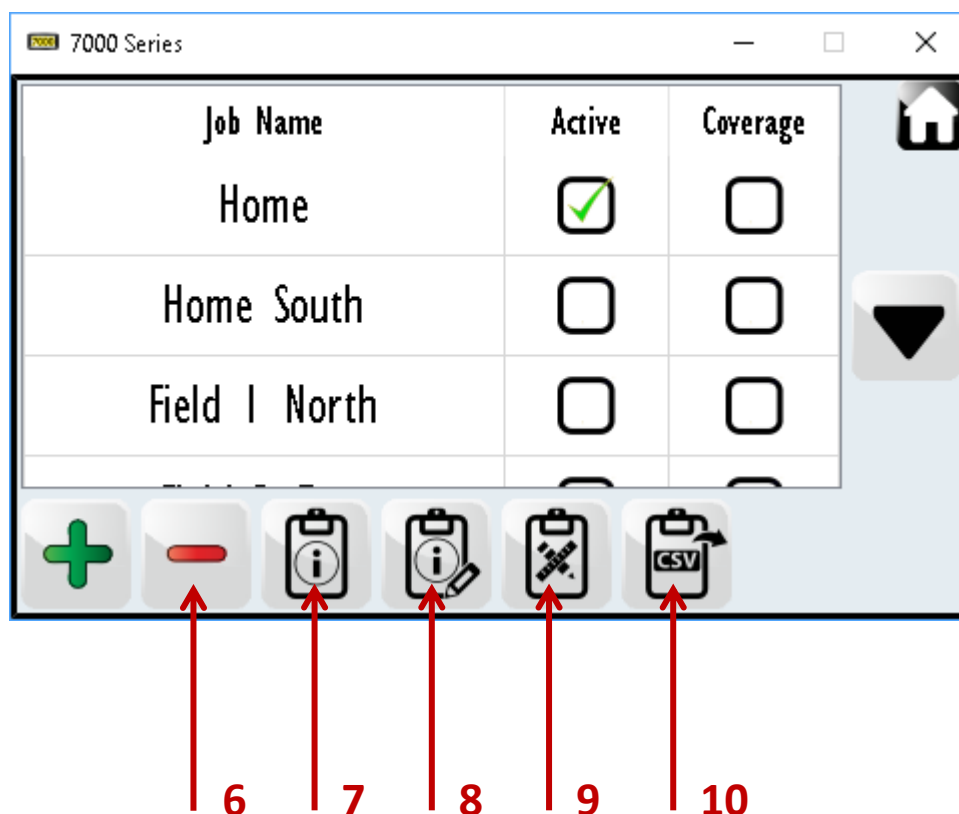
- Select (tick) this checkbox to enable coverage recording. This feature only works when a GPS is connected to the serial port of the 7000 terminal. A widget can be setup on Tab or Tile. By default the 74V1 will display the MAP widget on TAB 3. Only one active job & coverage can be displayed at any time.

4. Scroll Up/ Down buttons

- If more than 5 Jobs are listed in the table then the Up/ Down buttons will enable scrolling through the table to display all Jobs.

5. Create new Job

- Select this button to create a new Job. The user will be able to choose a name for the Job or may choose to use the default one.



6. 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 the row highlighted in blue in the Job list.

7. 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 the row highlighted in blue in the Job list.

8. Edit Job Name

- a. Select this button to edit the name of the selected Job.
- b. The selected Job is the row highlighted in blue in the Job list.

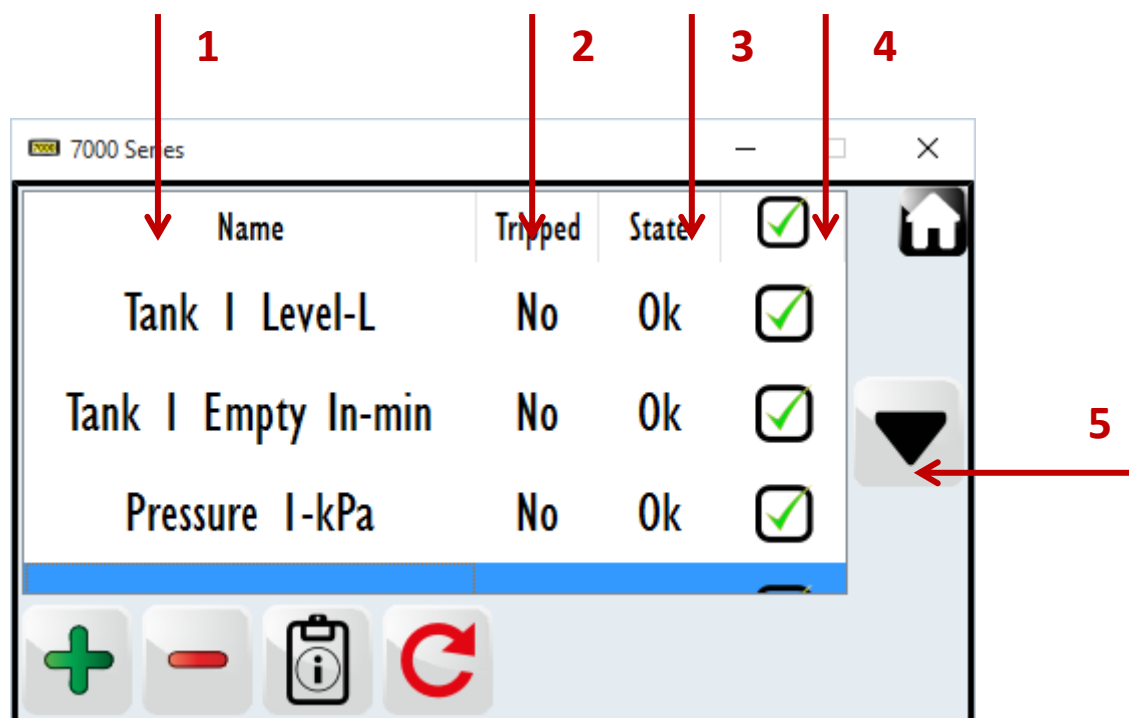
9. Edit Job Units

- a. Select this button to open a menu allowing the user to change in which units Job details are displayed.

10. Export to CSV

- a. Allows the operator to export the selected Jobs via CSV (text) onto a USB memory stick.

ALARMS (3) – OVERVIEW



1. Alarm Title

- a. Title of the Alarm, which 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.

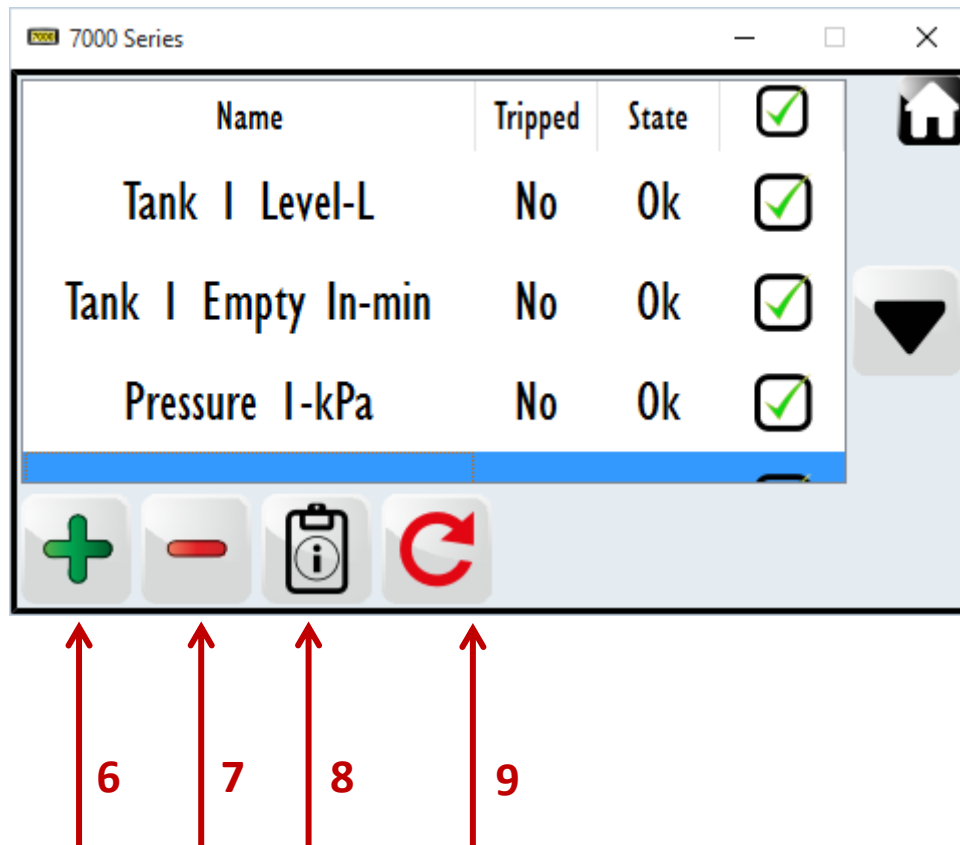
4. Alarm Active/ Inactive

- a. Select this checkbox to activate or deactivate the Alarm.
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

NOTE: These buttons will be visible if multiple Alarms exist and cannot be displayed on one screen.

- a. If more than 5 Alarms are listed in the table then the Up/ Down buttons will allow the user to scroll through the table to display all Alarms.



6. Add Alarm

- Create a new Alarm and set up its operating characteristics.

7. Remove Alarm

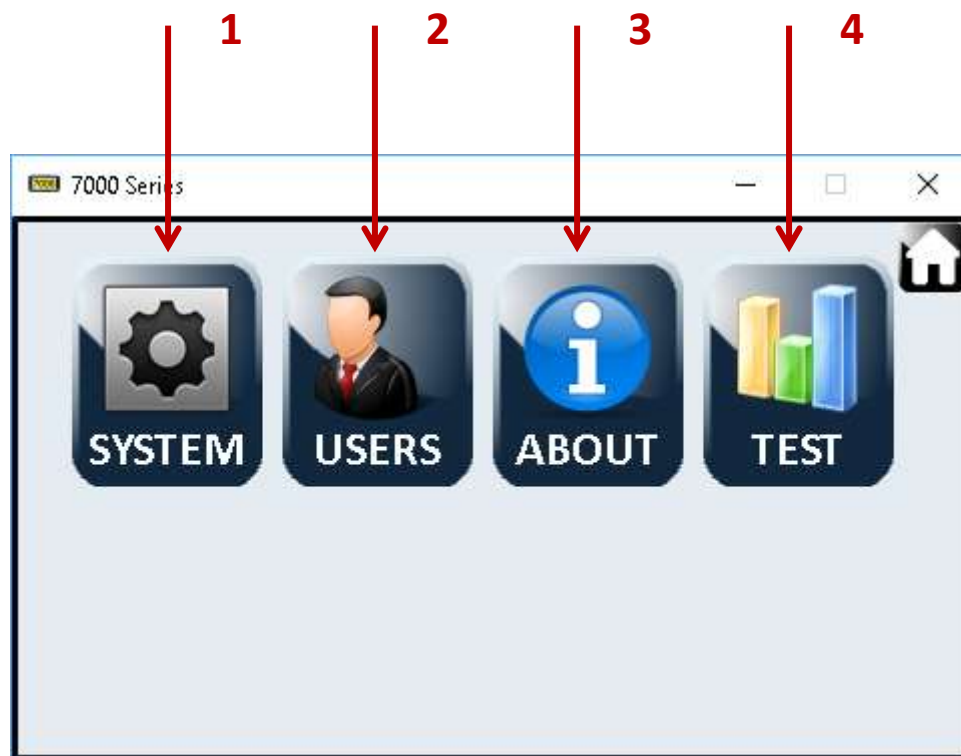
- Removes the currently selected Alarm.
- The selected Alarm is the row highlighted in blue in the Alarms list.

8. Edit Alarm

- Edit the operating characteristics of the currently selected Alarm.
- The selected Alarm is the row highlighted in blue in the Alarm list.

9. Reset Alarm Button

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

MAINTENANCE (4) - OVERVIEW**1. System**

- Software updates, screen calibration, system reset, backup, restore and setting the Date/ Time, language selection & model swap.

2. Users

- Allows for lockout facility if the multiple users option is activated.

3. About

- Lists the details of the current 7000 series device including version numbers & unlock codes

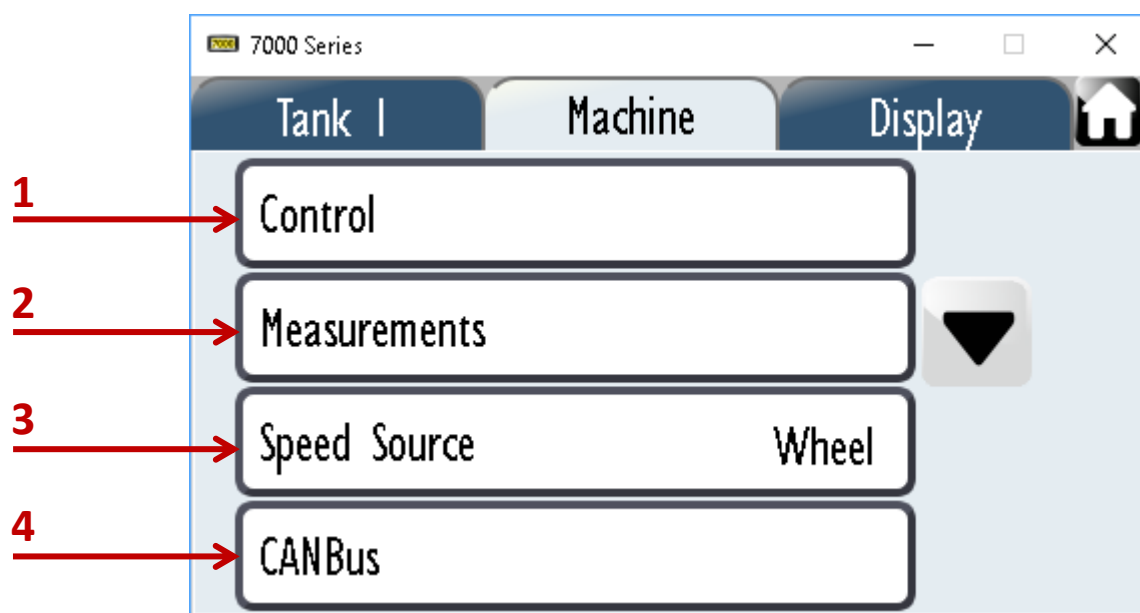
4. Test

- Used for diagnostic purposes only.

THIS COMPLETES THE DEVICE OVERVIEW

MACHINE SETUP

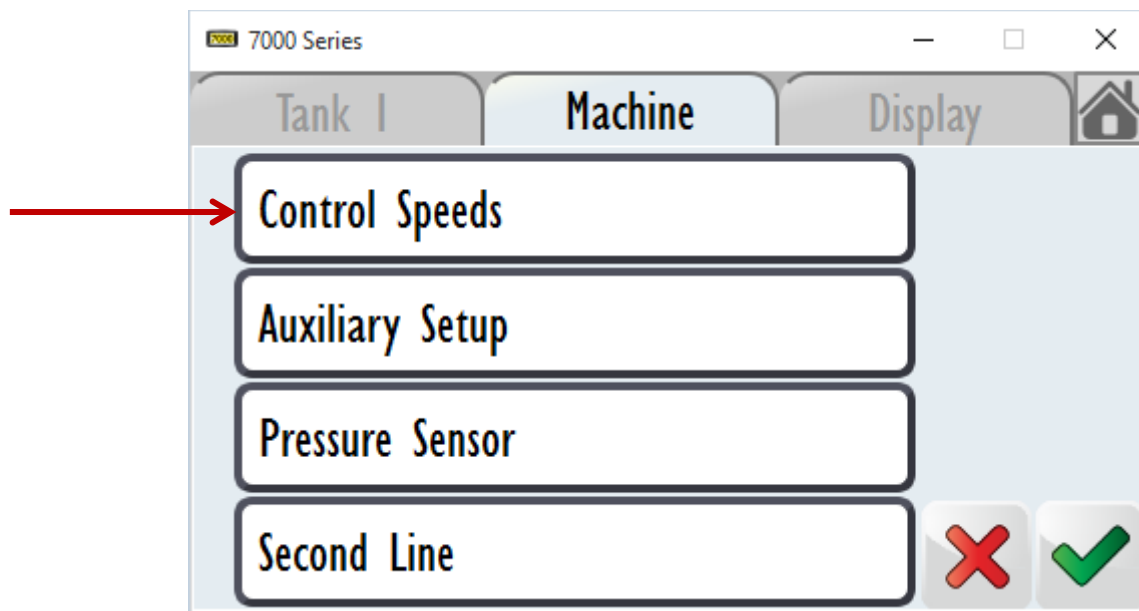
The **Machine** tab allows setup of the master control features on the 74V1 used for boom spray operation.



- **Control (1)**
 - A. Control Speeds (Minimum, Slow Hold, Prime)
 - B. Auxiliary Setup (Dump, Output) **NOTE:** Will only display when UniPOD is attached.
 - C. Pressure Sensor (Farmscan Ag Part# AA-114 or User Defined/Custom)
 - D. Second Line (Line Mode, Split, Multi)
- **Measurements (2)**
 - A. Use Section Control Set up/enable single section width
 - B. Set Section Widths Set up individual section widths
- **Speed Source (3)**
 - A. Wheel Set up/ calibrate or Set to Enabled
 - B. GPS Enable/ view NMEA strings or Set to Primary
 - C. External
 - Tracmap/TUVR Set up as task controller
 - Serial Input Check communications on the COM Port
 - D. Radar Not currently being used
- **CANbus (4) – Select Down arrow to reveal**
 - A. Configure UniPOD's Confirm & configure connection to UniPOD
 - UniPOD Status Check supply voltage & status to UniPOD
 - B. Switch Box Confirm connection to Smart Switch Box
 - C. Run/Hold Switch Confirm Run/ Hold remote switch operation
- **Wireless (5)**
- **Mapping (6)**

CONTROL (1)

Control speeds, allows the user to adjust minimum start speeds, slow hold and prime functions of the sprayer.

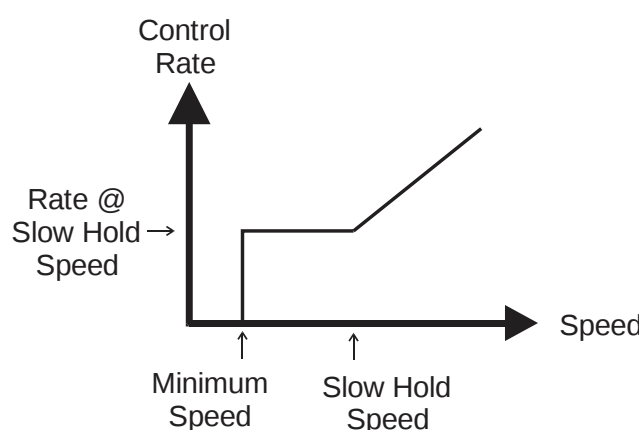
**CONTROL SPEEDS (1A)****1. Minimum Speed**

- If the implement drops below this speed then the spray valves will shut off; if a dump valve is fitted to the system it will open. **NOTE:** Dump valve must be set up in **Auxiliary Setup**.



2. Slow Hold Speed

- The **Slow Hold Speed** function is used to avoid loss of spray coverage caused by loss of pressure when travelling too slow or when reducing the target rate below the recommended minimum for the nozzles.
- If the implement is travelling below this speed (but above the minimum speed) then flow control is regulated as if the implement were travelling at the **Slow Hold Speed**.
- **NOTE:** **Slow Hold** is an optional function that can be set to operate at a minimum speed equivalent to the minimum recommended pressure for a given target rate (speed-based).



To calibrate speed-based **Slow Hold**:

1. Exit to the **Front Screen** and start spraying in AUTO mode at normal speed, then slow down until nozzle pattern begins to deteriorate.
2. Take note of the ground speed when this happens and use this point for **Slow Hold Speed** calibration.
3. Navigate back to this menu and highlight **Slow Hold Speed**.
4. Adjust to set the desired hold speed (km/h).



Operating with Slow Hold active will mean the product is being over applied and may cause damage to crop!

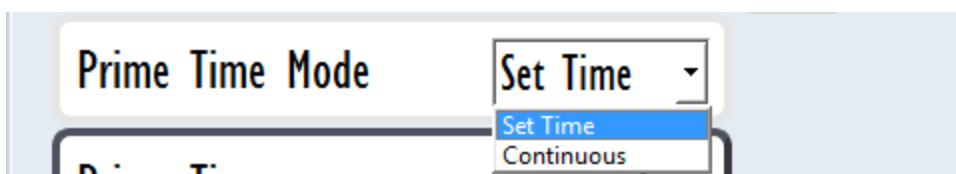
Prime Mode operation explanation

The **Prime Mode** operation turns on the spray valves; 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; the Spray Section Control will also revert to Run Mode.



1. Enable Prime

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



2. Prime Time Mode

- a. **Set Time**: When **Prime** is enabled and **Prime Time** set, after X seconds the spray section control will revert to Run Mode.
- b. **Continuous**: The unit will remain in Prime Mode indefinitely. **NOTE**: This should **NOT** be used in standard operation but it is useful for “stand still” testing and demonstration.



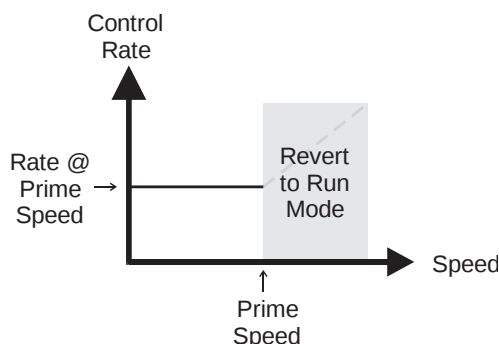
3. Prime Time

- a. If **Prime Mode** is entered, after the selected number of seconds the Spray Section Control will revert to Run Mode.



4. 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**, Spray Section Control will revert to Run Mode.

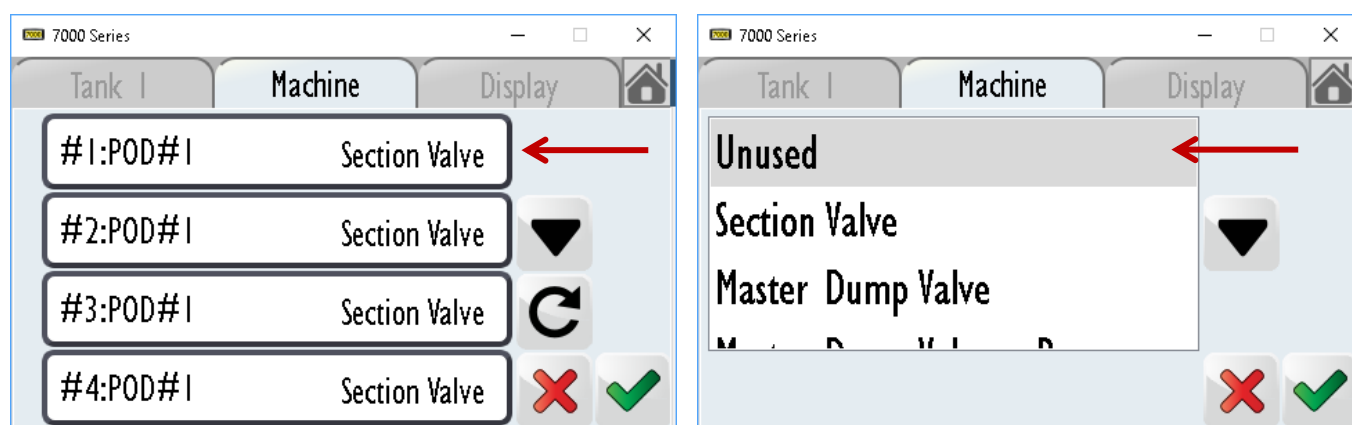


AUXILIARY SETUP / DUMP VALVE (1B)

By default, the 74V1 will select the output/ valve configuration depending on what number of sections (available outputs) the UniPOD was purchased with. However, **Auxiliary Setup** allows the user to customise which output control goes to which valve or sensor. This is required to be setup when using a DUMP Valve.

When multiple UniPOD's are connected you can easily identify the POD #.

- Select the output number that you want to change.
- A selection of available valves/ sensors will be displayed.
- Select the valve/sensor type required.
- Select the green **Tick** button to save changes.



Options available are:

- Section Valve
- Master Dump Valve
- Master Dump Valve (Reverse) ^
- Dump Valve
- Dump Valve (Reverse) ^^
- Spray Line Valve **
- Left Marker Arm
- Right Marker Arm
- Master Level Input
- Level Input

Example (AC-7405) – 5 Section Harness Refer to labelling on Harness

- #1:POD#1 : Section Valve
- #2:POD#1 : Section Valve
- #3:POD#1 : Section Valve
- #4:POD#1 : Section Valve
- #5:POD#1 : Section Valve
- #6:POD#1 : Master Dump Valve

This assumes a Master Dump Valve is installed

^ Select this if the Master Dump is Opening when it should be closing or Vice Versa

^^ Select this if the Dump is Opening when it should be closing or Vice Versa

** When enabling 2nd Line – Note the Auxiliary on the harness you are connected to. Select this option.
When prompted – Ensure you select LINE 2

NOTES:

- Each UniPOD has 10 selectable outputs. Add a 2nd UniPOD for 20 outputs.
- When multiple UniPODS are connected on the CANbus line the POD# will change. E.g. **#11:POD#2**
- If you have purchased a 5 section harness (AC-7405) you will have 5 outputs + Dump.
- If you have purchased a 10 Section harness (AC-7410) you will have 10 outputs in total to configure

PRESSURE SENSOR (1C)

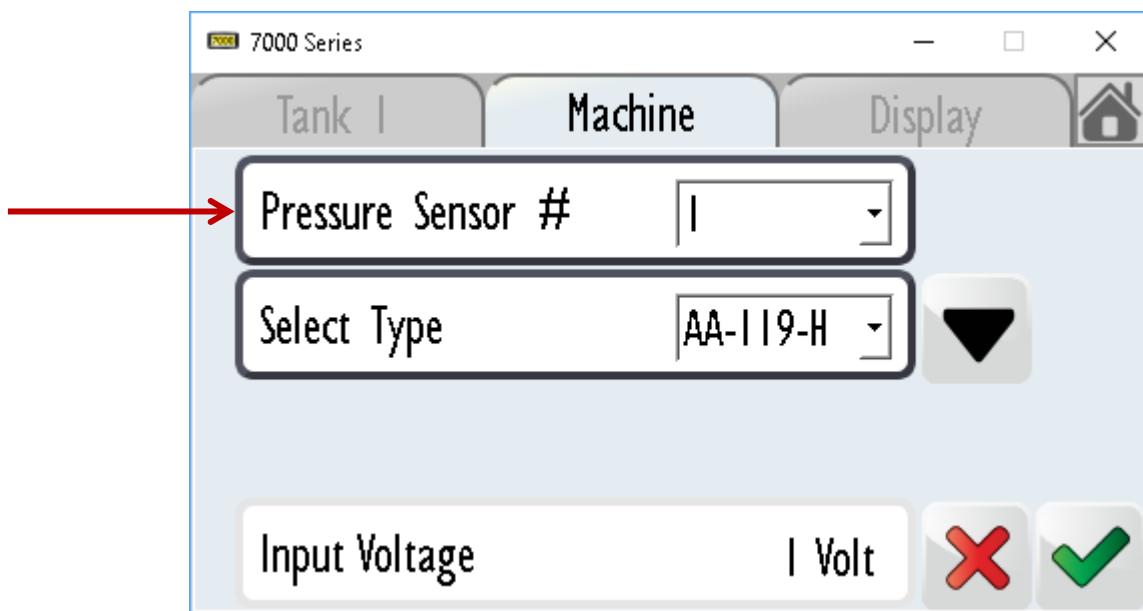
(Farmscan Ag part #: AA-114 Pressure Sensor or new style AA-119-H: 0 - 600kpa/85psi)

The pressure sensor measures spray line pressure at the section manifold to provide a pressure readout and to control the slow hold and second spray line functions (if used). The 74V1 has the ability to monitor 2 pressure sensors when 2 tanks & 2 UniPOD's are connected.

Using a mechanical pressure gauge fitted to the spray boom as a reference, the pressure sensor reading can also be adjusted to compensate for line loss between the control bank and the spray boom.

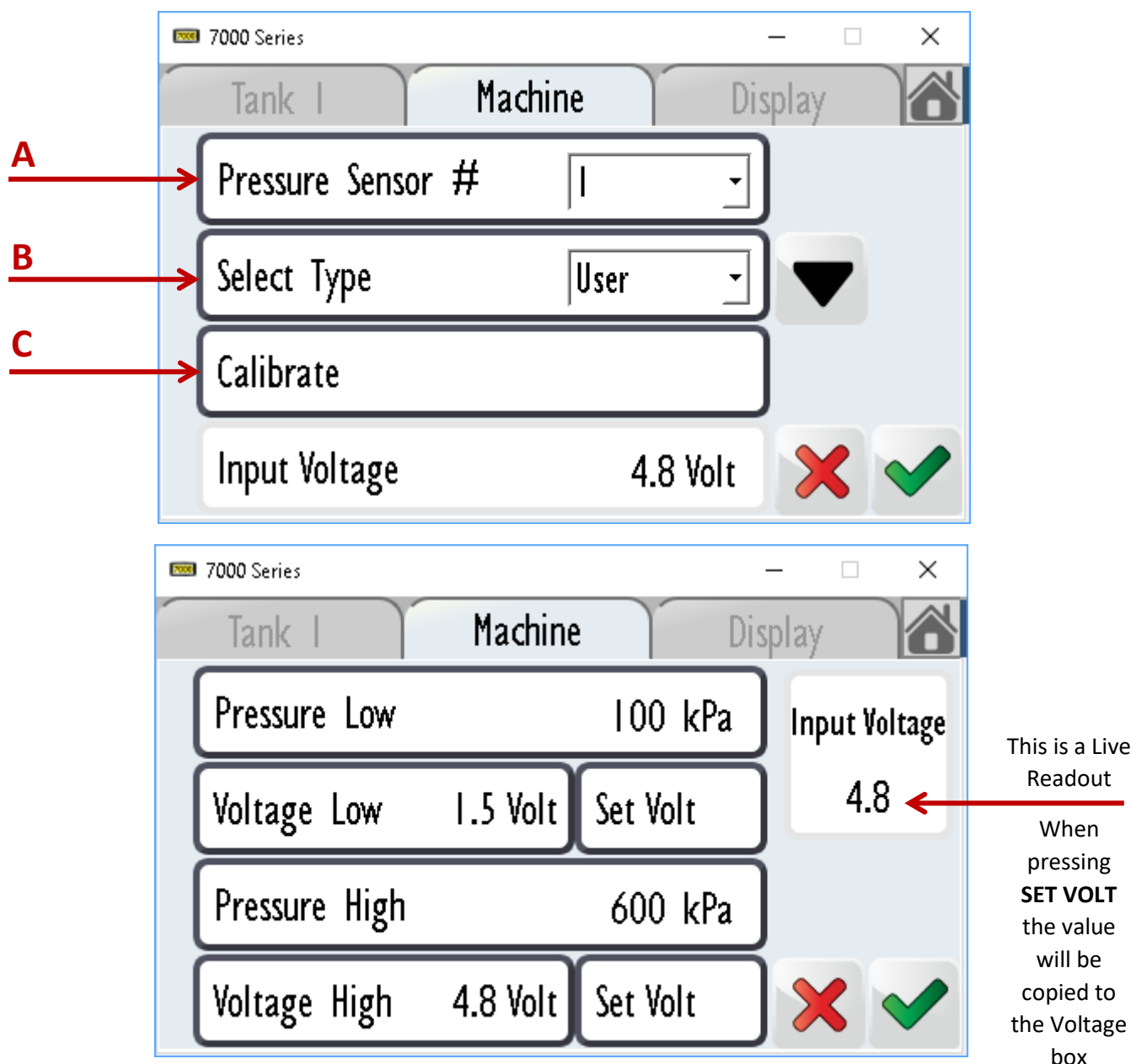
By selecting Pressure sensor #1 & Type as AA-114 or AA-119-H predefined values are used and no further setup is required.

If you wish to use a different style sensor (BYO), setup can be achieved by following the instructions on the next page.



BYO PRESSURE & MANUAL SETUP

Select the **Pressure Sensor** number you wish to calibrate. Select Type as **USER** and then **CALIBRATE**.



Pressure Low: Input the lowest pressure the unit will need to display.

Voltage Low: You can either:

1. Manually add the **Voltage Low** (as per manufacture specifications), or
2. Adjust your pressure manually to the low point and then select **SET VOLT**. This will take the value from the LIVE input voltage and automatically insert. *(Refer to manual pressure gauge if fitted.)*

Pressure High: Input the highest pressure the unit will need to display.

Voltage High: You can either:

1. Manually add the **Voltage High** (as per manufacture specifications), or
2. Adjust your pressure manually to the High point and select **SET VOLT**. This will take the value from the input voltage and automatically insert. *(Refer to manual pressure gauge if fitted.)*

SECOND SPRAY LINE – OPTIONAL (1D)

A second spray line is activated automatically when the first spray line reaches a preset maximum pressure, thereby allowing higher operating speeds and additional capacity to change rates on-the-go.

- **Enable** the 2nd Line
- Set Valve Configuration to **Matrix**
- Line Mode as **Automatic**
- Step Mode **Speed**
- Choose the **Set Point 1** Speed that you wish the 2nd Line to come.

7000 Series

Tank I Machine Display

2nd Line Enabled

Valve Configuration Matrix

Line Mode Automatic

Step Mode Speed

7000 Series

Tank I Machine Display

Line Mode Automatic

Step Mode Speed

Set Point 1 17 km/h

Set Point 2 0 km/h

When using **speed based** activation of the second spray line, refer to the nozzle suppliers chart to establish the speed at which the nozzles will reach maximum pressure for a given application rate. Normally that would be 300-350kpa (44 - 51 psi).

Eg: Spraying Systems 11002 nozzles operating at 60L/ha reach 300kPa @ 16km/h.

7000 Series

Tank I Machine Display

2nd Line Enabled

Valve Configuration Matrix

Line Mode Automatic

Step Mode Pressure

7000 Series

Tank I Machine Display

Line Mode Automatic

Step Mode Pressure

Step Down 150 kPa

Step Up 320 kPa

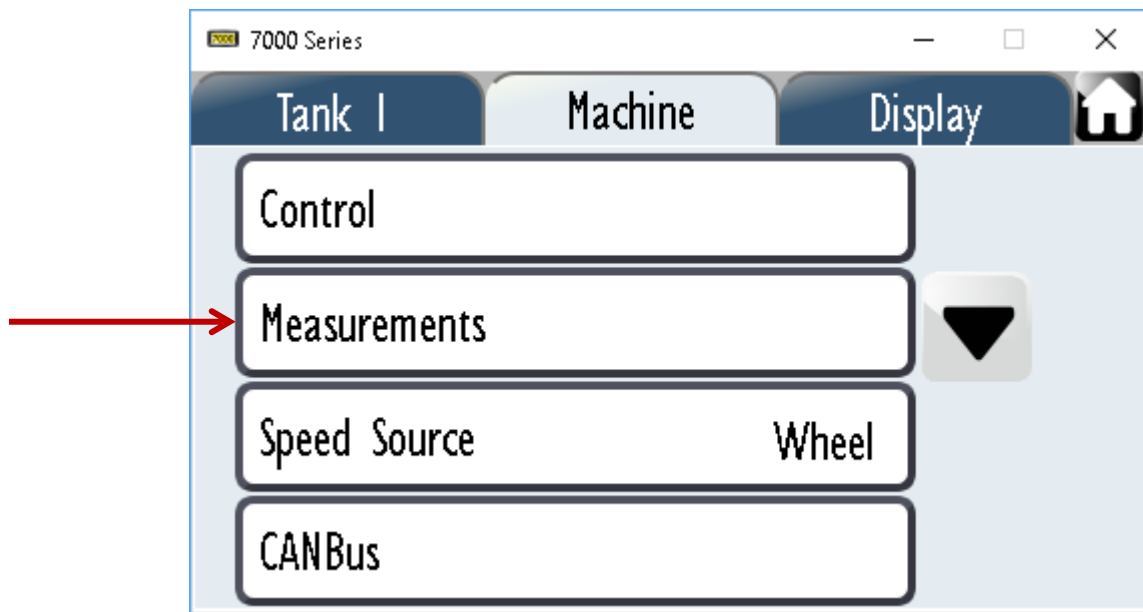
When using **pressure based** activation, you need to set both a minimum „off“ and maximum „on“ operating pressure. Normally that would be ON = 300-350kpa (44-51 psi), OFF = 100-150kPa (15-22 psi) for any size nozzle.

2nd Spray line is only compatible when purchased with the AC-7410 (10 Section Harness)

Please refer to the Auxiliary Setup on [PAGE 35](#) to specify your second line valve.

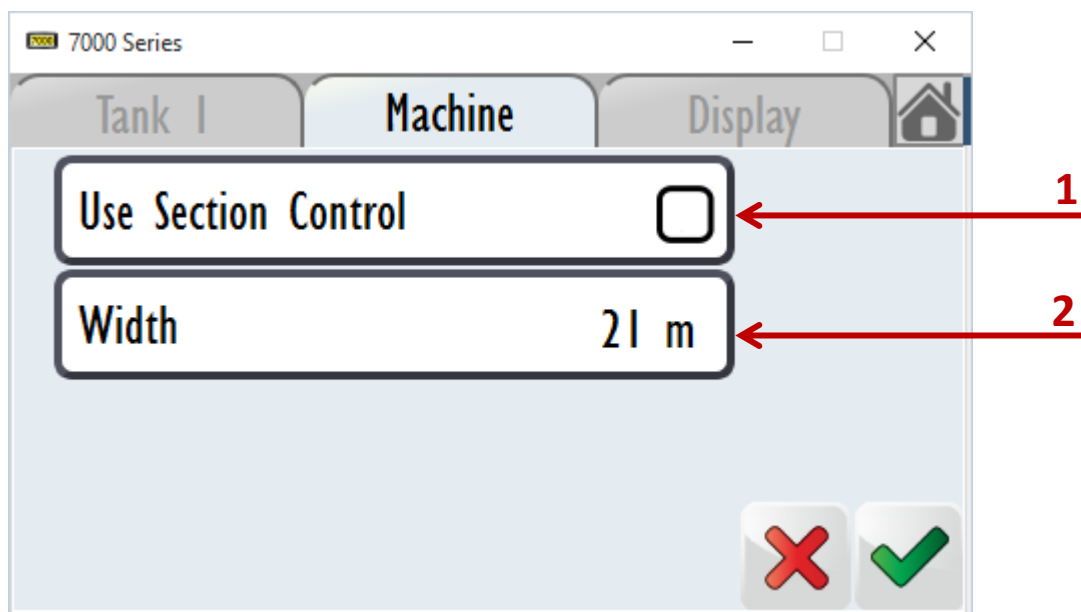
MEASUREMENTS (2)

For the 74V1 to correctly display and control the desired application rate, an implement width needs to be entered.

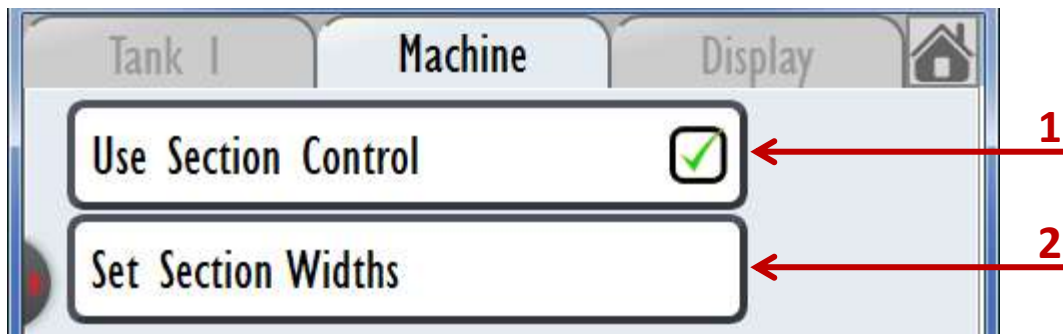


SECTION WIDTH – SINGLE (2A)

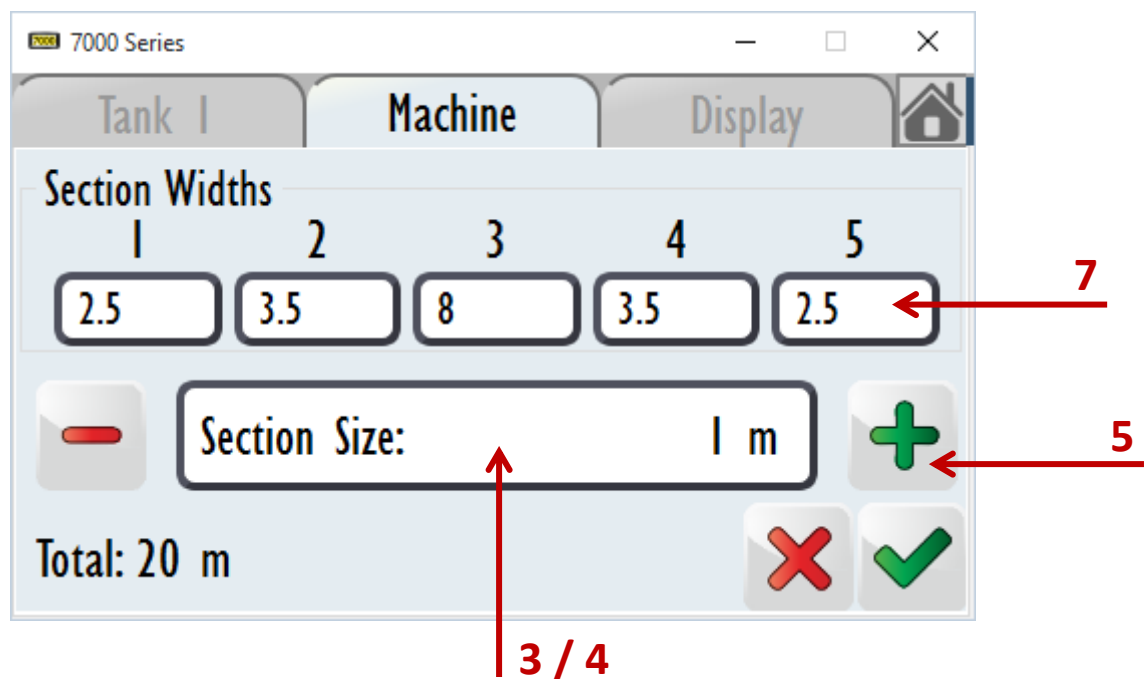
1. Deselect (untick) the **Use Section Control** checkbox.
2. Select the **Width** button.
3. Enter the Value and Unit and then select **Done**.



SET SECTION WIDTHS - MULTIPLE SECTIONS (2B)



1. Make sure the **Use Section Control** checkbox is ticked.
2. Select the **Set Section Widths** button.
3. Select the **Section Size** button.
4. Enter the Value and Unit for the section widths, and then select **Done**.
5. Select the + button to add sections with a width entered in the previous step.
6. Select the – button to remove sections.
7. Select individual sections to modify individual section widths.
8. Select the green **Tick** button.

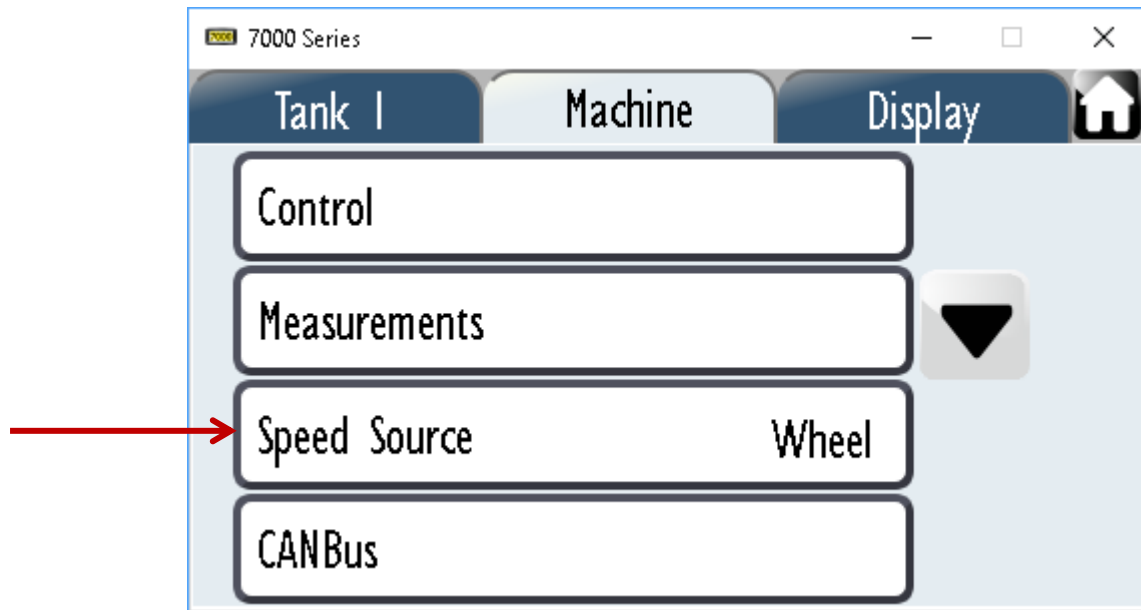


THIS COMPLETES THE MACHINE MEASUREMENTS SETUP

SPEED-GPS (3)

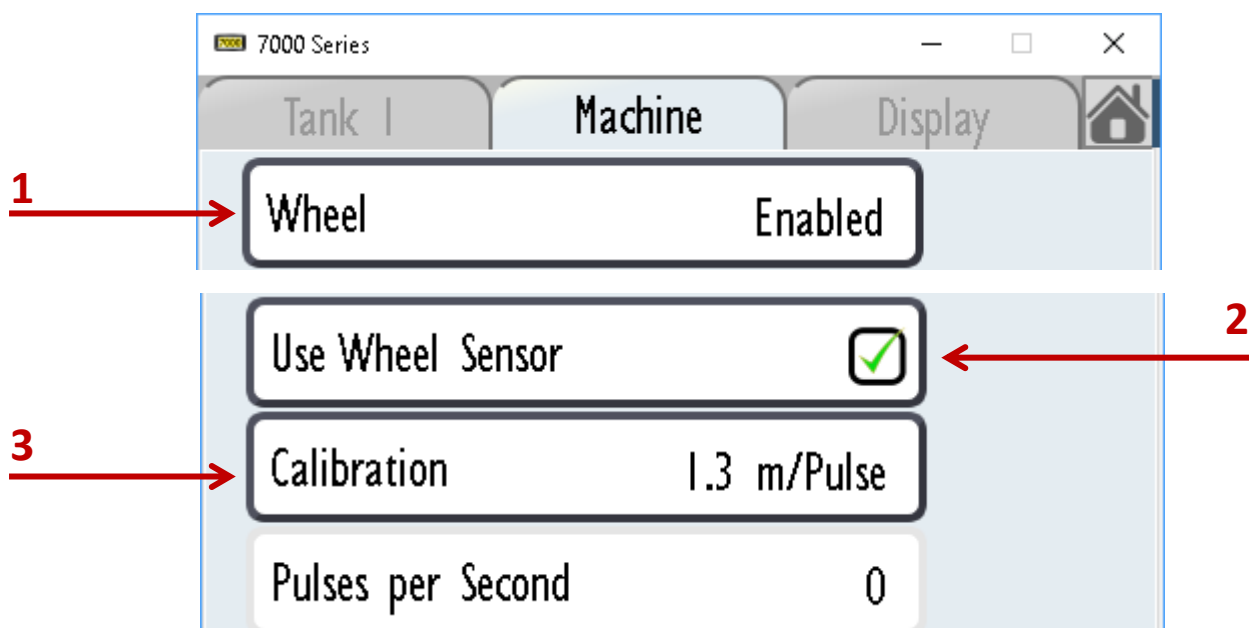
The 74V1 has the ability to use a GPS as Speed input or a standard magnet/ sensor input for ground speed.

Setup options are described below:

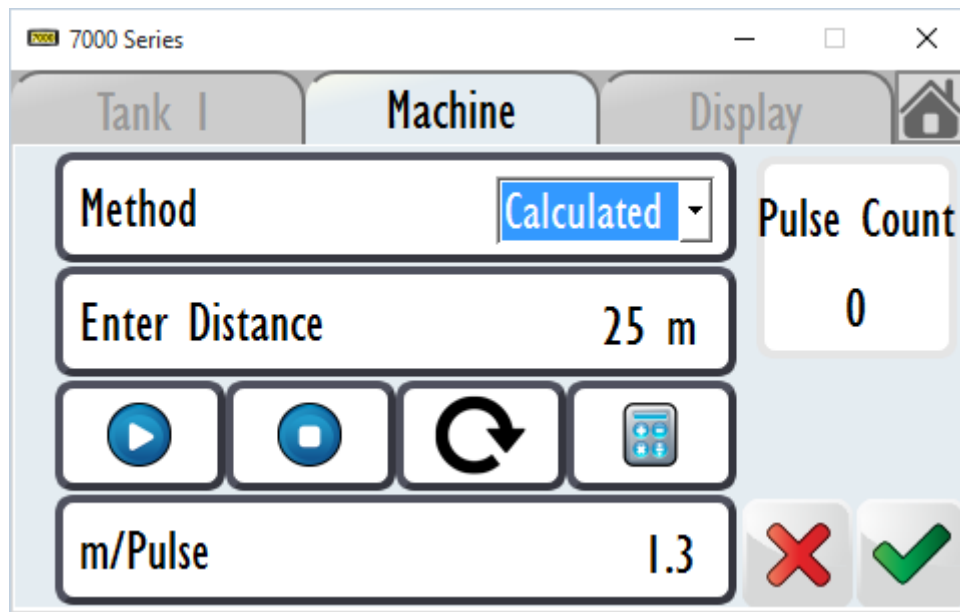


WHEEL SENSOR (3A)

1. Navigate to **Wheel**.
2. Select the **Use Wheel Sensor** checkbox
3. Select **Calibration** to go to the **Calibration** screen.



CALIBRATION



To calibrate the **Wheel Speed** sensor, follow these steps:

1. Measure out a set distance on the ground for calibration (greater than 20m). 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. Make sure the **Method** dropdown list has **Calculated** selected.
5. Select the **Enter Distance** button and enter the distance (from step 1) the wheel will travel during the calibration.
6. Select the **Play** button.
7. Drive along the measured distance slowly (from step 1).
8. Stop at the pegged point, lining up the bottom of the tire with the end peg point.
9. Select the **Stop** button.
10. Select the **Calculate** button (the calculator symbol).
11. Select the green **Tick**.

Alternatively, you can change the **Method** to **MPP** (Meters per pulse) and enter a known factor. To do this:

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 on the **m/Pulse** button.

GPS (3B)

If you prefer to use GPS input for ground speed select **GPS** and **Use GPS for speed**. The GPS needs to have the following strings enabled:

NMEA Strings: GPVTG, GPGGA, GPRMC

Baud Rate: 19200 kbps (Minimum)

Rate: 5 Hz (Minimum)

When entering this menu and GPS is connected to the serial port of the AC-7000 cable, data should appear in the window below when the correct **Baud** rate is selected.

7000 Series

Tank I Machine Display

Use GPS for speed ☒

Baud 19200

Date 2017/01/27

Time 23:04:58

7000 Series

Tank I Machine Display

Speed 17.94 km/h

Heading 0.62°

Longitude 118.16

Latitude -32.66

If no data is being received, refer to **SERIAL INPUT** at the bottom of the page to ensure data is being received and the correct **BAUD** rate is selected.

7000 Series

Tank I Machine Display

Longitude 118.16

Latitude -32.66

GGA:Y VTG:Y RMC:Y

Serial Input

7000 Series

Tank I Machine Display

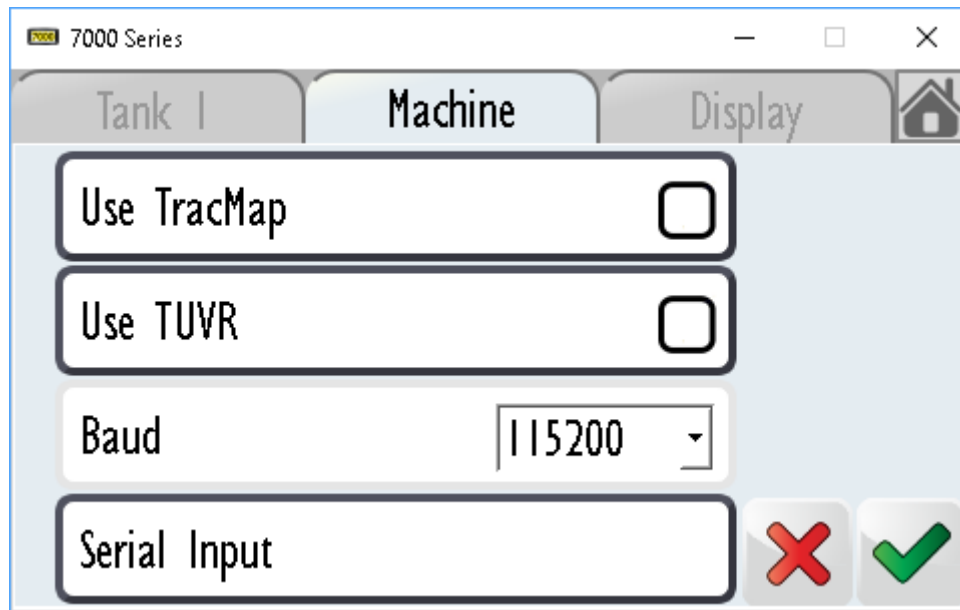
Baud Rate 19200

\$GPRMC,230557.0,A,3239.7990,S,11809.3425,E,009.7000,Q,2701.1,7.002,6,W,7A
 \$GPVTG,0.00,Q,T,009.7,M,018.0,K,D*42
 \$GPRMC,230558.0,A,3239.7966,S,11809.3425,E,009.7000,Q,2701.1,7.002,6,W,7C
 \$GPVTG,0.00,Q,T,009.7,M,018.0,K,D*42
 \$GPRMC,230559.0,A,3239.7942,S,11809.3424,E,009.7000,Q,2701.1,7.002,6,W,7A
 \$GPGGA,230600.3,239.792548,S,11809.342428,E,2.07,01.2,+00300.2,M,M,*5F
 \$GPRMC,230600.4,3239.7915,S,11809.3424,E,009.7000,Q,2701.1,7.002,6,W,77
 \$GPGGA,230601.3,239.790113,S,11809.342396,E,2.07,01.2,+00300.2,M,M,*54

EXTERNAL (3C)

The External menu allows the 7000 to accept external commands from other Task Controllers such as : Tracmap NZ for spreaders & sprayers or the Trimble Universal Variable Rate Protocol (TUVR).

The TUVR protocol can communicate both the automatic rate and section control to our 74V1. Please note that the TUVR protocol must be unlocked on your Trimble display. Contact your local Trimble dealer for further information.



The correct serial cable must be purchased and appropriate Baud rate selected for this function to work.

RADAR (3D)

This feature is currently unavailable and not used.

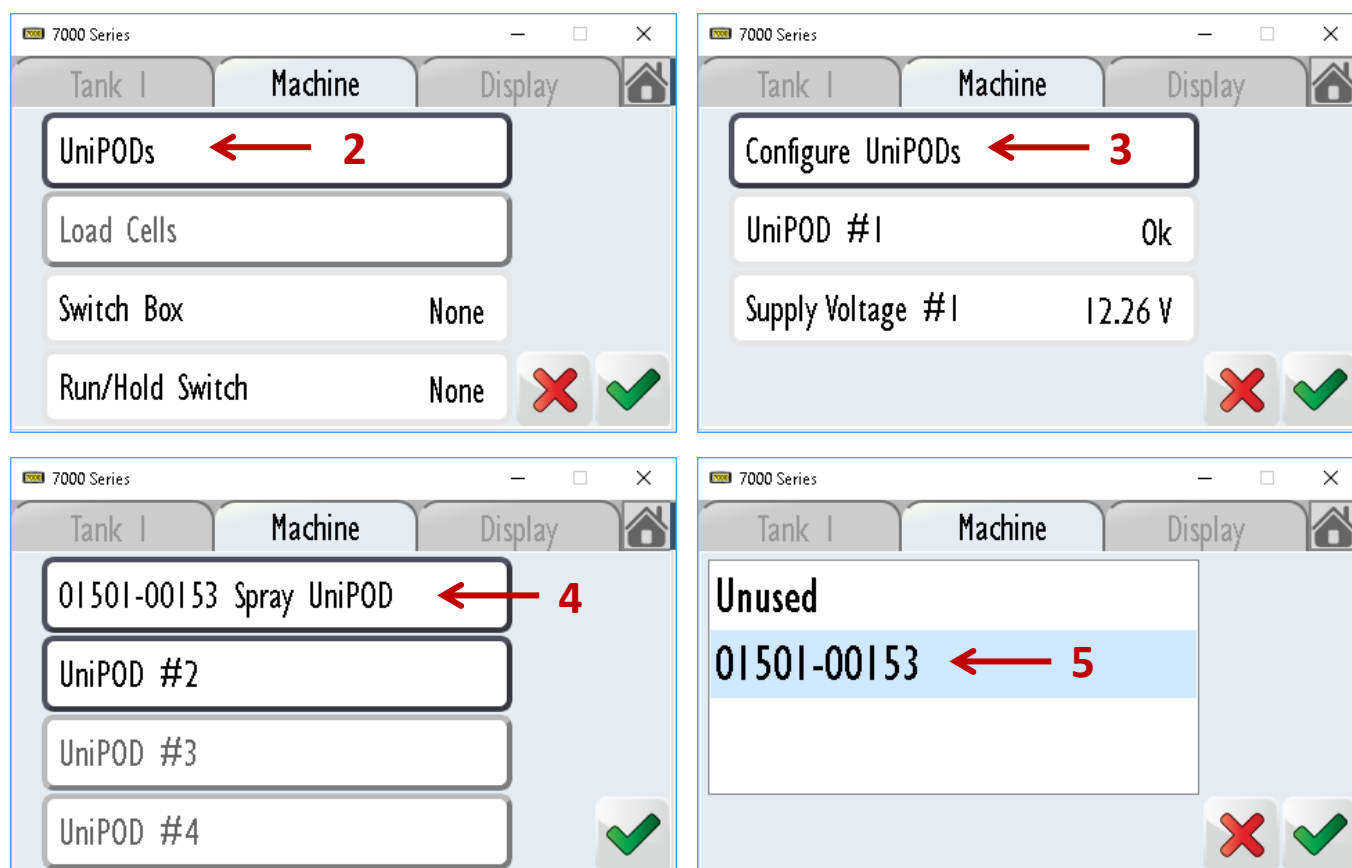


CANBUS (4)

The CANbus menu allows you to confirm the connection status and voltage to the UniPOD along with smart switch and remote Run/ Hold switch if attached. If multiple UniPODs are attached to the 7000 system, the order of the pods can be configured here also.

The 7000 should automatically detect the UniPOD connected to the 7000. If not, follow the steps below.

CONFIGURE UNIPODS (4A)



The Configure UniPOD menu will display the unique CAN ID's for each UniPOD connected. If more than one UniPOD is connected, the order in which they are physically connected on the wiring harness must be aligned to how the software has them connected.

1. Navigate to the **Settings > Machine > CANbus** menu.
2. Select **UniPOD's**
3. Select **Configure UniPOD's**
4. Select **UniPOD #1**. This will display all the UniPOD ID's the system has been connected to.
5. Select the **UniPOD ID** of the UniPOD connected first on the physical wiring harness
6. Select the green **Tick** button to save changes.

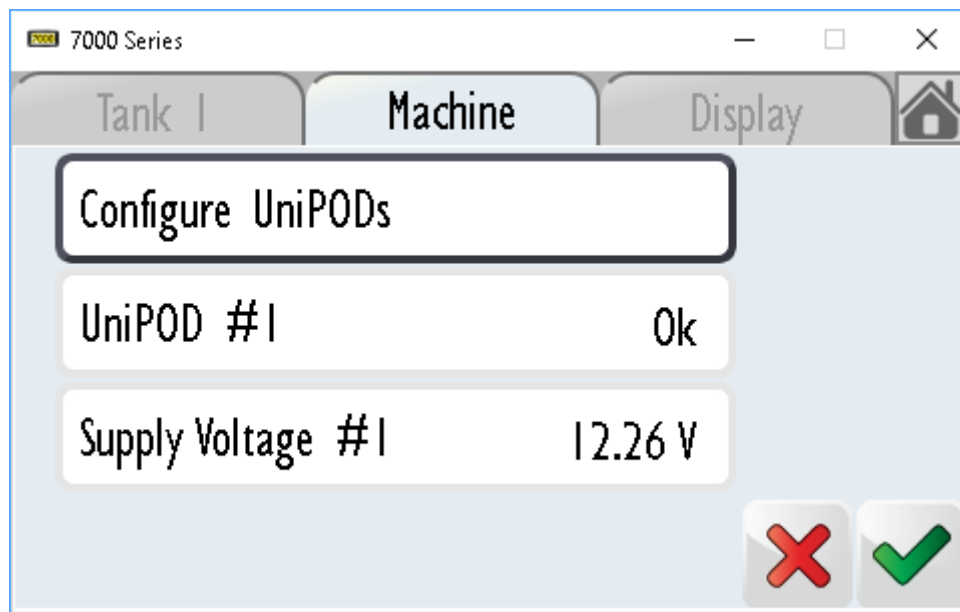
If more than one UniPOD is installed then repeat this procedure for each extra UniPOD.

UNIPOD STATUS (4B)

Under the **Configure UniPODs** the UniPOD # & ID will be displayed and current supply voltage that the UniPOD is receiving.

This is to verify that the system can see the UniPODs are available and working correctly.

If more than one UniPOD is installed then repeat this procedure for each extra UniPOD.

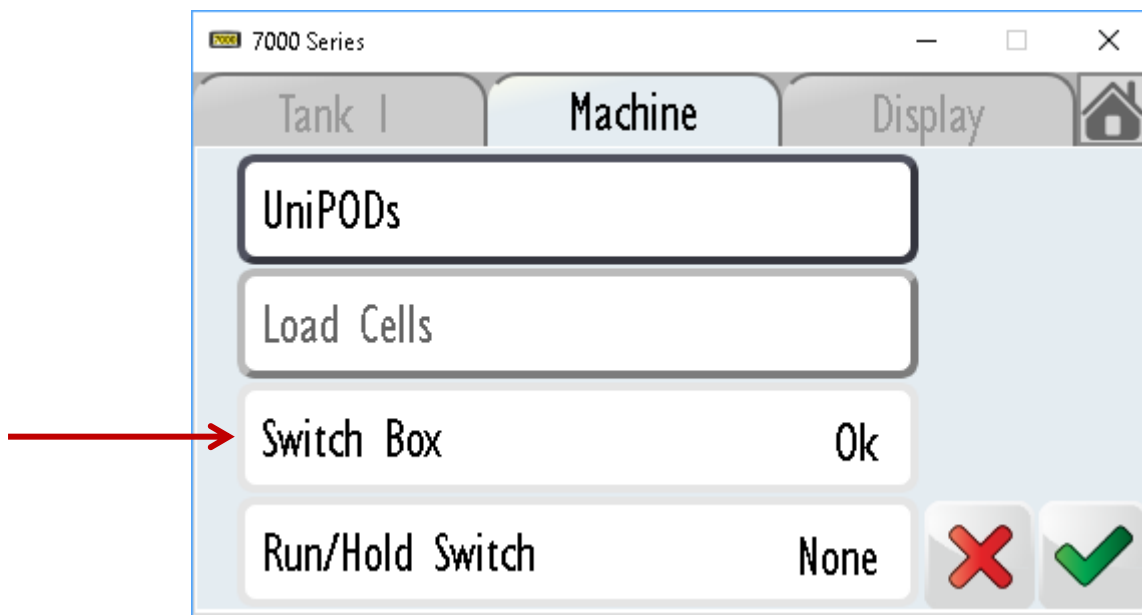


NOTE: A minimum voltage of 12.1v is required for the UniPOD to operate correctly.

Before calling the Farmscan Ag Service department please ensure the minimum voltage requirements are met.

SWITCH BOX (4C)

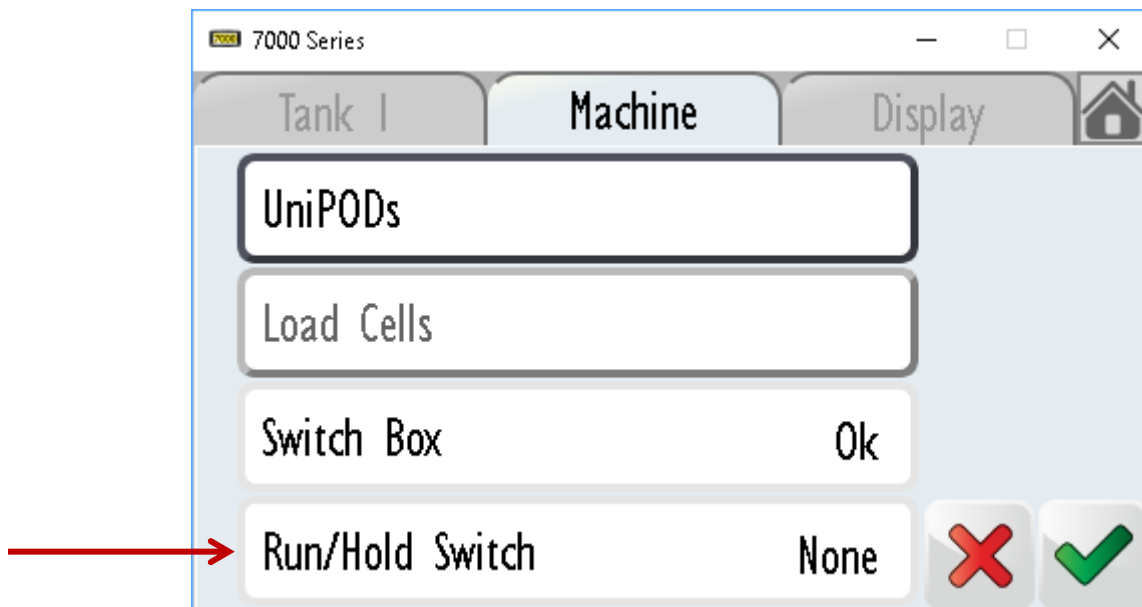
If an external switch box is or is not connected on the CANbus this will be indicated as **OK** or **None**.



RUN/HOLD SWITCH (4D)

If an external Run/Hold is or is not connected on the CANbus this will be indicated as **OK** or **None**.

When connected, the current state of the switch will also be displayed.



WIRELESS (5)

This feature is currently unavailable and coming soon

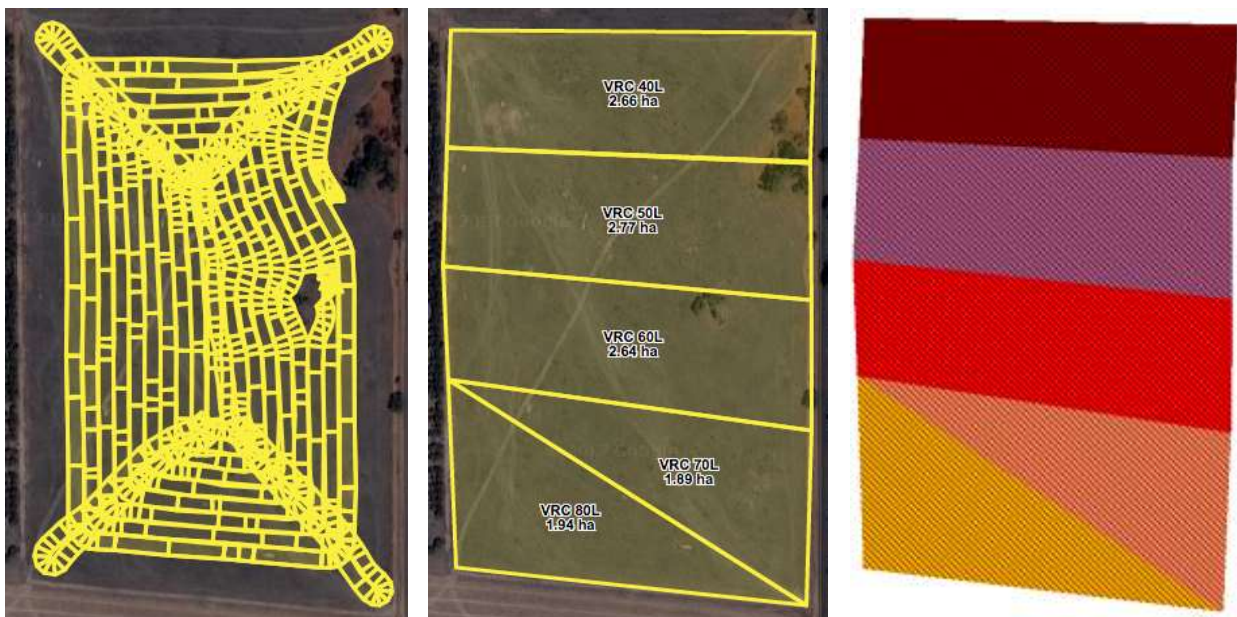
MAPPING – VRC PRESCRIPTION FILE (6)

The 74V1, when connected to a GPS has the ability to control to a prescription file. 74V1 Prescription files are a standard SHAPE file format and loaded via a USB drive. Talk to your agronomist or GIS expert to create your files.

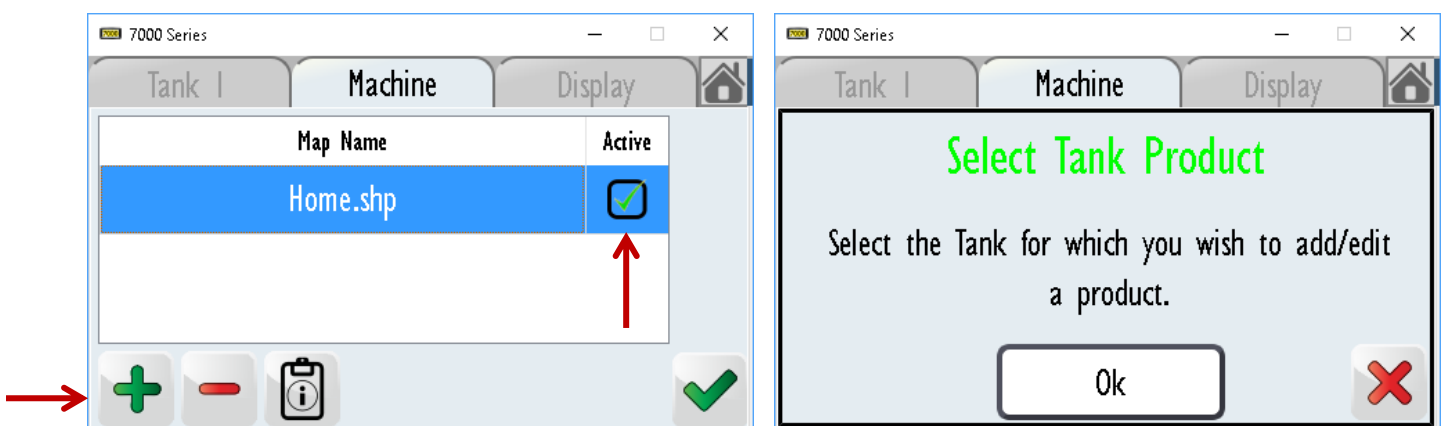
Please ensure the file is single layer and exported as a standard SHAPE file with all files present to a USB drive.

- *.DBF
- *.SHP
- *.SHX

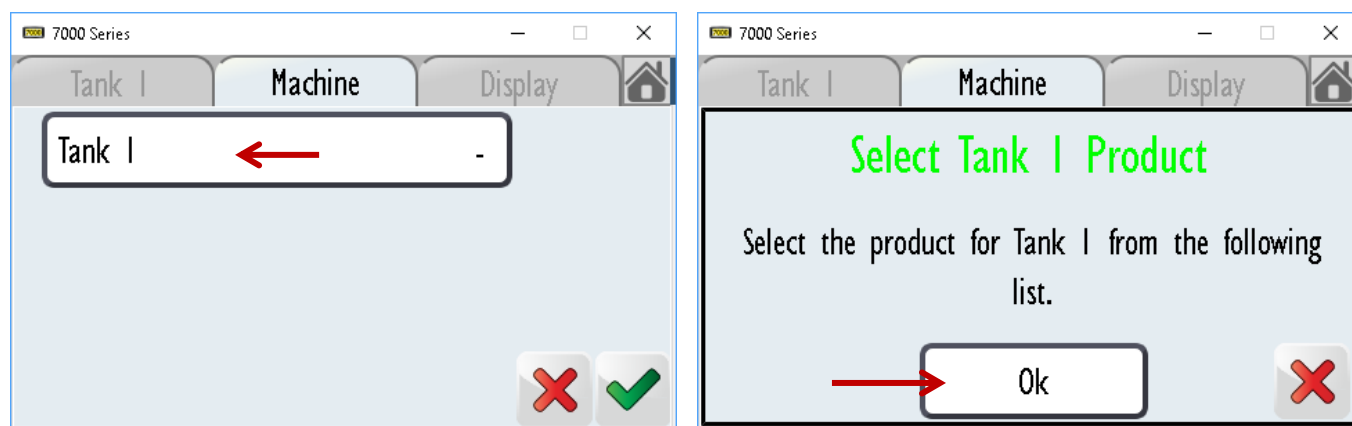
Below is an example VRC Prescription file created from a Coverage Map to a Zone Map & then to an application map. Each Zone is a rate change from 40L/ha to 80L/ha for the purpose of the example.



When you enter the Mapping Window the 7000 will automatically search the USB for a valid Shape File. Once the file has been selected and active you will be prompted to allocate the VRC layer to the TANK.



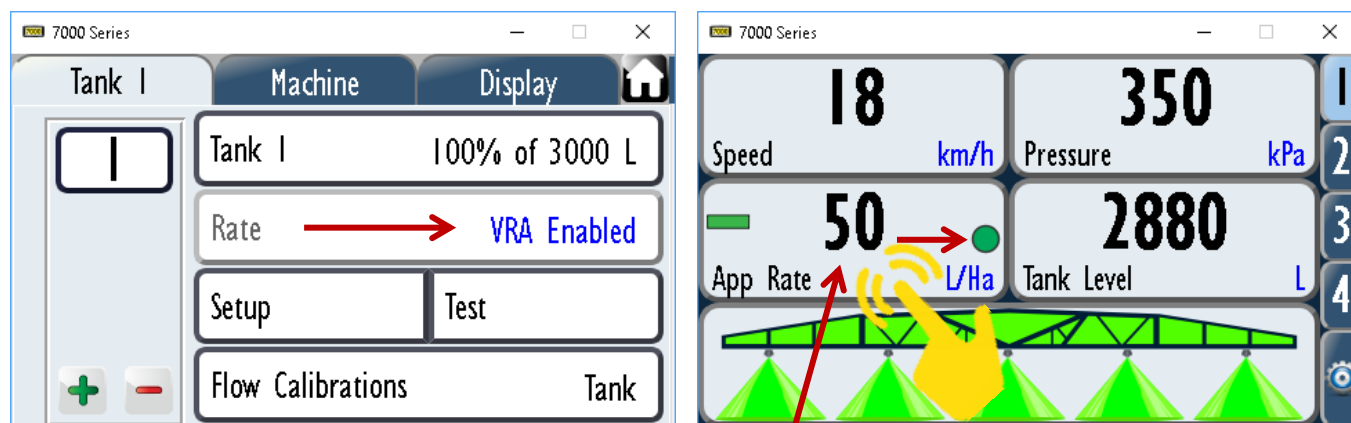
Allocate the VRC shape file to **Tank 1** and accept the prompts.



Select the **RATE** from the Shape File & Accept.



When you return to the main tank you will now see that rate is now **VRA Enabled**.



The main working screen that displays the application rate file will now be displayed with a GREEN DOT indicating the 74V1 is controlling to the VRA file.

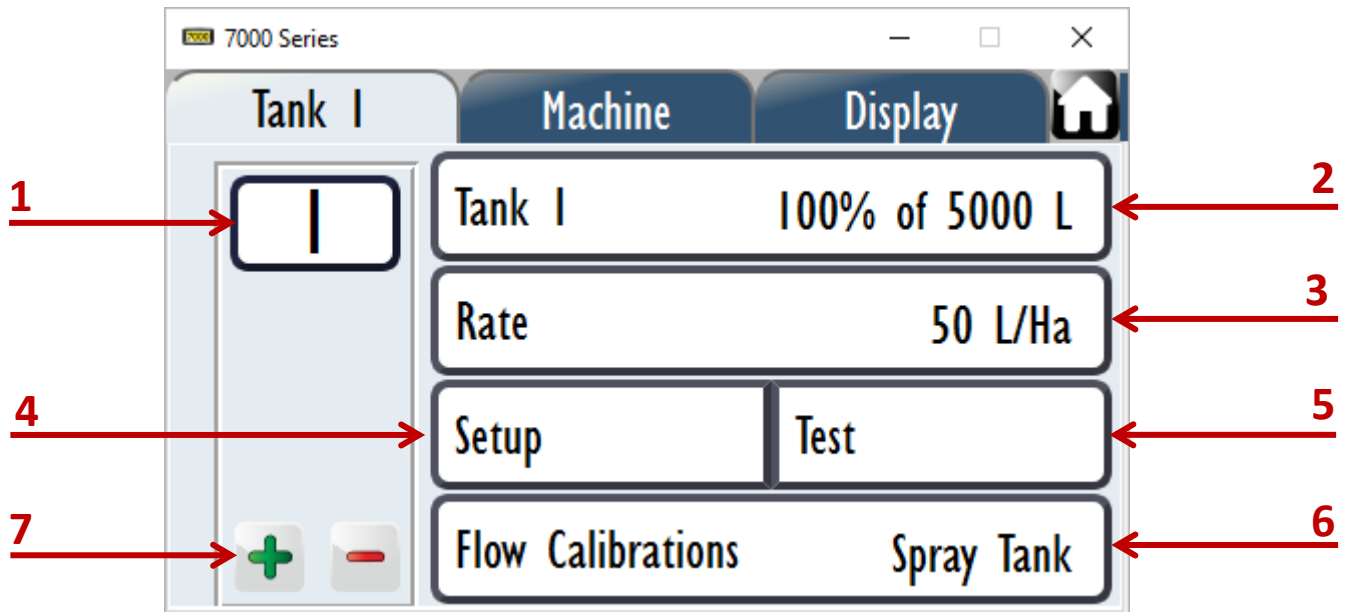
As you drive over the field. Pressing on the APP RATE Tile will reveal the LIVE Rate.



Return to manual control by going to **Settings > Machine > Mapping** and unticking the **Active** box.

Refer to PAGE 91 to view the VRC Prescription Map LIVE on a TAB

TANK SETUP



1. Tank Number (X)

- a. Select to show the configuration for each tank (if applicable).

2. Tank X Capacity

- a. Shows the estimated capacity as a fraction of the total capacity.
- b. Select to configure tank volume and level settings.

3. Rate

- a. The application rate being applied.
- b. Select to adjust desired rate and step (if applicable).

4. Setup

- a. Setup the flow control valve.
- b. Select a pre-defined valve setup, or enter a custom value.

5. Test

- a. Select to go to the **Test** menu.

6. Flow Calibration

- a. Shows the product currently calibrated for the flow meter being used.
- b. Select to change flow meter calibrations for a different product..

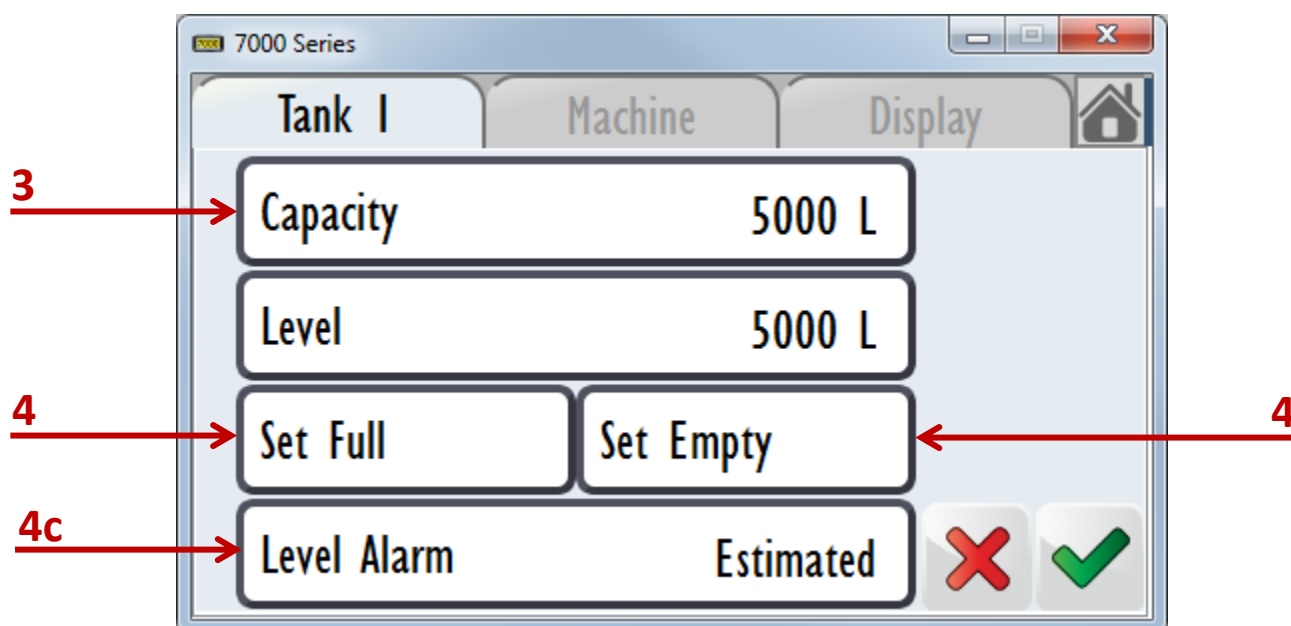
7. Add/Remove Tank

- a. Use this to add a second tank to your setup.

NOTE: Please note that your UNIPOD must be programmed & setup for this type of dual rate application.

CAPACITY (2)

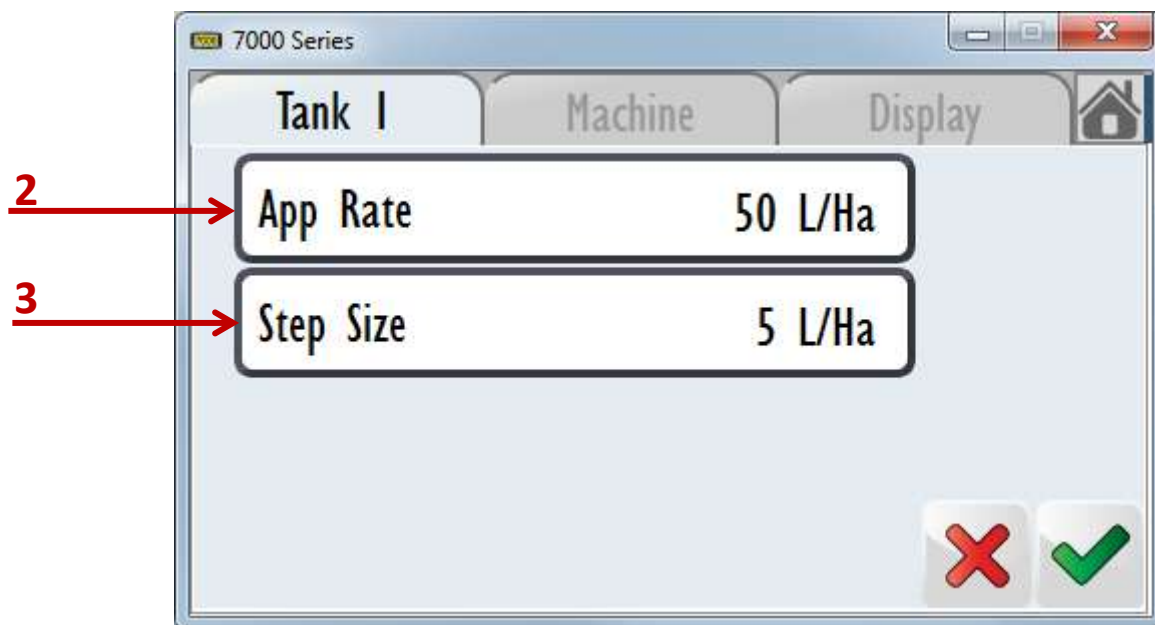
To setup the capacity of a tank, follow these steps:



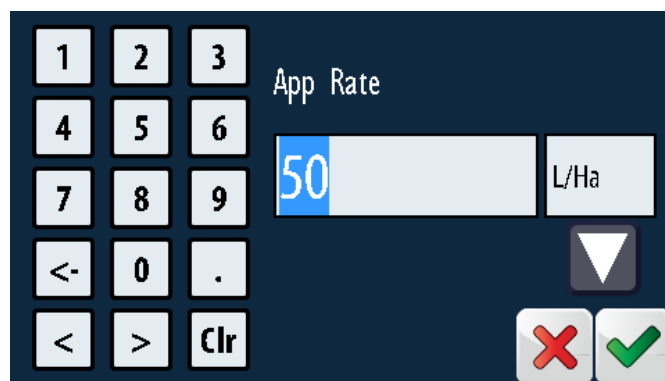
1. Select a tank in the list on the left to select it. (Refer to previous page)
2. Select the **Tank X** button.
3. Select the **Capacity** button.
 - a. Enter the volume of the tank.
 - b. Select a unit using the **Up** and **Down** arrows. (If required to change from Litres)
 - c. Select the green **Tick** button.
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 (tank level sensor) value. If unsure, leave option as **ESTIMATED**
5. Select the green **Tick** button to save your changes.

RATE (3)

To setup the desired application rate for a tank, follow these steps:



1. Select the **Rate** button (not shown in the image above – Refer to Page 49).
2. Select the **App Rate** button.
 - a. Enter your desired application rate for the tank.
 - b. Use the **Up** and **Down** arrows to select the unit.
 - c. Select the green **Tick** button.



3. Select the **Step Size** button.
 - a. Enter your desired application rate step for the tank.

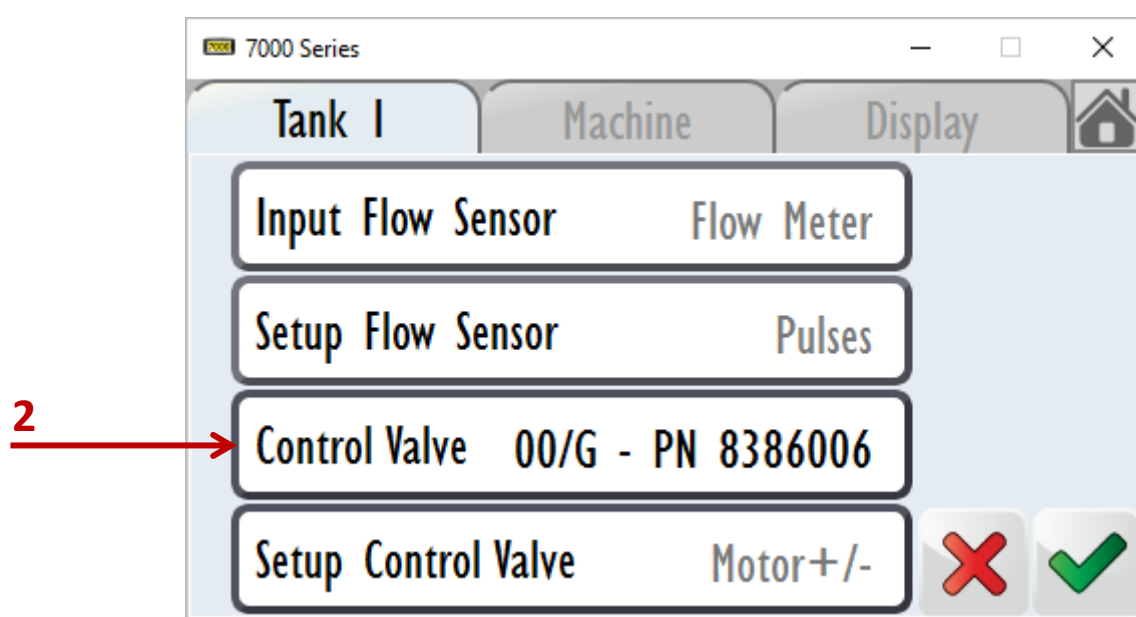
NOTE: The step size that the application rate will change by when being adjusted from the **Front Screen** rate tile.

4. Select the green **Tick** button.

SETUP (CONTROL VALVE / PROPORTIONAL VALVE) (4)

It's important to set up your flow control/ proportional valve correctly to maintain regulated flow while changing speeds. Under **Control Valve** we have some pre-defined valves common to standard Farmscan Ag setups.

- Custom (define your own settings)
- Arag
- GeoLine : Farmscan Part Number : AH-600/G | GeoLine Part Number 8386006)
- GeoLine PRV (Part Number 8384035) | Europe Only
- Braglia : Farmscan Part Number : AH-521 | Braglia Part Number 180.1910.14
- Teejet
- Raven
- Hardi



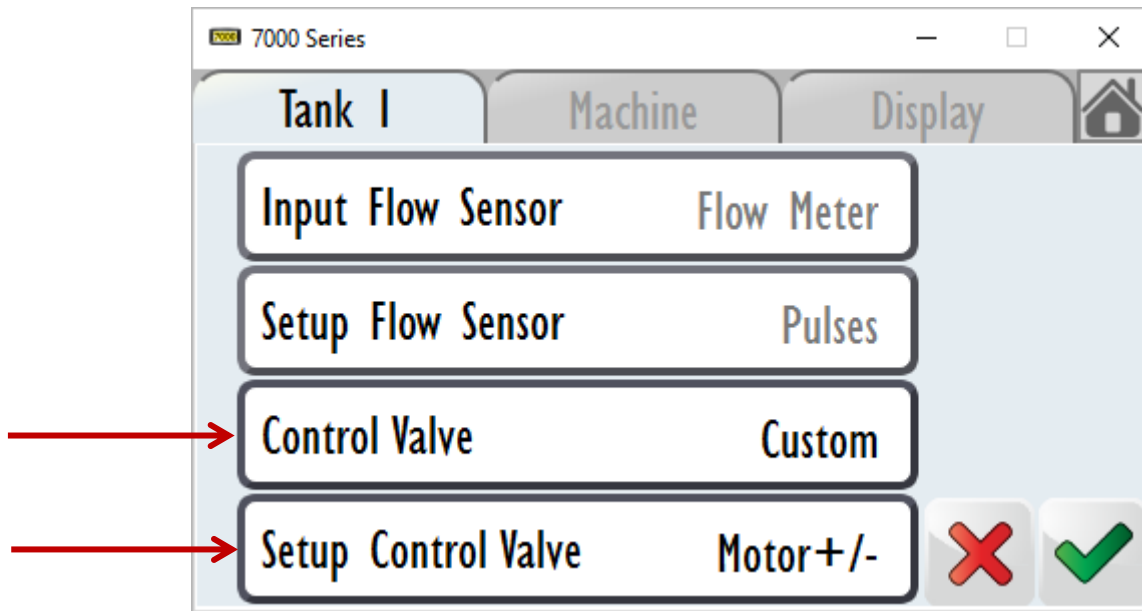
NB : If you have purchased a standard control valve bank from Farmscan Ag, Geoline will be your default selection

1. By default, the system does not require any user edits for:
 - a. Input Flow Sensor : Flow Meter (Default)
 - b. Setup Flow Sensor : Pulses (Default)
2. Select **Control Valve**. (only available when **CUSTOM** is selected)
 - a. Choose an option as indicated, or select **CUSTOM** & proceed to the **SETUP CONTROL VALVE**.
 - b. Select the green **Tick** button.

SETUP (CONTROL VALVE / PROPORTIONAL VALVE) – CUSTOM (4)

By selecting **Custom** you have the ability to set your own values as per the manufacturer's recommendations or if advised by a Farmscan Ag Technician.

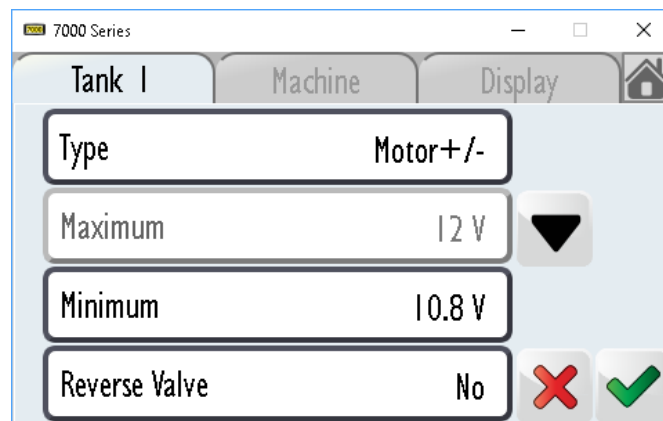
It is recommended that you please contact Farmscan Ag Technical Support for clarification regarding the setup of non-standard control valves.



The following provides a brief overview of the custom options.



Warning: Changing these values can be detrimental to your valve if not done correctly. Proceed with caution!



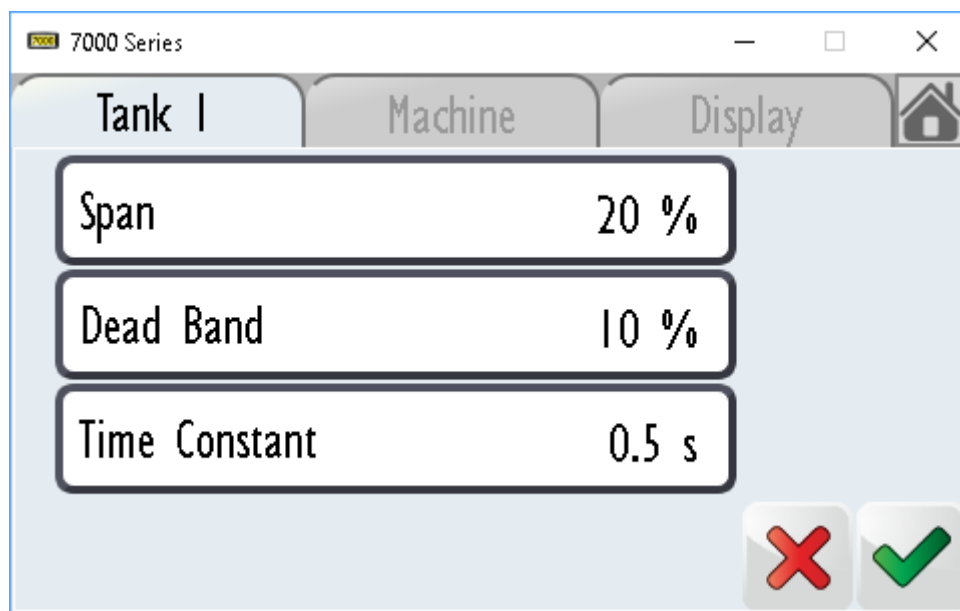
Type: The operational type of the valve, in a 74v1 this will always be a **Motor +/-** Valve.

Maximum: The maximum voltage to apply to the valve. **12v** is the maximum and default value

Minimum: The minimum voltage to apply to the valve. This is typically the lowest voltage that the valve will still operate under.

Reverse Valve: This will reverse the polarity of the valve if wired in reverse. I.e. if the valve opens when it should be shutting.

Advanced: These values are for users who want to fine tune their settings further.



Span: The range that the valve will use proportional control over when rate is close to target. When past this percentage, the full voltage will be applied. This will prevent a large voltage being applied to make a small change in the valve. **20%** is good starting point

Dead band: The range where the system will apply no voltage to the valve. This will stop the valve from being worked constantly when the desired rate is achieved. It is highly recommended that this value is set above **10%** to increase valve life.

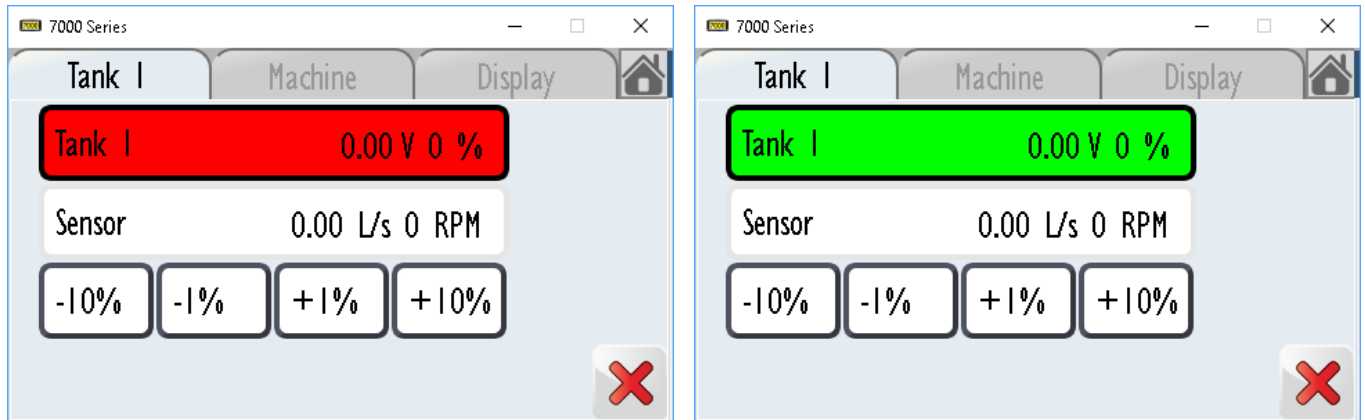
Time Constant (Smooth Factor): The time in which the monitor will try and control to a new desired rate (i.e. when changing rates). The lower the time, the quicker the rate will change. The higher the value, the longer the rate will take to change to the new desired application rate. Suggest **0.5** as a good starting point.

TEST (5)

The output test allows you to check the flow control and flow meter are working correctly.

When activated, the flow control valve will fully OPEN or CLOSE to open, open all sections and allow feedback from the flow meter.

The test feature also helps to identify if you need to REVERSE the flow control as described on [Page 53](#).



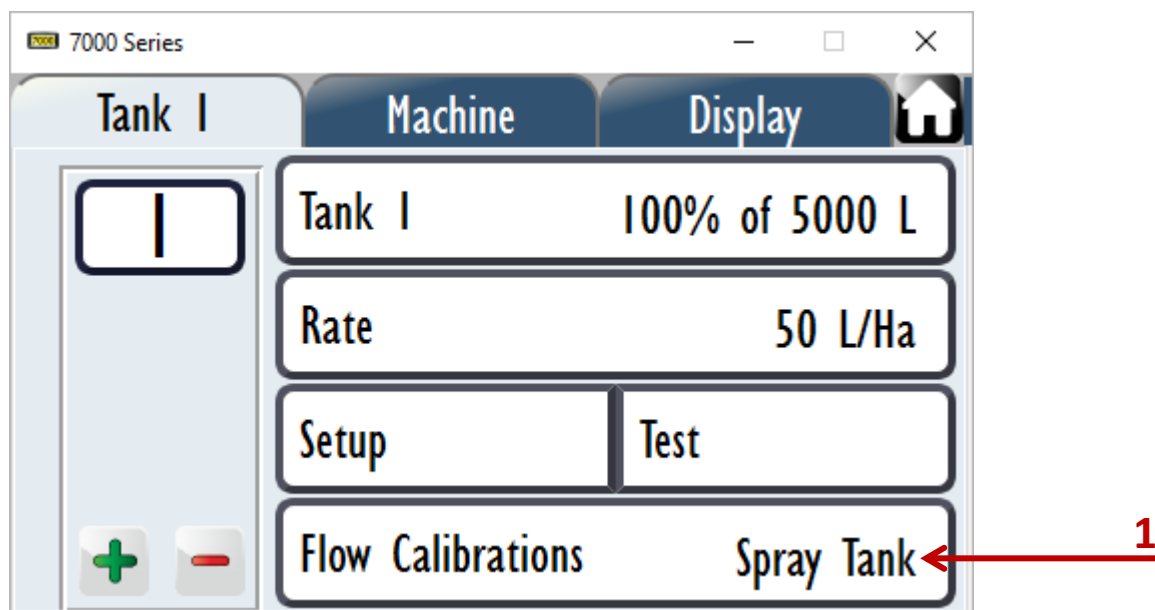
1. Select the RED **Tank 1** button to enable it. (It will turn GREEN)
WARNING: This will turn on the tank output immediately.
2. Adjust the **Output %** to give output. – Suggest upping the value +/-10% at a time. You should notice liquid flowing through to the nozzles. At +100% the flow control valve will be fully open and liquid should be present at each nozzle. At -100% the flow control valve should be fully closed and liquid should be returning to tank if a dump valve is in place)
3. Ensure that the **Sensor** reading is display a value in L/s or RPM – This ensures you are getting a reading from your flow meter.
4. Select the red **Tank 1** button to disable it.
5. Select the red **CROSS** button to exit the test screen.

FLOW CALIBRATION (FLOW METER) (6)

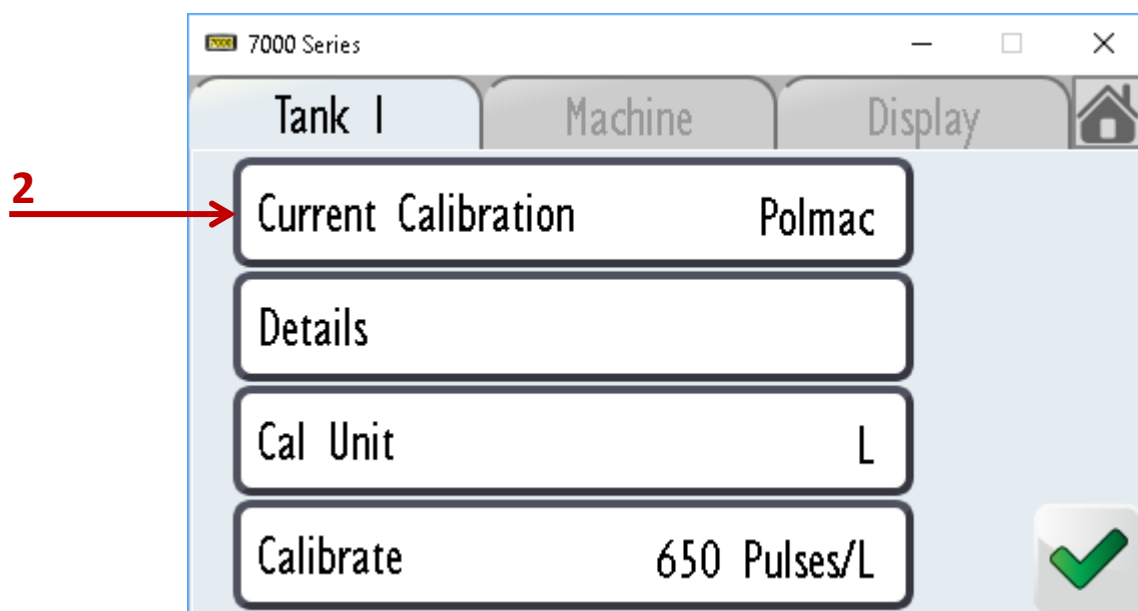
Each tank must be calibrated to a flow meter to allow the 74V1 to achieve the correct applied rate. The 74V1 has the ability to recall multiple pulse per litre (PPL) calibration factors for multiple machine & flow meter setups.

This feature is useful for those who may have multiple rigs where implements are swapped frequently and recalling product calibrations for flow meters are required. I.e. from Liquid fertiliser rate control during seeding to your default broadacre spraying implement.

NOTE: In most cases you will only have to calibrate the product/ tank (flow meter) once.

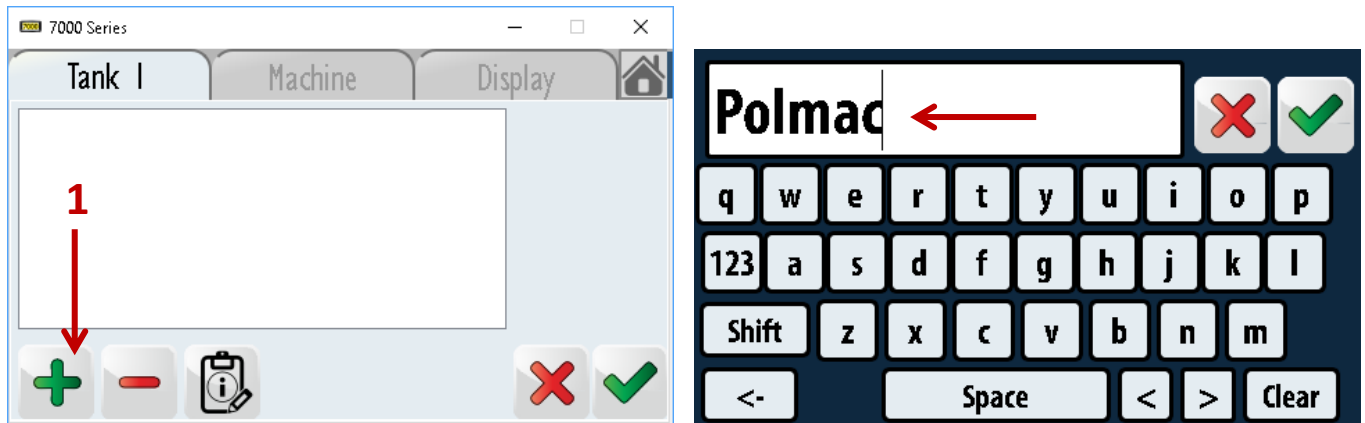


1. Start by selecting **Flow Calibrations** (as above)

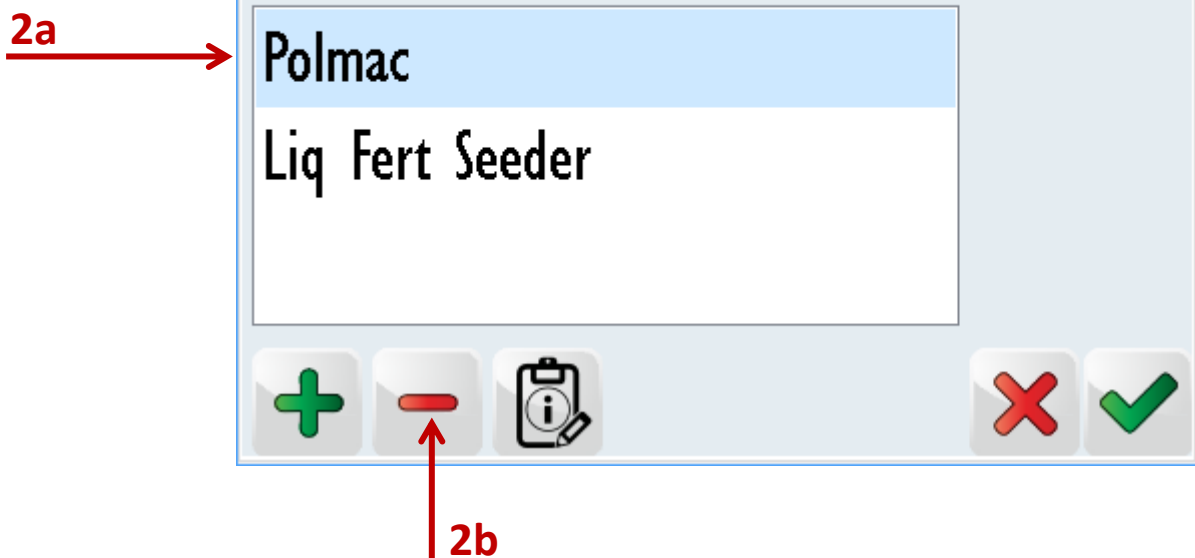


2. Select **Current Calibration** & follow the steps on the next page.

CREATING OR REMOVING A FLOW CALIBRATION

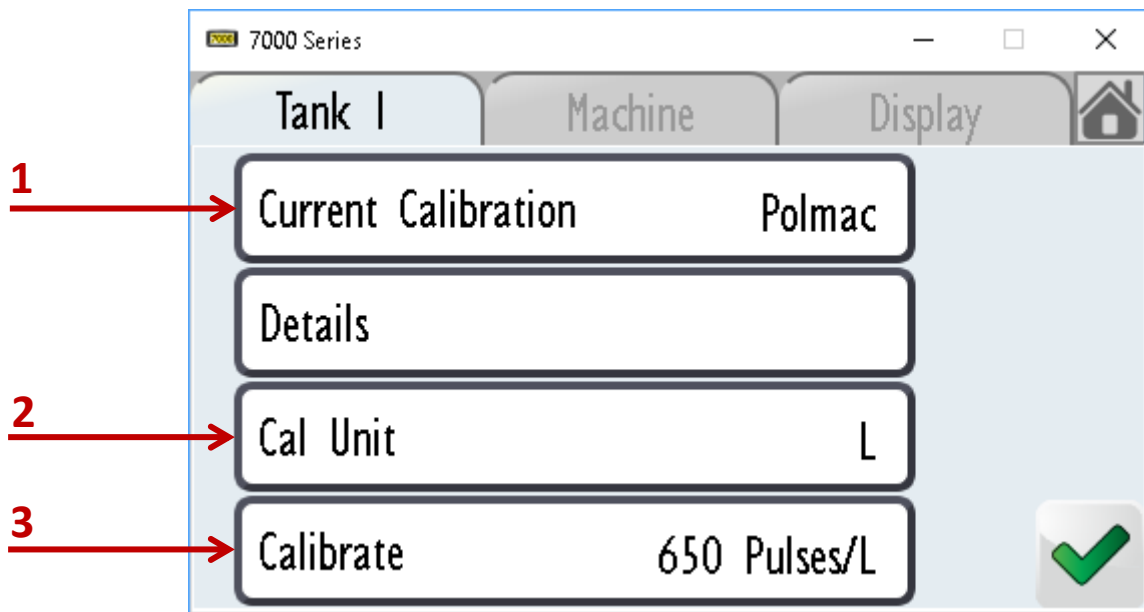


1. Select the + button to create a new flow meter profile.
 - a. Enter a name for the calibration. Polmac is used in the example above
 - b. Select the green **Tick** button.
2. To remove a flow meter calibration:
 - a. Select the desired line.
 - b. Select the – button.
3. Select the green **Tick** button.



FLOW METER CALIBRATION

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



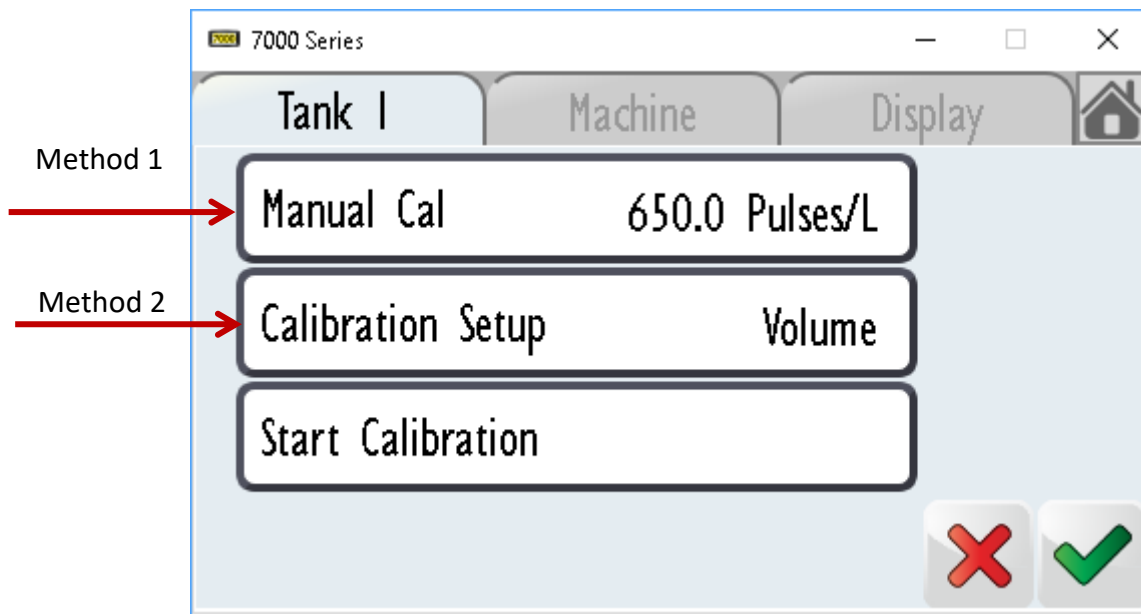
1. Select **Current Calibration**
 - a. Select the previously named flow meter calibration profile
 - b. Select the green **Tick**
2. **Cal Unit** will be default to L. There is no need to adjust this.
3. Select the **Calibrate** button (refer to the next page).



You will need to choose your calibration method from the next 2 sections.

CALIBRATION METHOD

The flow sensor calibration factor relates to the number of pulses per litre (PPL) generated by the flow sensor. The pulse factor is unique to every flow sensor and will vary slightly depending on liquid viscosity and plumbing configuration. In some cases, a tag will be attached to new flow meters & this value can be entered into the **Manual Cal**. This is a good starting point before a full calibration.



Two methods of Flow Meter Calibration are available:

- **Method 1:** Manual Factor or Known PPL (found on flow meter tag)

Method 2: Full System Calibration (calculated method)

METHOD 1: MANUAL FACTOR OR KNOWN PPL

In some cases, common flow meters are pre-calibrated from factory and are fitted with a tag to each flow insert.

In the case of our standard flow meter supplied by POLMAC a tag attached will indicate the current PPL factor for that flow insert. If the value is known, insert the value in the Pulse/L window as shown below.



Even though on the tag attached to the flow sensor included in the kit there is a base calibration factor, this factor should be checked. Refer to **Method 2** (in the next section).

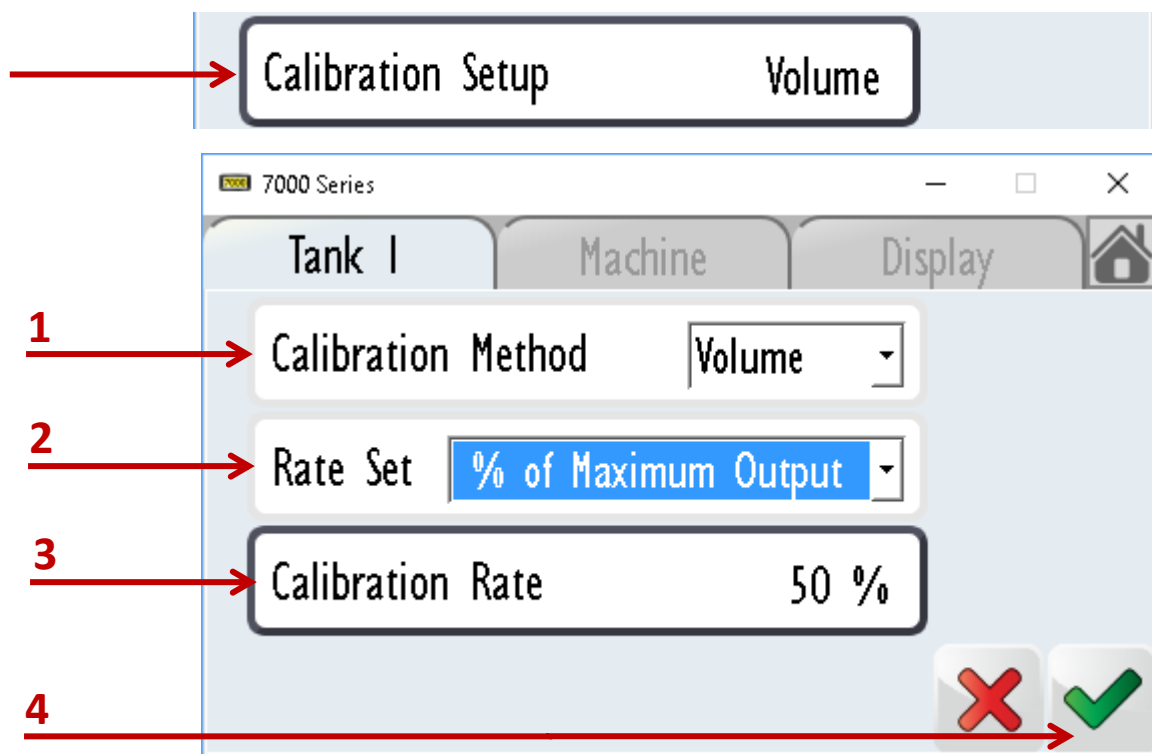
METHOD 2: FULL SYSTEM CALIBRATION (CALCULATED METHOD)

A full system calibration is preferred as it takes into account any subtleties and variances with the machine and flow meter. A minimum 10L container is recommended or measuring jug.

There are three variations on a Full System Calibration:

1. **Count** : Volume of discharge per pulse counts received from flow meter (Not Preferred)
2. **Time** : Volume of discharge in a set period of time per pulse counts received from flow meter
3. **Volume** : Mass of discharge per pulse counts received from flow meter

To perform a Full System Calibration select **Calibration Setup**.



1. Select the **Calibration Method** from the dropdown list as **VOLUME** or **TIME**
2. Select the **RATE SET** from the dropdown list as **% of Maximum Output**
3. Enter the **Calibration Rate** in Percentage at **50%**. (This will open the control valve to half rate as not to cause any damage to your pump)
4. Select the green **Tick** button to return to the previous screen.

5. Select **Start Calibration**.

Start Calibration

6. Select **Calibration Amount**.

- If calibrating by **Time**, enter the number of seconds to run the calibration for. (e.g. **30**)
- If calibrating by **Volume**, enter the catching amount of the container - e.g. **10** if catching into a 10L container.

7. Direct a hose from the **SECTION 1** valve into the marked/calibration bucket, measuring jug or similar.

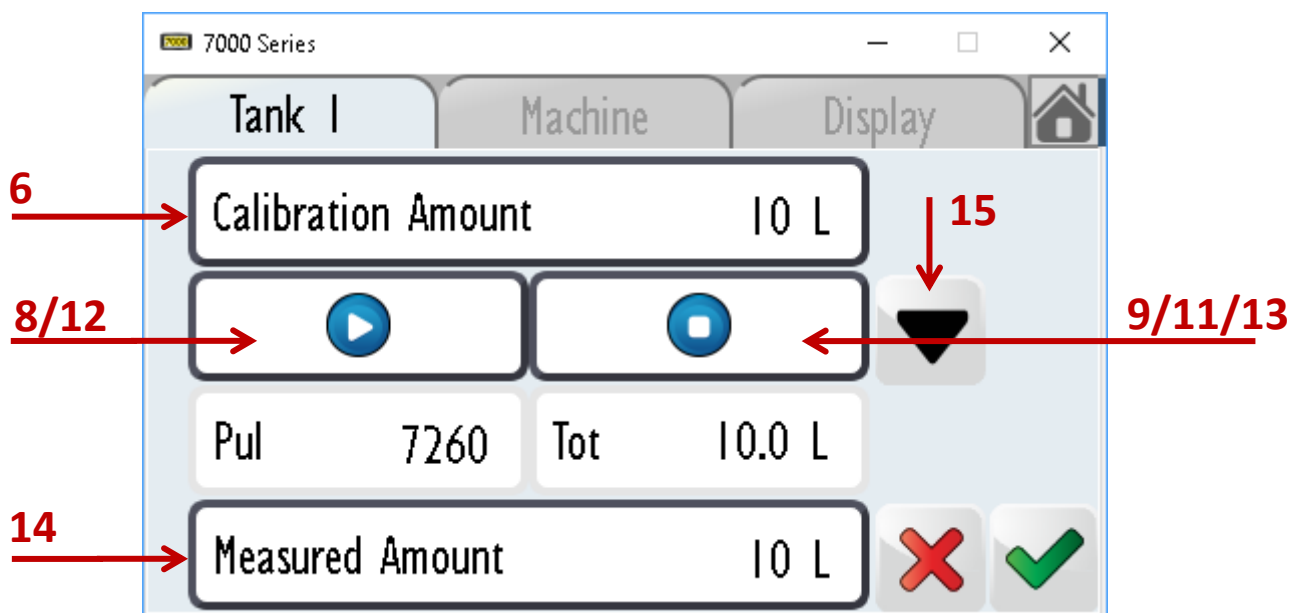
8. Prime the lines by pressing **Play** or **Turning the MASTER switch & Section 1 on the Smart Switch**

WARNING: This will turn on the output of the tank selected.

9. Select **Stop** when product appears in bucket.

10. Return product in bucket back to tank or discard.

PLAY & STOP WILL BE DISABLED ON SCREEN WHEN SMART SWITCH IS CONNECTED



11. Select the **STOP** button to restart the counter.

12. Select the **Play** or **Turning the MASTER switch & Section 1 on the Smart Switch**.

13. Wait as the container fills up with product to the desired measure mark. If it looks like it will overflow, select the **Stop** or the **MASTER switch OFF** before this happens.

14. Select the **Measured Amount** button and enter the amount of product discharged.



15. Press the down arrow to view the new Pulses/L factor

16. Select the green **Tick** button to accept the new factor and accept the changes.

NOTES:

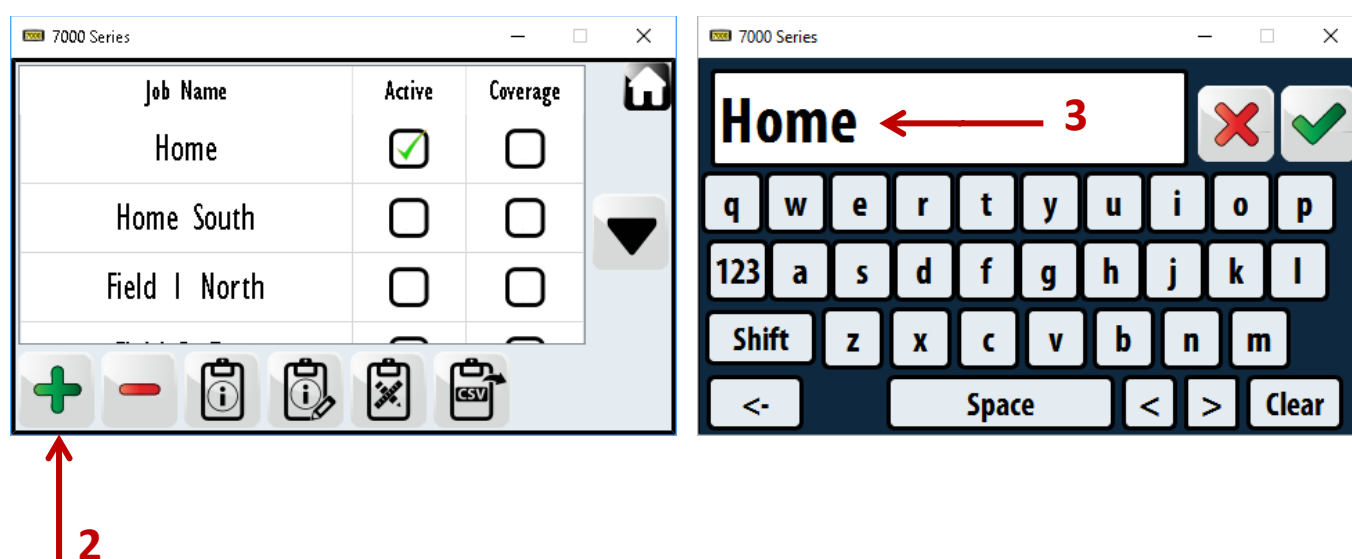
- If you have previously calibrated this product for this tank, selecting the **Pulses/L** button will allow you to manually enter a calibration value. Alternatively, enter the calibration value using the known PPL Method.
- If the calculated **FLOW CAL** (Pulses/L) differs greatly from the sensor calibration tag attached to the flow meter, repeat the test. Sometimes it's best to do this 3 times to obtain a better average.

JOBS (2)

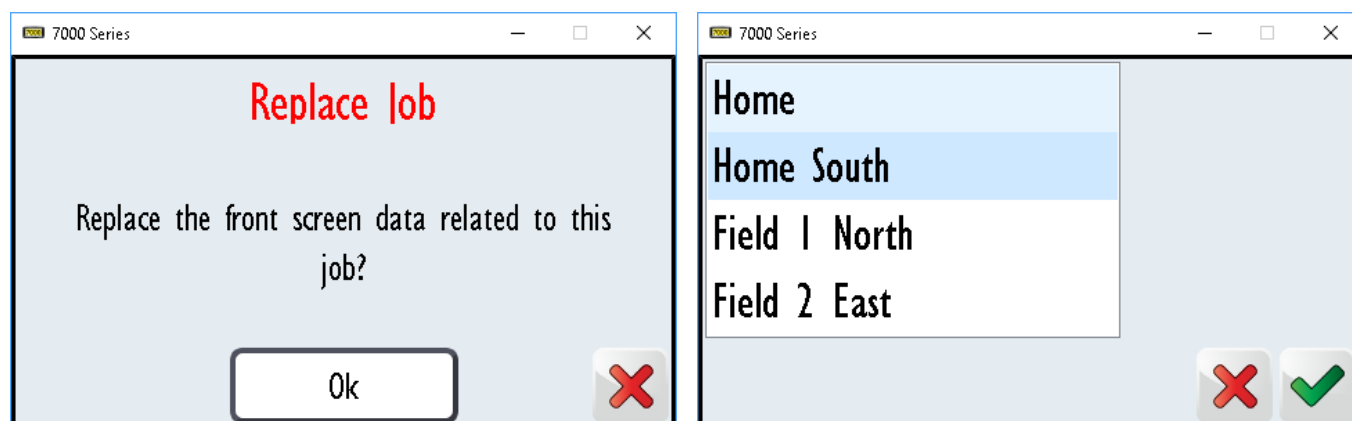
Jobs can be created to record the total and applied duration, distance and area as well as all the applied products. **NOTE:** With NO jobs selected you will be unable to record Ha on a front screen tile widget. A coverage map can be recorded and displayed on a separate TAB when selected. (GPS is required for this function to work) **Refer to Page 91** for more information on coverage recording.

CREATING A JOB

1. Navigate to the **Job** page.
2. Select the **+** button.
3. Enter your preferred Job name.
4. Select the green **Tick** button.



The **ACTIVE** job will be displayed on the Front Tile and accumulate hectares. When changing Active jobs you will be prompted to **Replace the front screen data related to this job** (As below)



Simply select the new Job that you wish to display on the Front Screen Tile to record the new job details.

CREATING A JOB – WITH A COVERAGE MAP

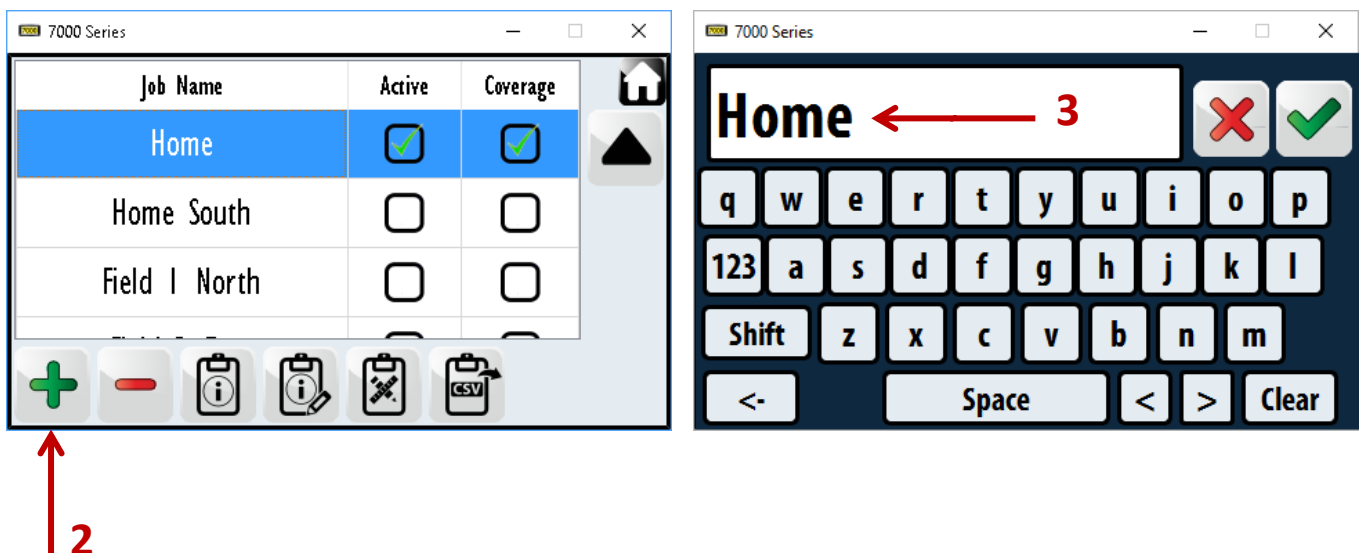
The 7000 has the ability to draw & record a live coverage map of worked area when a GPS is connected to the AC-7000 harness. It is recommended that only one job is active and coverage is recorded at one time.

Farmscan Ag recommends placing the live coverage map on Tab 4 as it displays in a whole screen format.

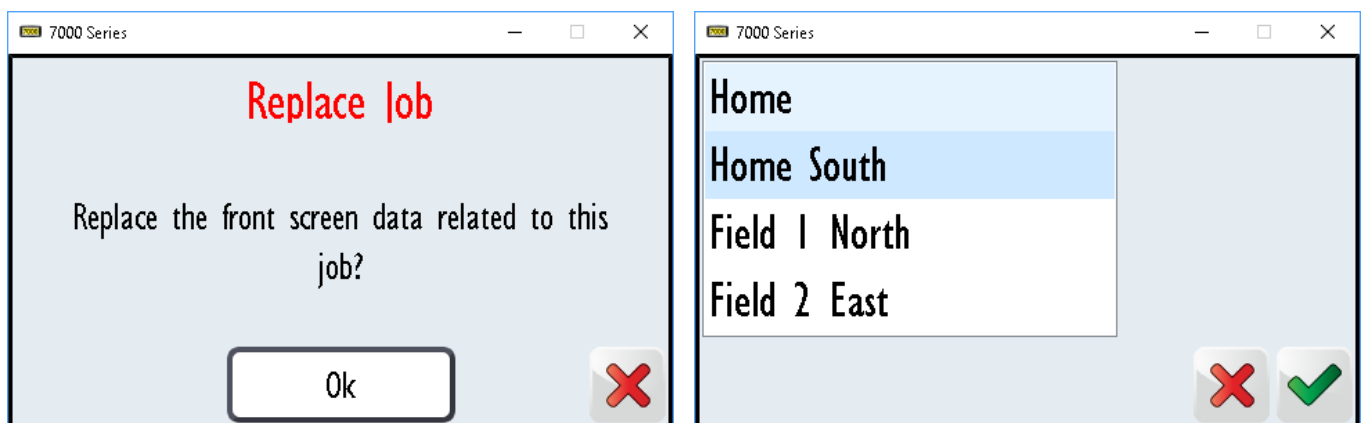
Refer to **PAGE 91** for example view.

Note : At current release 2.17 individual sections turned on/off are not displayed on the coverage map, however are recorded correctly and adjusted during the export and job details via CSV format.

1. Navigate to the **Job** page.
2. Select the **+** button.
3. Enter your preferred Job name.
4. Ensure that **ACTIVE** & **COVERAGE** are both ticked
5. Select the green **Tick** button.



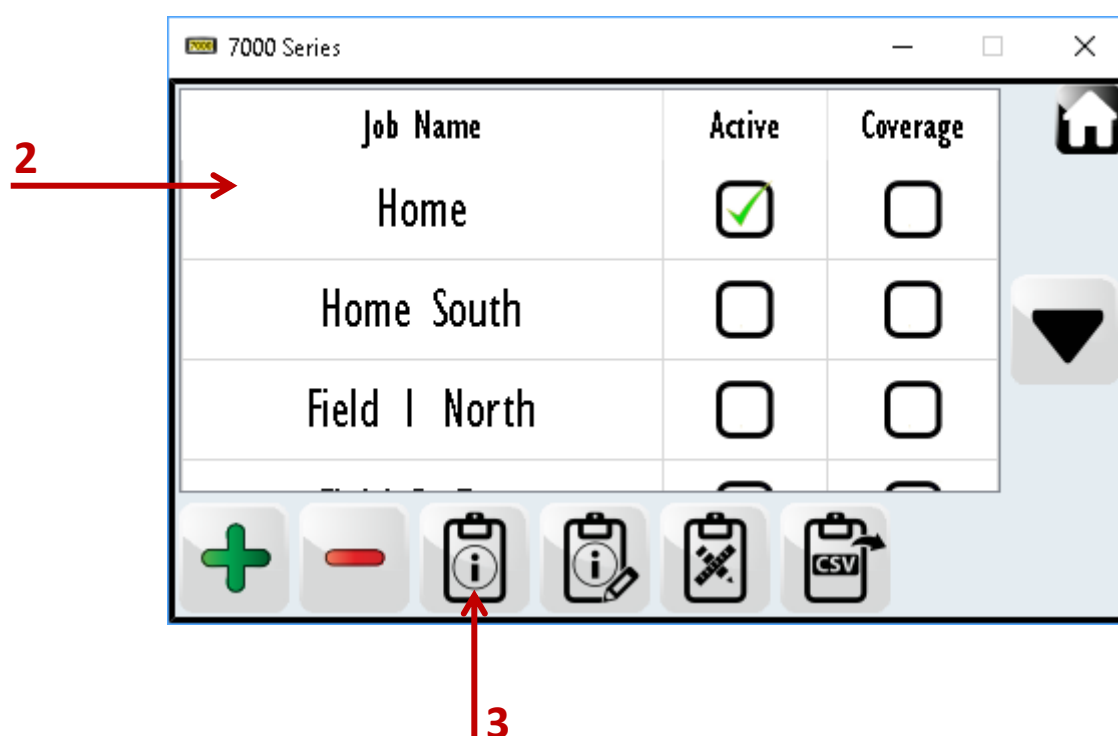
The **ACTIVE** job will be displayed on the Front Tile and accumulate hectares. When changing Active jobs you will be prompted to **Replace the front screen data related to this job** (As below)



Simply select the new Job that you wish to display on the Front Screen Tile to record the new job details.

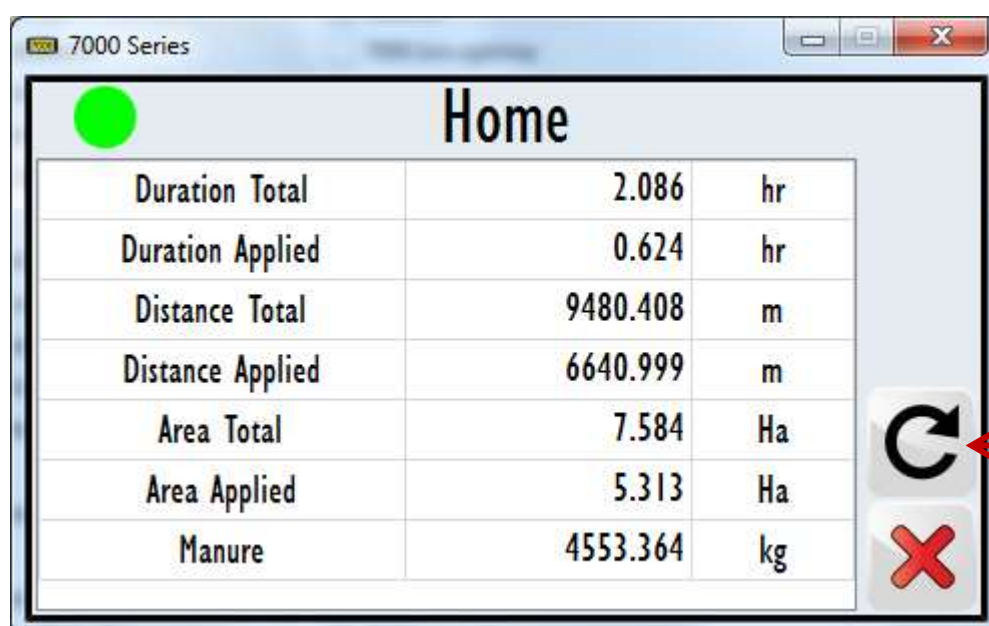
VIEWING A JOB'S DETAILS

1. Navigate to the **Job** page.
2. Select the Job you want to view the details of (the Job will be highlighted blue).
3. Select the **Job details** button.



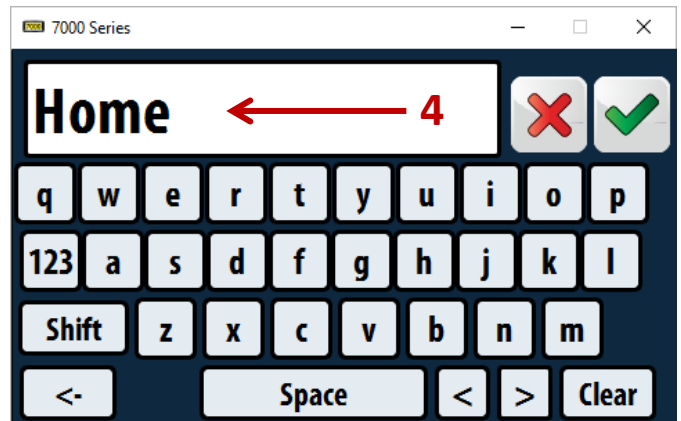
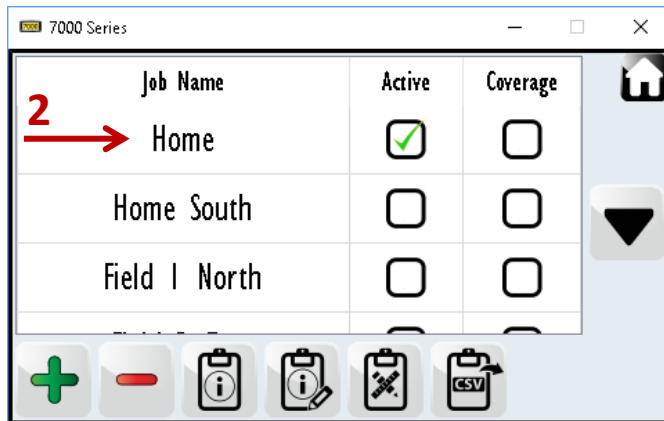
RESETTING JOB DETAILS

You can reset the job details by selecting the **RESET** icon (see below). This will reset all totals.



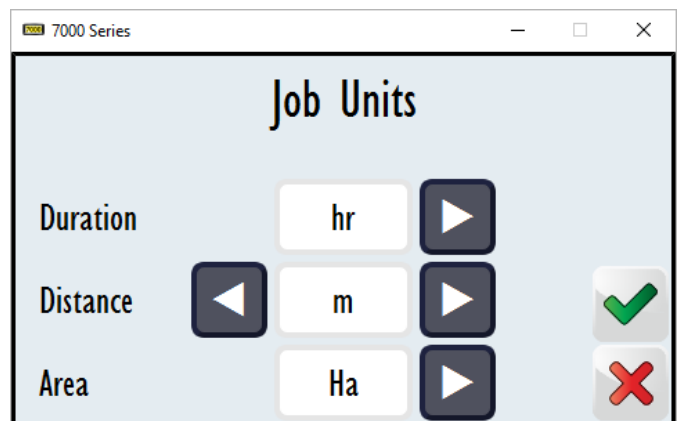
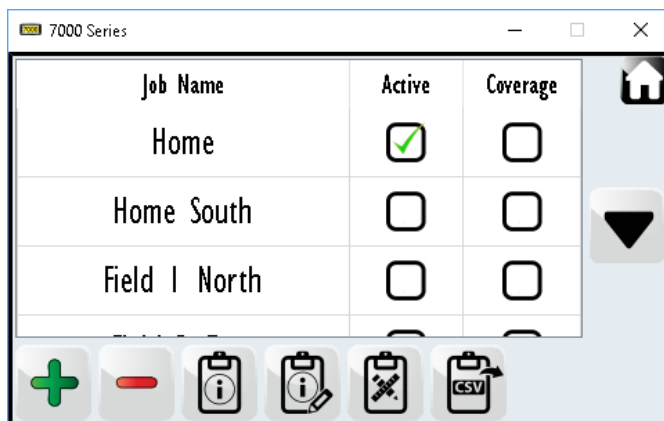
EDITING A JOB'S NAME

1. Navigate to the **Job** page
2. Select the Job whose name you want edit (the Job will be highlighted blue).
3. Select the **Edit Job Name** button.
4. Enter a new name and then select the green **Tick** button.



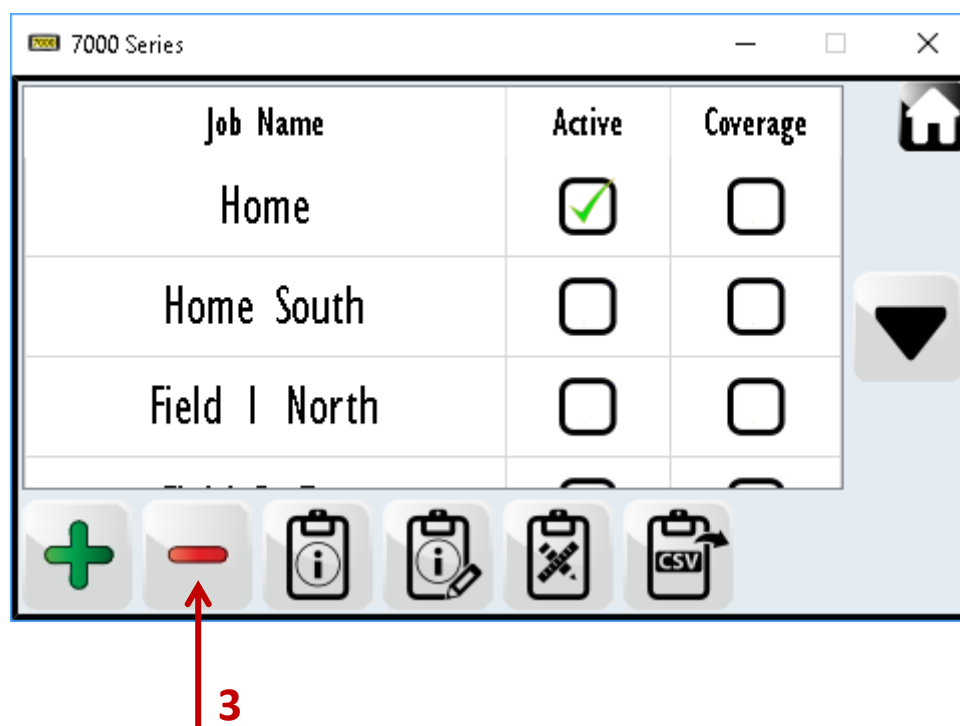
CHANGING JOB DISPLAY UNITS

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



DELETING A JOB

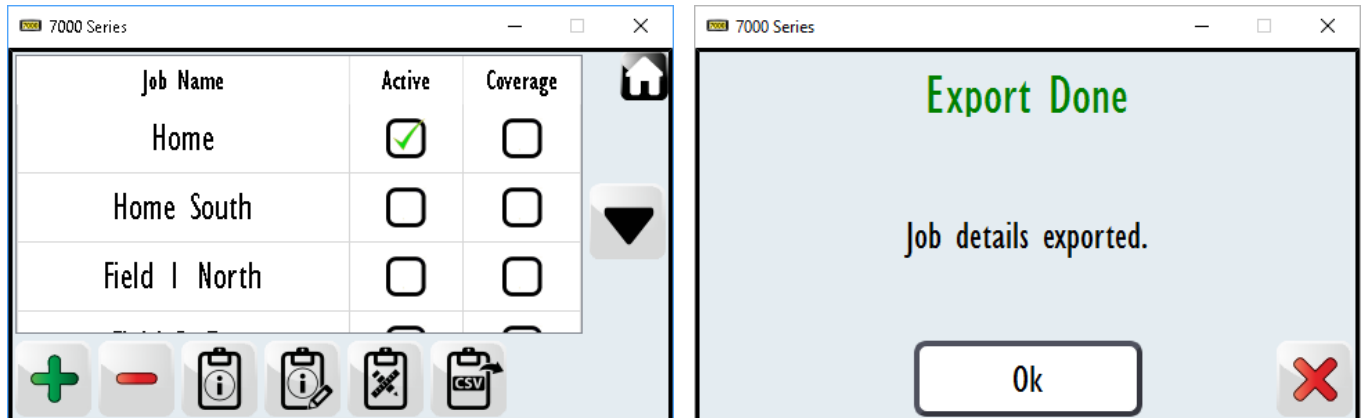
1. Navigate to the **Job** page.
2. Select the Job you want to delete (it will be highlighted blue).
3. Select the – button
WARNING: You will lose all of the information stored in this Job if you delete it.
4. Select **Remove** in the **Warning** screen.



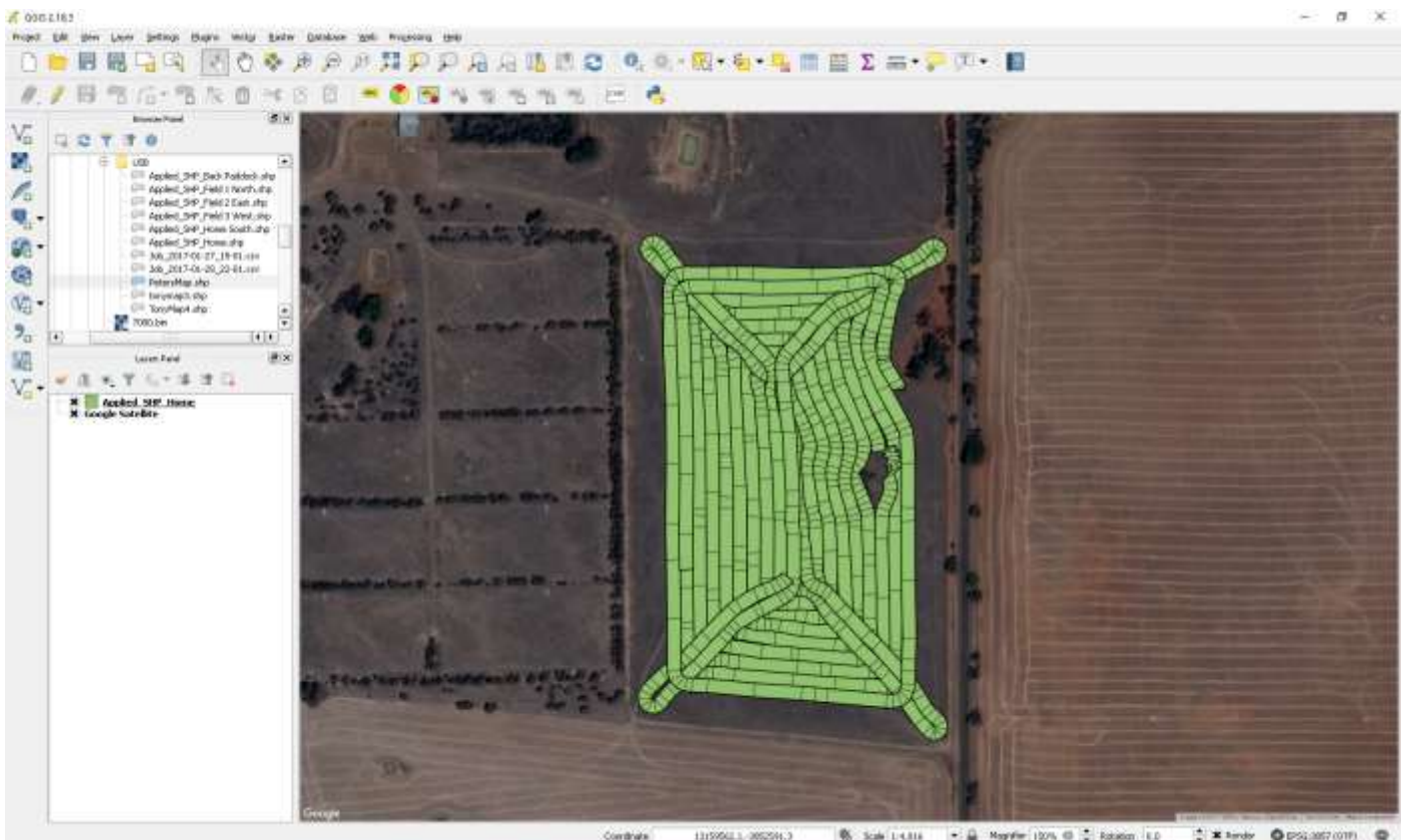
EXPORTING JOBS (SHAPE & CSV)

1. Navigate to the **Job** page
2. Insert a USB memory stick in to the AC-7000 in cab harness. – Wait for 30seconds
3. Select the **CSV** button.
4. A prompt will determine whether the export was successful.

If successful, ALL job data will be exported to the USB stick for viewing in any Farm software that can import a CSV file or standard SHAPE file.



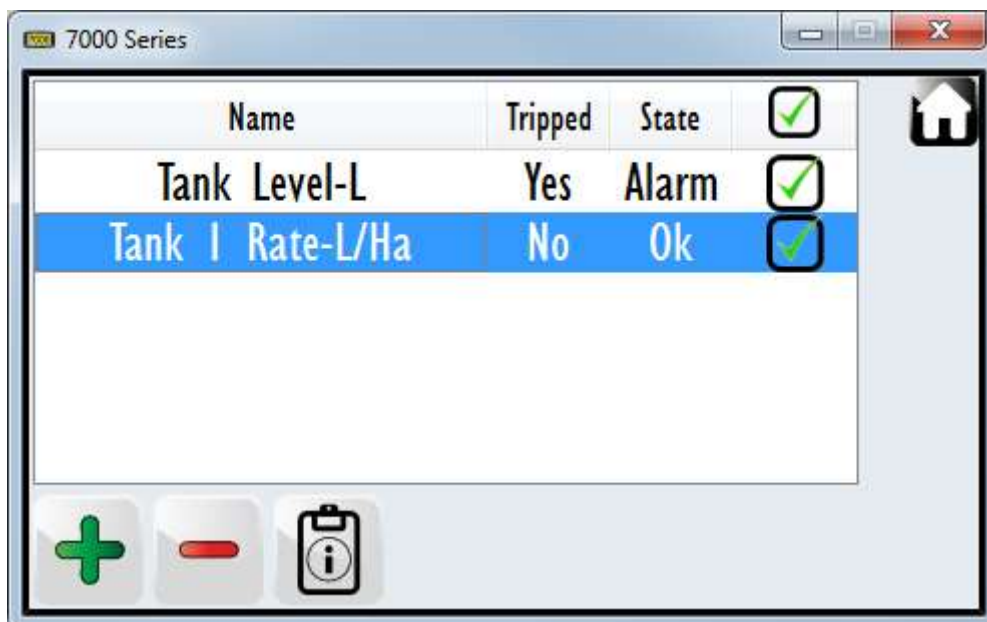
Example below of the exported Shape file being viewed in QGIS.



Other file formats will be coming in further releases.

ALARMS (3)

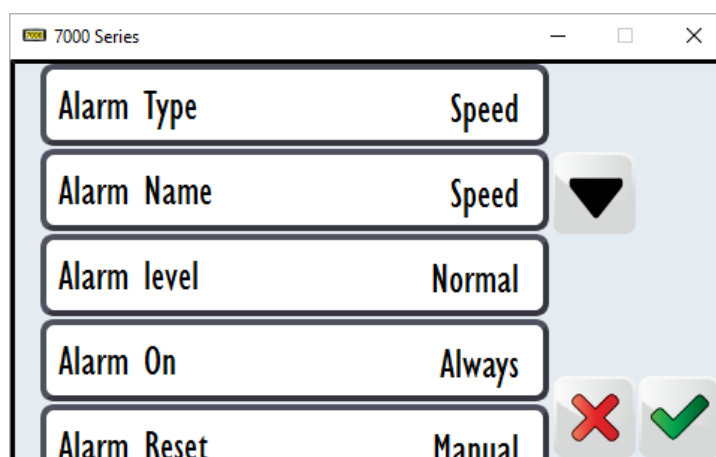
Alarms can be created to give a visual and audible warning to the user or, if critical, put the system into Hold Mode, when a recordable value (speed, tank level, etc.) exceeds a set limit. The visual indicator is in the form of a highlighted RED tab on the right hand side of the display and a RED notification on the alarm indicator in the side menu.



CREATING AN ALARM

1. Navigate to the **Alarm** page from the **Settings** Menu.
2. Select the **+** button to navigate to the **Alarm setup** page.
3. In the **Alarm setup** page, set up the Alarm according to your preferences.

NOTE: The Alarm options are listed below.



NOTE: Alarms are available for ALL inputs/Rates/Jobs.

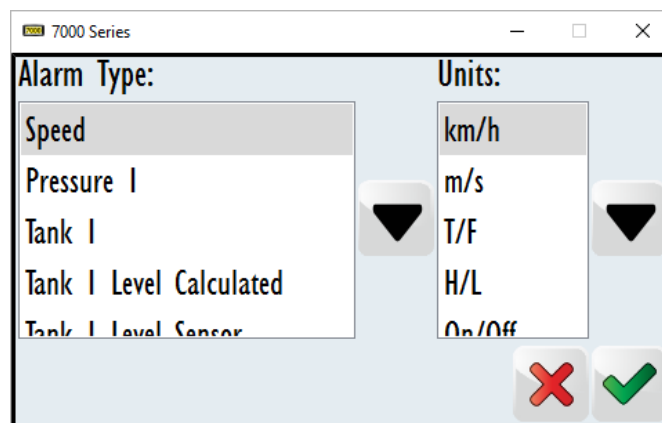
4. Refer to the Alarm options on the next page before selecting the green **Tick** button.

ALARM OPTIONS

An Alarm can be set up with many different options.



1. **Alarm:** Select the **Alarm** button to go to the **Value and Unit Selection** page.
 - a. Select what value (speed, rate, tank level etc.) you wish to alarm.
 - b. Once selected, choose a unit.



- c. Select the green **Tick** button to accept these changes.



2. **Alarm Level:** Select to toggle between **Normal** and **Critical**.
 - a. **Normal:** The Alarm will run as a 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.

Alarm Reset	Manual
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4. **Auto Reset:** Select to toggle between **Automatic** and **Manual**.
- Automatic:** 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.
 - Manual:** 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.

Alarm Buzzer Period	4.000 s	▼
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5. **Alarm Buzzer Period:** Select to input a numerical value.
- 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.

Min Set Point	Off	▲
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6. **Min Set Point:** Select to toggle between **On** and **Off**.
- On:** When the value of the Alarm drops below the given Min Value it will go into the **Alarm** state.
 - Off:** When the value of the Alarm drops below the given Min Value it will not go into the **Alarm** state.

Min Value	0.000 km/h
-----------	------------

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

Max Set Point	Off
---------------	-----

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

Max Value	0.000 km/h	✖	✔
-----------	------------	---	---

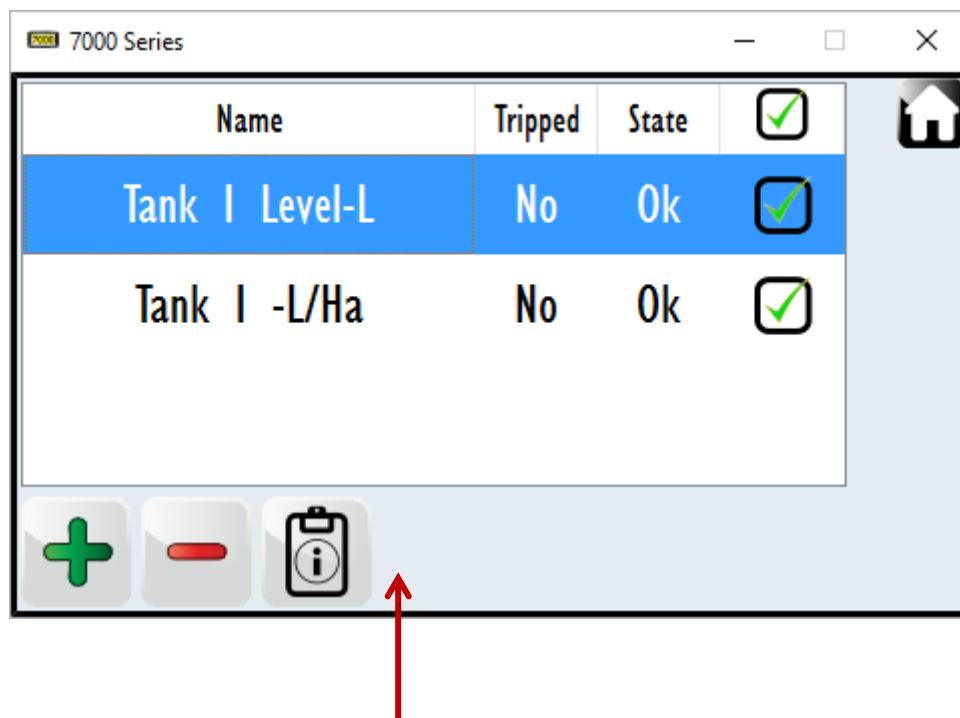
9. **Max Value:** Select to input a numerical value.
- Input the maximum value for the Alarm.

ACTIVATE \ DEACTIVATE ALARM

At any stage you can enable/ disable the Alarm by selecting the row and then the green **Tick** button on the right hand side.

Name	Tripped	State	☒
Tank Level-L	Yes	Alarm	☒
Tank I Rate-L/Ha	No	Ok	☒

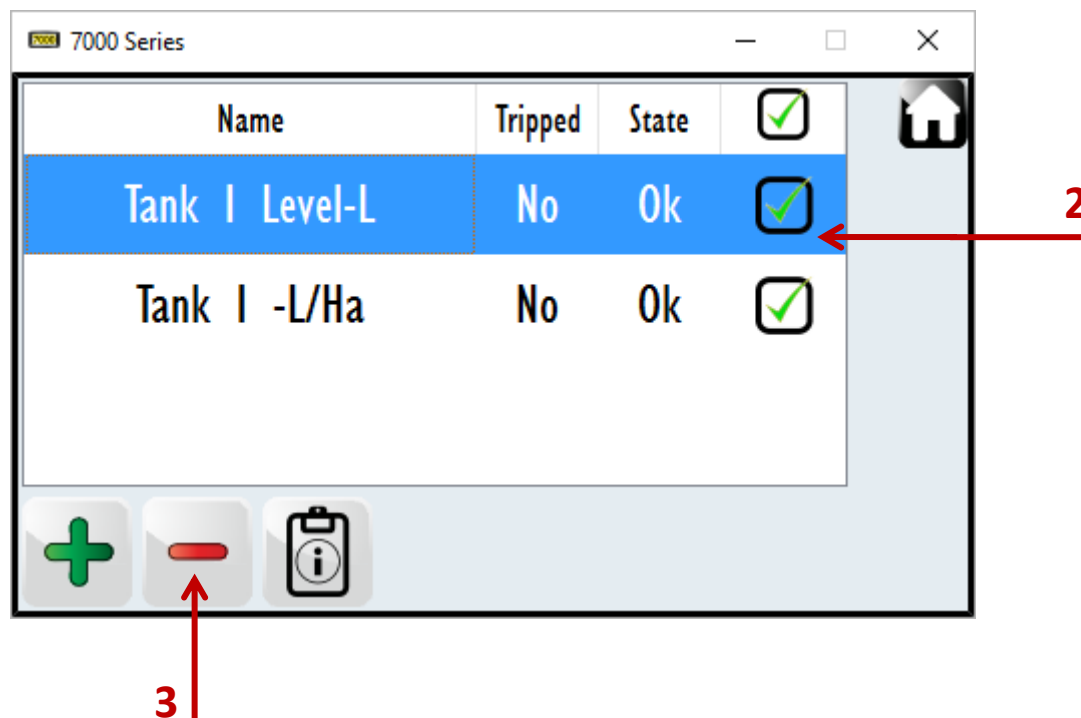
EDITING AN ALARM



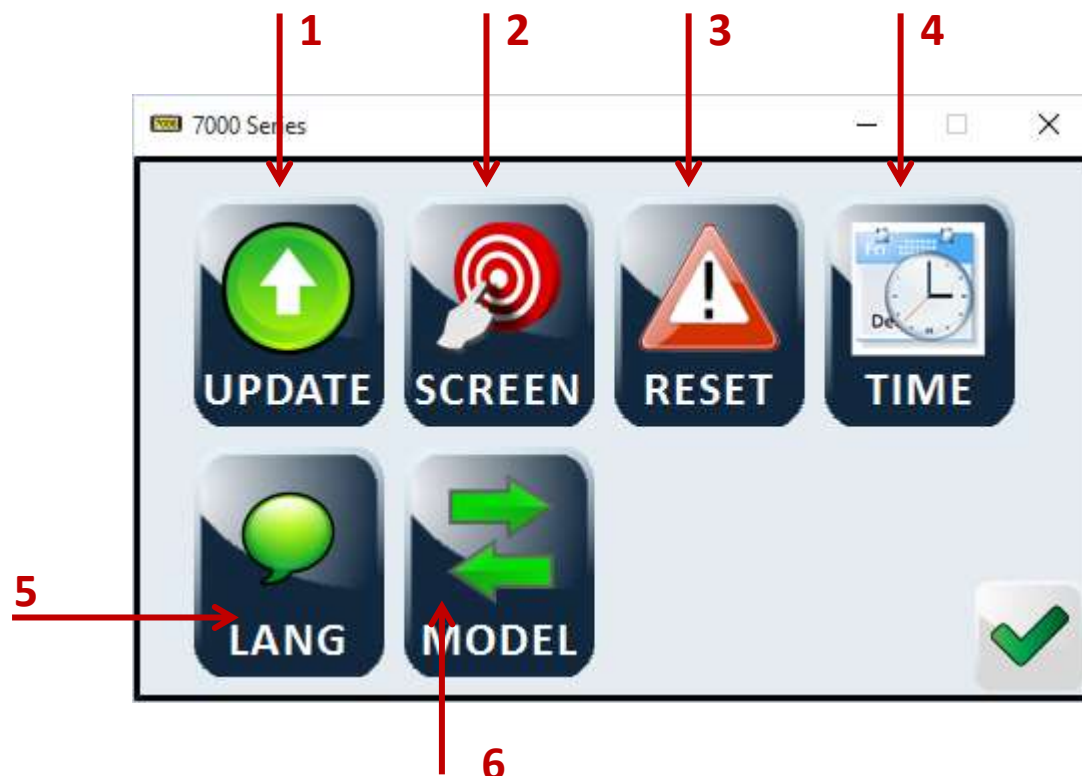
1. Navigate to the **Alarm** page
2. Select an Alarm in the alarm list. **NOTE:** the selected Alarm will be highlighted blue).
3. Select the **Edit Alarm** button.
4. Edit the Alarm to your preferences. **NOTE:** The Alarm options are listed above.
5. Select the green **Tick** button.

DELETING AN ALARM

1. Navigate to the **Alarm** page
2. Select an Alarm in the Alarm list . **NOTE:** the selected Alarm will highlighted blue.
3. Select the – button. **WARNING: All the Alarm settings will be lost.**



MAINTENANCE > SYSTEM (4-1)



UPDATE SOFTWARE (4-1-1)

Updates the software running on the 7000 series device via USB stick.

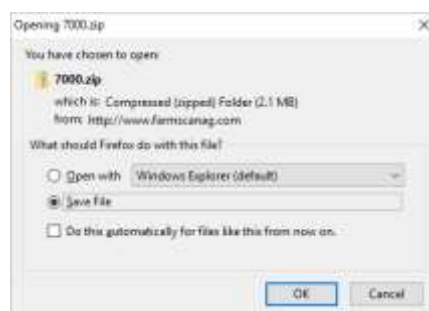
- **WARNING: An update requires the 7000 series software to restart upon completion.**
- **BACKUP your settings to a USB stick. Refer to [PAGE 76](#) before updating your software.**
- **Check your BSP/Hardware Version before updating. (Toolbox > About > BSP Version)**
 - **You MUST download the correct Update for your Device.**

The 7000 update can be retrieved via the following direct links from the Farmscan Ag Website.

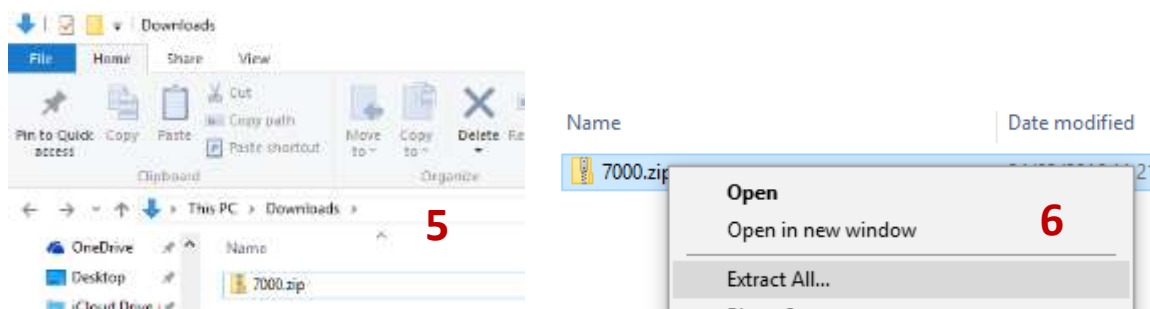
BSP Version 1 : http://www.farmscanag.com/exe/7000/BSP1/7000_1.zip

BSP Version 2 : http://www.farmscanag.com/exe/7000/BSP2/7000_2.zip

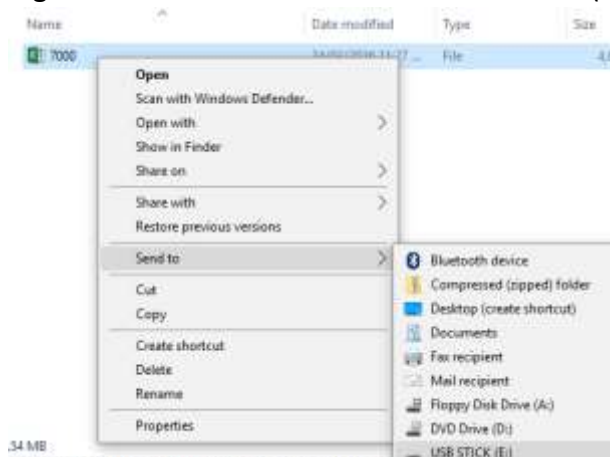
1. Have a USB to hand that is completely empty & insert into your PC
2. Open a web browser and enter one of the following web address as above
3. You be prompted to download and **SAVE File**
4. Press **OK**



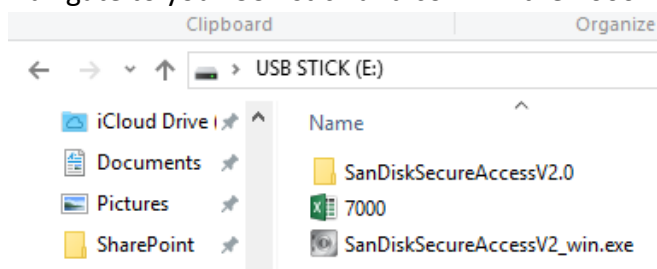
5. In most cases, the file will be downloaded to your **DOWNLOADS** folder on your windows PC. This can be found by opening your Windows Explorer and navigating to this folder.
6. Right Click the **7000.zip** folder and select **EXTRACT ALL**. Follow the prompts.



7. The window will now show the extracted 7000 file, and a new folder called 7000
8. Open the 7000 folder to reveal the 7000 File.
9. Right click on this and select **SEND TO > USB** (or it might simply be the drive letter of the USB)



- a. Alternatively, you may simply **COPY & PASTE** the above file direct onto your USB stick.
10. Navigate to your USB stick and confirm the 7000 file has copied over correctly.



11. Eject the USB stick safely and insert into the USB socket on the AC-7000 cable at the rear of the 7000 unit
12. **BACKUP** your existing settings. Refer to [Page 76](#)
13. Once the USB stick is inserted, Select **UPDATE > BEGIN UPDATE**
14. The update will search the USB drive for the 7000 file and proceed with the update.
 - a. The following Status bar reveals the following if the upgrade does not work
 - i. 10% - Internal system error – retry – fails again restart
 - ii. 20% - No USB detected – re-plug in – happens again – restart 7000
 - iii. 30% - Copy failed – instructions not followed – try again. OR change USB brand
 - iv. 60% - Update settings failed – retry update
 - v. 70% - Old version clearing failed – retry update
 - vi. 80% - Update naming failed – retry update

15. If the unit completes to 100%, the update has been successful and the unit will reboot. Any problems regarding the above upgrade should be directed to a Farmscan Ag team member for assistance.

Note : Some USB drives may not work with the 7000 device. Known tested USB drives include Sandisk, Kingston, Toshiba, Strontium. Please do not use Lexar Jumpdrives.



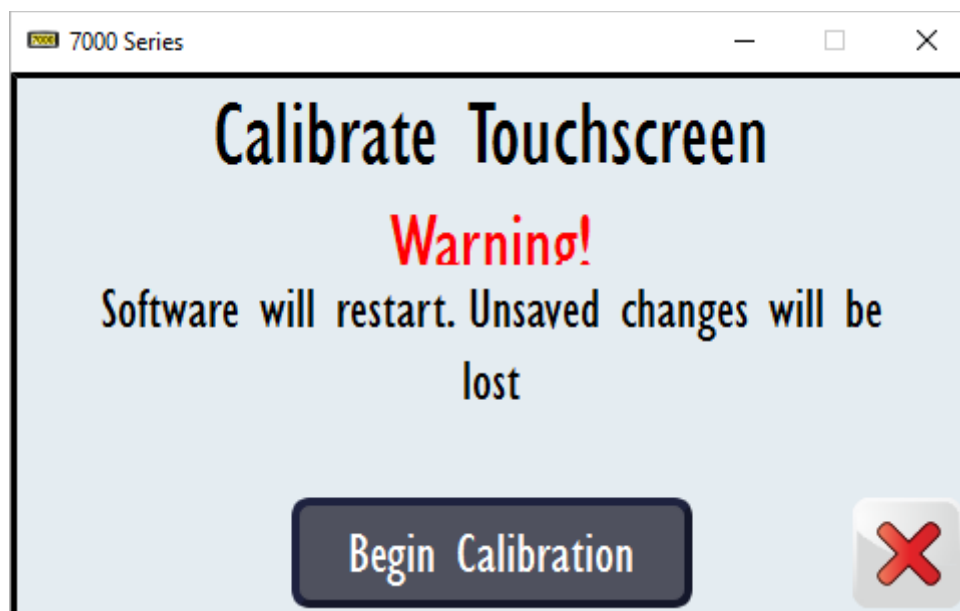
Do not attempt this without advice from the Farmscan Ag service department.

SCREEN CALIBRATION (4-1-2)

The **SCREEN** button lets the user calibrate the touch screen.

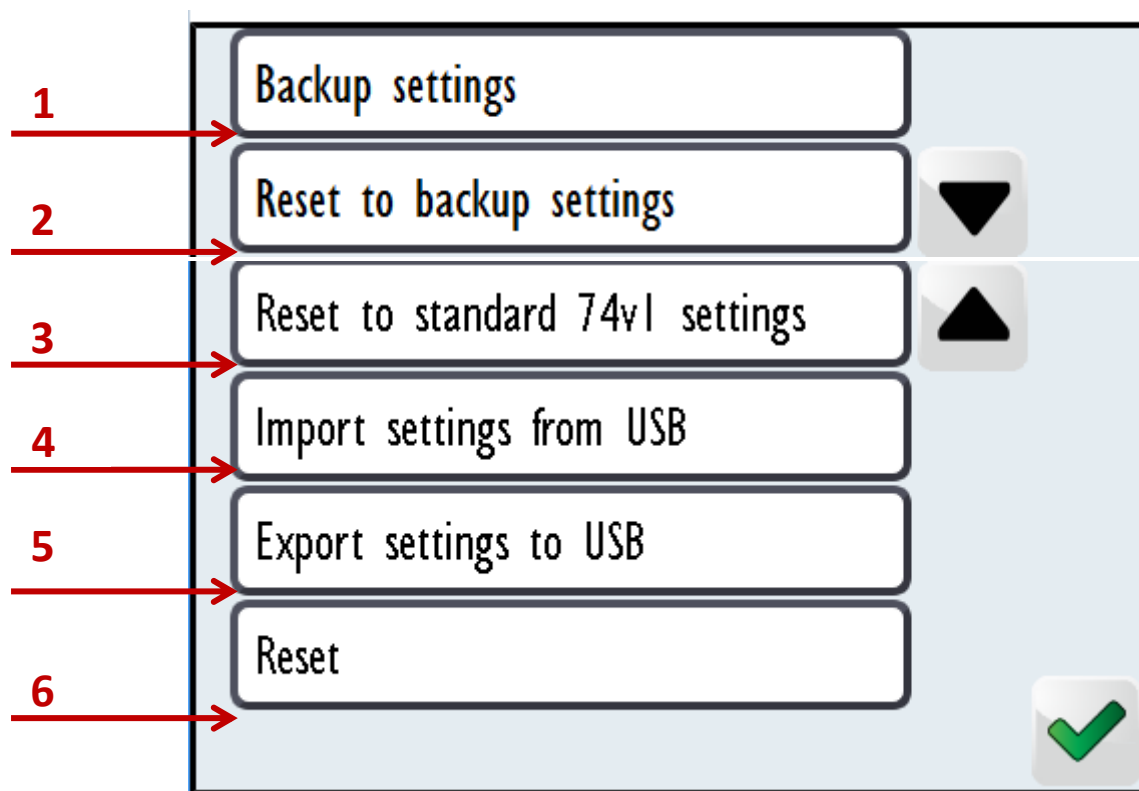
1. Follow the prompts as indicated.

WARNING: Calibrating the touch screen requires the 7000 series software to be restarted upon completion.



RESET/BACKUP/RESTORE (4-1-3)

The **RESET** button provides the following functionality:



1. Backup settings

- a. Once you are happy with the setup of the 7000, you can create a “settings file” of the device. This will allow you to recall a DEFAULT setup if something were to happen to your settings. By pressing this button, the backup file is stored on the **DEVICE ONLY**.

2. Reset to backup settings

- a. Reloads the settings file that was created in step 1.

3. Reset to standard 74V1 settings

- 2. Returns the unit to Farmscan Ag default settings.

WARNING: All settings, layouts, calibrations will be lost – everything.

4. Import settings from USB

- a. You can restore the BIN file (settings) of the 74V1. This contains the calibrations and complete setup. (Refer steps below)
- b. Insert a USB drive into the AC-7000 cable and follow the prompts.

5. Export settings to USB

- a. You can back up the BIN file (settings) of the 74V1. This contains the calibrations and complete setup. (Refer steps above)
- b. Insert a USB drive into the AC-7000 cable and follow the prompts.

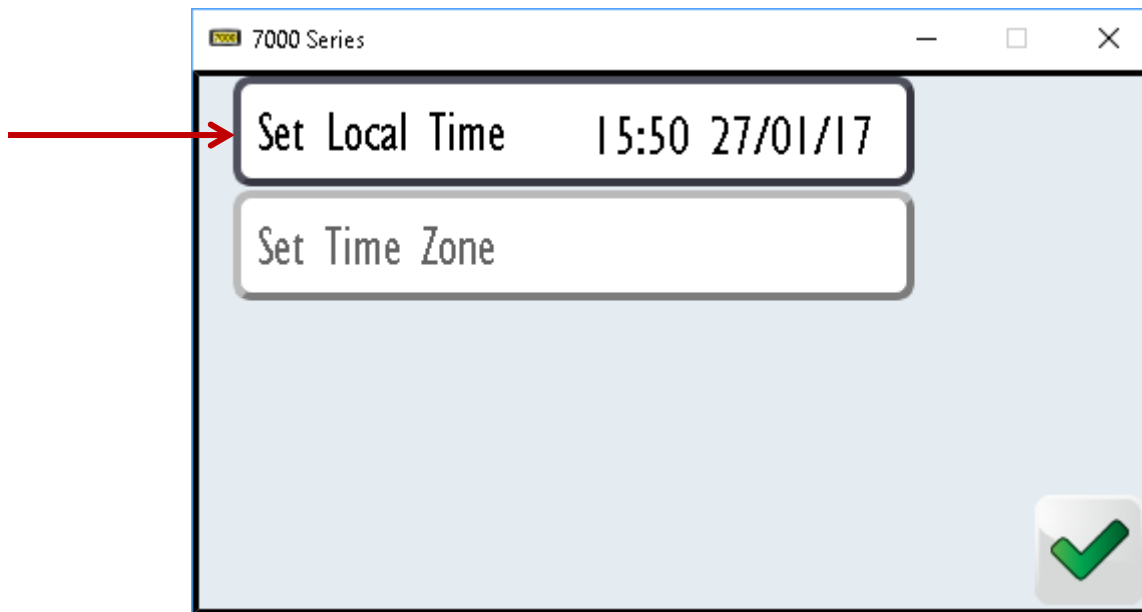
6. Reset

- a. Resets/Reboots the 7000 device safely & no settings lost

TIME (4-1-4)

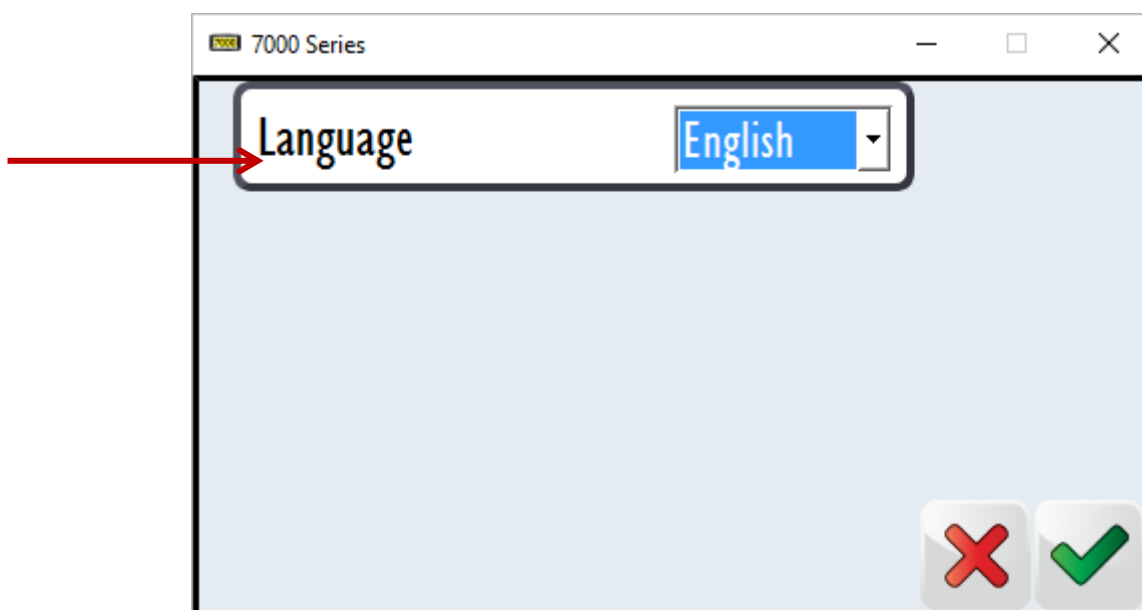
The **TIME** button allows you to update the Date & Time according to your time zone.

1. Change to your local time as required.
2. Select the green **Tick** button.

**LANG (4-1-5)**

1. The **LANG** button allows you to change the language used.
2. Select local language as required.
3. Select the green **Tick** button.

(The device will be restarted after new language is selected)

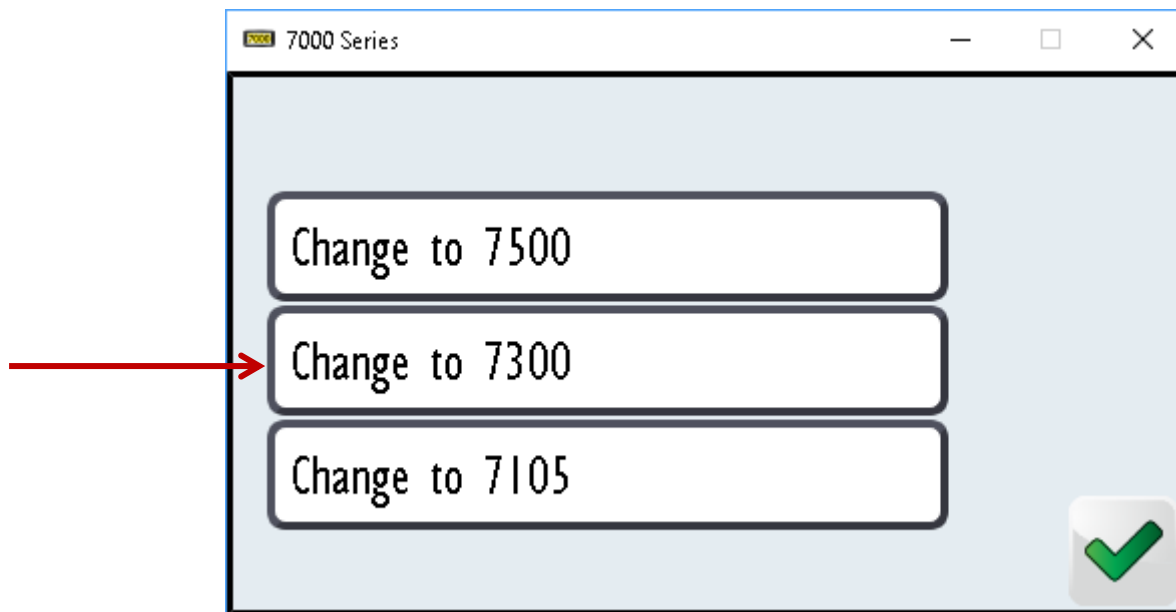


MODEL (4-1-6)

The model swap button allows you to change from a 74V1 Spray Controller to a 7500 Seed Rate Controller or 7300 Spreader Controller if you have purchased the necessary unlock codes and hardware to suit.

NOTE: All settings should be Backed Up to both device and USB stick. (Refer to previous pages). If this is not performed, previous settings and calibrations will be lost.

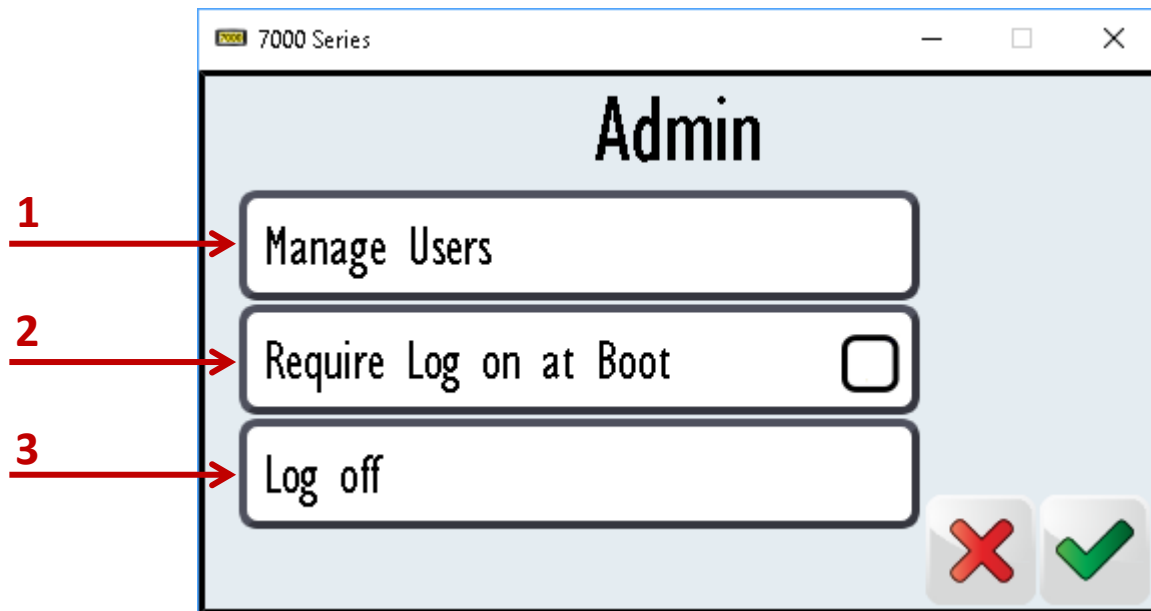
Contact Farmscan Ag for more information on this feature.



MAINTENANCE > USERS (4-2)

The 7000 has the ability to lock out certain features by creating users and assigning permissions.

If users are created, they will be displayed if you choose to export the job data to a CSV file later on down the track and then into other farm management software.



1. Manage Users

- a. Allows an administrator to add, remove, edit & give permissions to each user on the 7000.

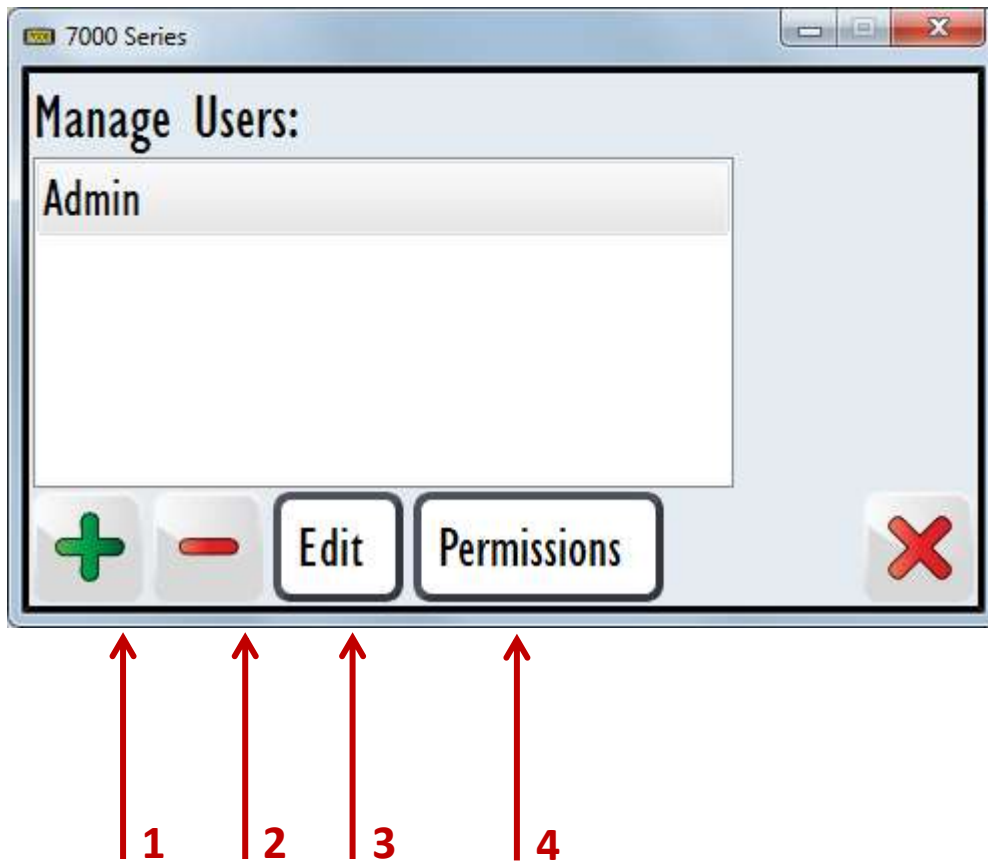
2. Require Log on at Boot

- a. If this box is ticked, 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 an administrator, selecting **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 (4-2-1)



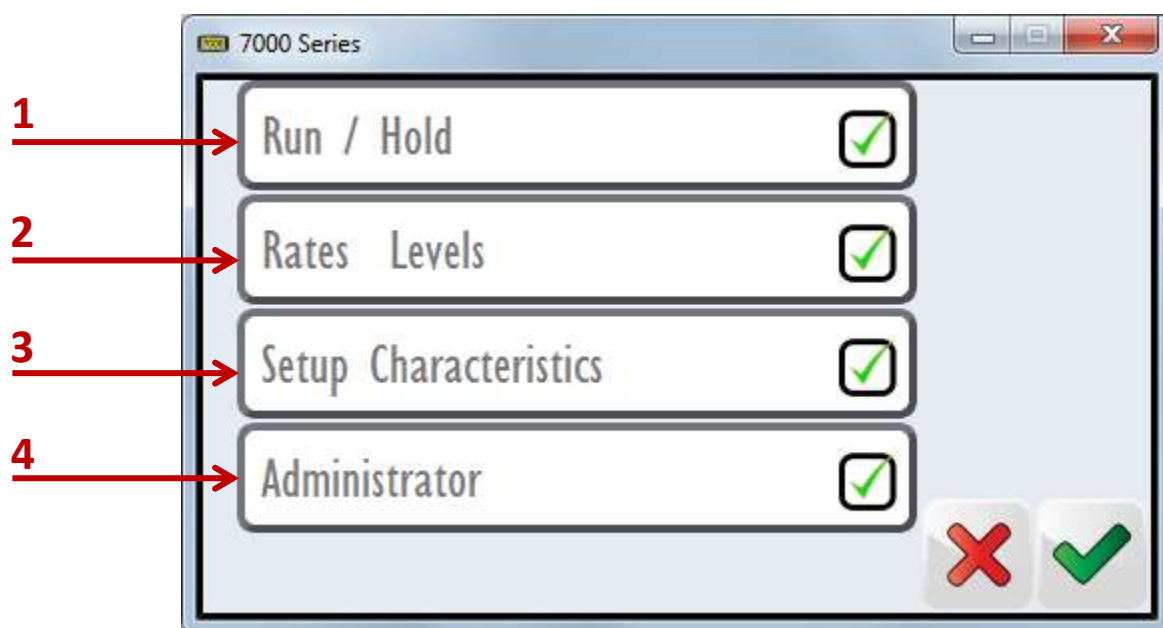
1. Select the + button to **ADD** a new user.
 - a. Enter a username : e.g. John.
 - b. Enter a password : e.g. West. **NOTE:** Passwords are case sensitive, so be careful with uppercase and lowercase.
2. Select the – button if you wish to **REMOVE** a user.

NOTE: You will need to be logged in as an administrator to do this. If you are not an administrator, select **Log off** in the previous screen and enter your password to make any changes.
3. Select the **Edit** button if you wish to **change a username or password of the selected user.**

NOTE: You will need to be logged in as an administrator to do this. If you are not an administrator, select **Log off** in the previous screen and enter your password to make any changes.

4. Permissions

- a. Select the **Permissions** button to allow or deny particular users certain fields they can or cannot change while using the 7000.



1. Run/Hold

- Allows or denies the logged in user to manually select Run/ Hold if the tile is active from the **Front Screen**.
- NOTE:** It is recommended that all users have Run/ Hold permission.

2. Rates Levels

- Allows or denies the logged in user to adjust rates and reset bin/ tank levels.

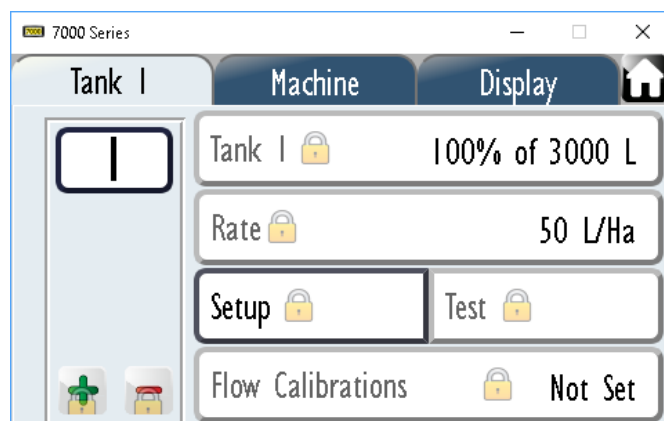
3. Setup Characteristics

- Allows or denies the logged in user to change working widths, calibrations, screens, etc.

4. Administrator

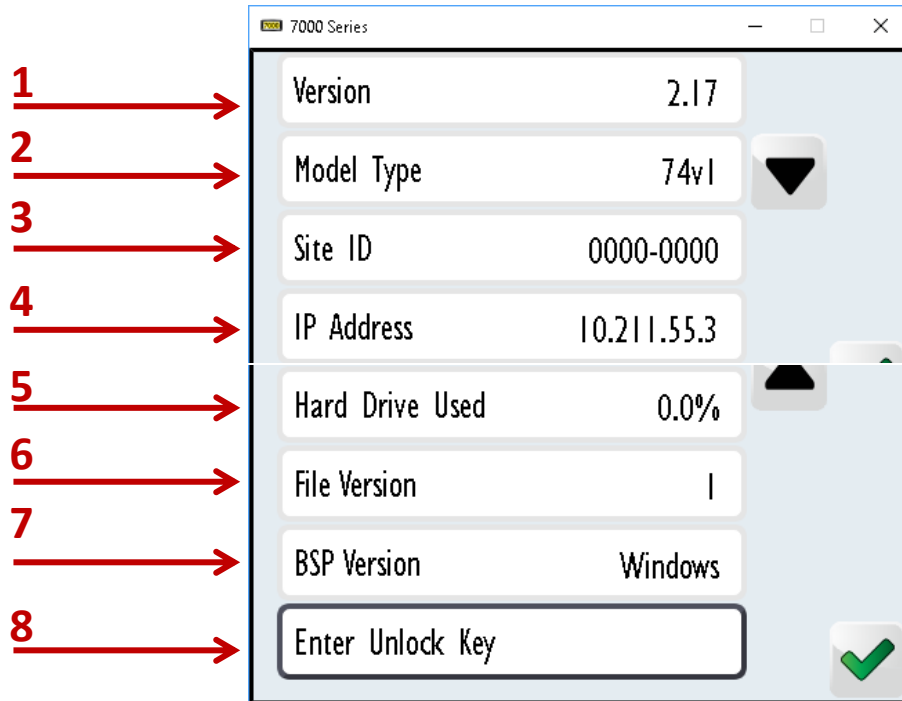
- Allows or denies the logged in user to have complete administrator rights with no restrictions in place.

Examples of restricted fields that need permissions to be changed are shown below:



MAINTENANCE > ABOUT (4-3)

The **About** menu provides an overview of the software installed, version & build number and unlock codes installed. You may be directed to this screen by a Farmscan Ag technician for diagnostic purposes.



Version

- a. Displays version of software installed on the 7000.

2. Model Type

- a. Displays model type of the software installed. E.g. 74V1

3. Site ID

- a. Displays the site ID used to create an unlock code

4. IP Address

- a. Displays the IP address of the 7000 when connected to a network

5. Hard Drive Used

- a. Displays the amount of Hard Disk Used on the 7000.

6. File Version

- a. Displays file version, if applicable

7. BSP Version

- a. Displays the BSP/Boot Firmware version that's used to determine the correct upgrade file.

8. 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)

The **Test** menu is used for diagnostic purposes only.

The screenshot shows a software window titled "7000 Series" with a standard Windows-style title bar (minimize, maximize, close buttons). The main content area is a light blue panel with a dark blue border. It contains six data rows, each with a label on the left and a value on the right, all enclosed in rounded rectangular boxes. The rows are: "Target" with value "49L/Ha:0.00L/s:0Hz", "Actual" with value "0L/Ha:0.00L/s:0Hz", "Motor State" with value "+ 0%:- 0%", "Controller Point" with value "0%", "Speed" with value "0.0km/h", and "Current Draw" with value "0 A". To the right of the "Actual" row is a grey square button with a black downward-pointing triangle. To the right of the "Current Draw" row is a grey square button with a green checkmark. The window is set against a white background.

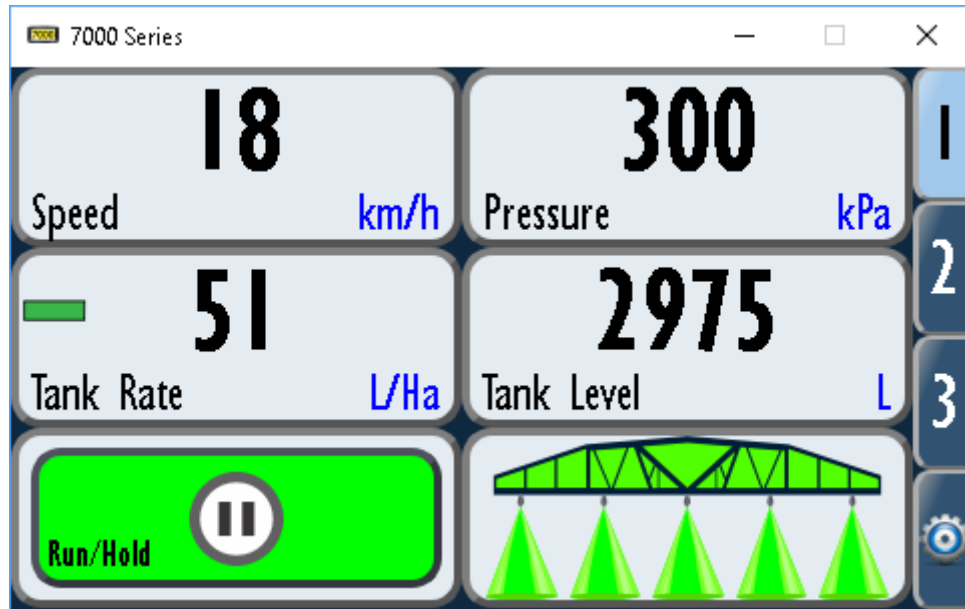
Target	49L/Ha:0.00L/s:0Hz
Actual	0L/Ha:0.00L/s:0Hz
Motor State	+ 0%:- 0%
Controller Point	0%
Speed	0.0km/h
Current Draw	0 A

You may be directed to this screen by a Farmscan Ag technician for diagnostic purposes.

SCREEN & LAYOUT SETUP

FRONT SCREEN | TILES

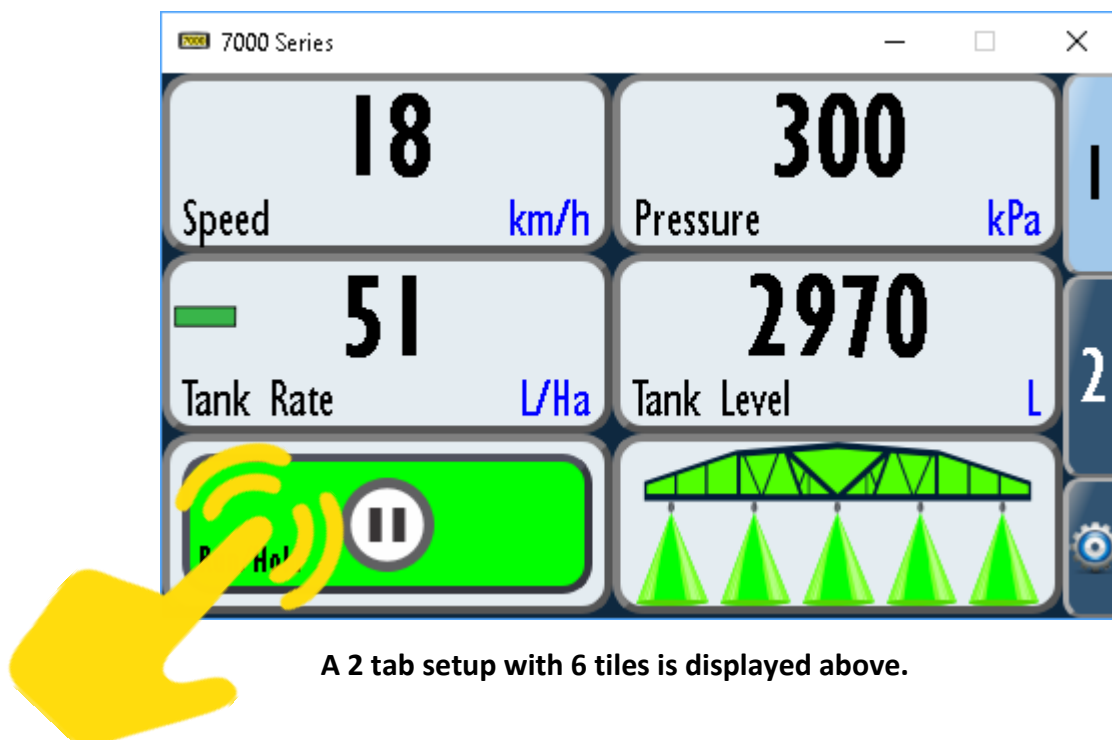
Front Screen tiles can be used to display any of the values being recorded or calculated by the system; these include but aren't limited to speed, pressure, rate, tank, etc.



A 3 tab setup with 6 tiles is displayed above.

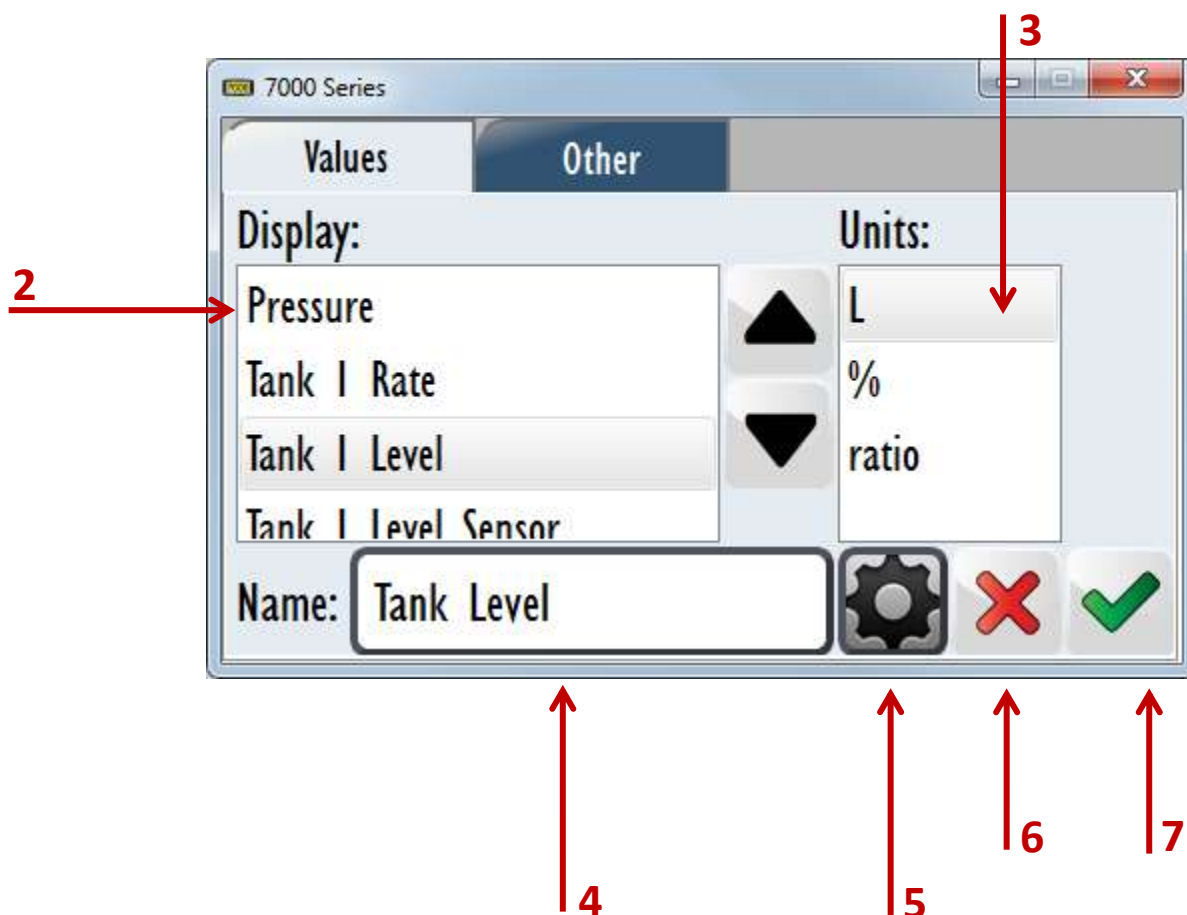
CHANGE TILE VALUE

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



A 2 tab setup with 6 tiles is displayed above.

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 and entering the name on the keyboard. Select the green **Tick** button once you are done.
5. Pressing the **Cog** button allows you to set how many decimal places to be displayed and the target point accuracy. **Control Enabled** (Yes/ No) is useful if you wish to display L/ha and L/m on two different tile. **NOTE:** Only ONE tile has the ability to control.

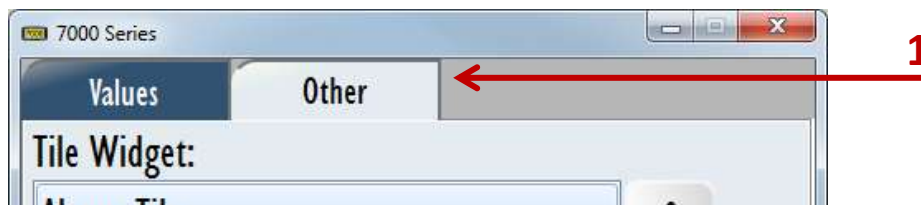
Decimals	0
Control Enabled	Yes
Round to target rate	Off

6. Select the green **Tick** button (7) to accept these changes and modify the tile, or select the red **Cross** button (6) to cancel these changes.

WIDGETS & OTHER TAB

Tiles can be used to display Widgets on individual devices or joined to multiple tiles for better layout and usage of each screen or tab.

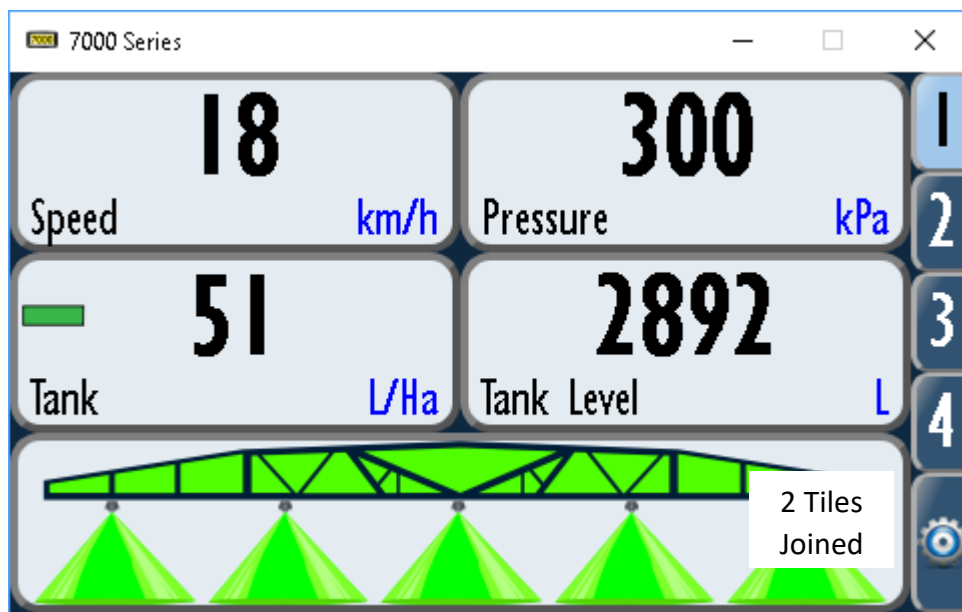
1. Hold a finger on the tile you desire to change for ~1 second and release (as described previously) then select **Other** (as in the example below).



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 shut down the 7000 manually if required.	
Spray Bar	Allows for quick On (Green)/ Off (Red) access to individual boom sections.	
Spray Tower	Allows for quick On (Green)/ Off (Red) access to left/Right on orchard sprayers.	
Foam Marker	Allows for quick On/ Off of Left/ Right foam marker if fitted.	
Manual Control	Allows for manual rate adjustment of the flow control valve: Close/ Go/ Open .	
Blank Tile	Allows for a blank tile on any page,	

MERGING TILES

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



A 3 tab setup with 6 tiles is displayed above.

In the example above, the 2 bottom tiles have both been selected to form a SPRAY BAR widget.

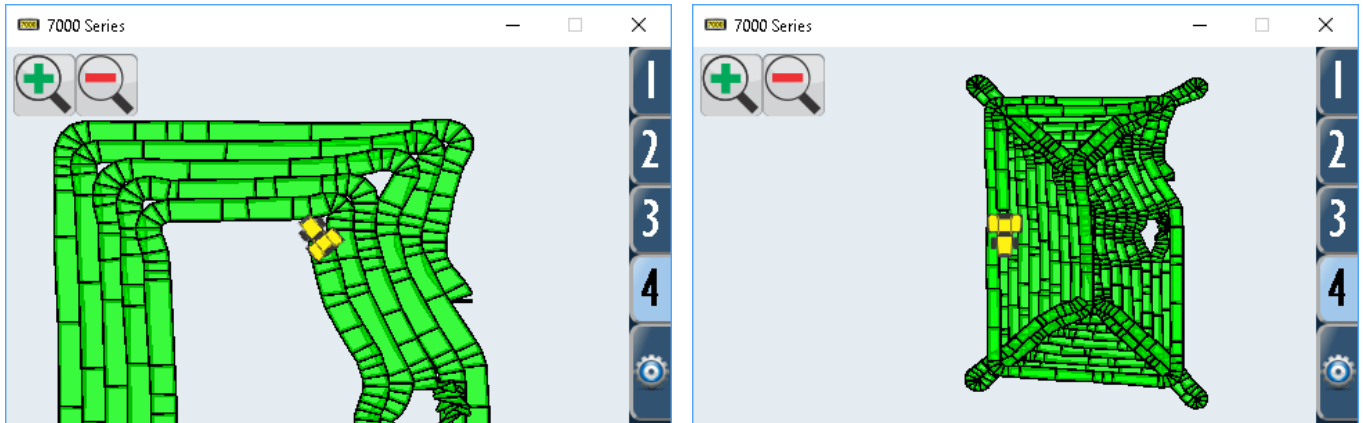
1. Change a tile to whatever display value and unit you want (follow previous section's guide).
2. Change the adjacent tiles to have the **same display value and unit**.
NOTE: For adjacent tiles to join they must have the same display value and unit, the name and decimal points does not have to match.
3. Repeat step 2 to join up as many adjacent tiles as you wish.
NOTE: Tiles can only be turned into rectangular or square shapes; they cannot be 'L' shaped.
4. Change the name and decimal places of the bigger tile if you so wish.

COVERAGE & MAPPING TAB

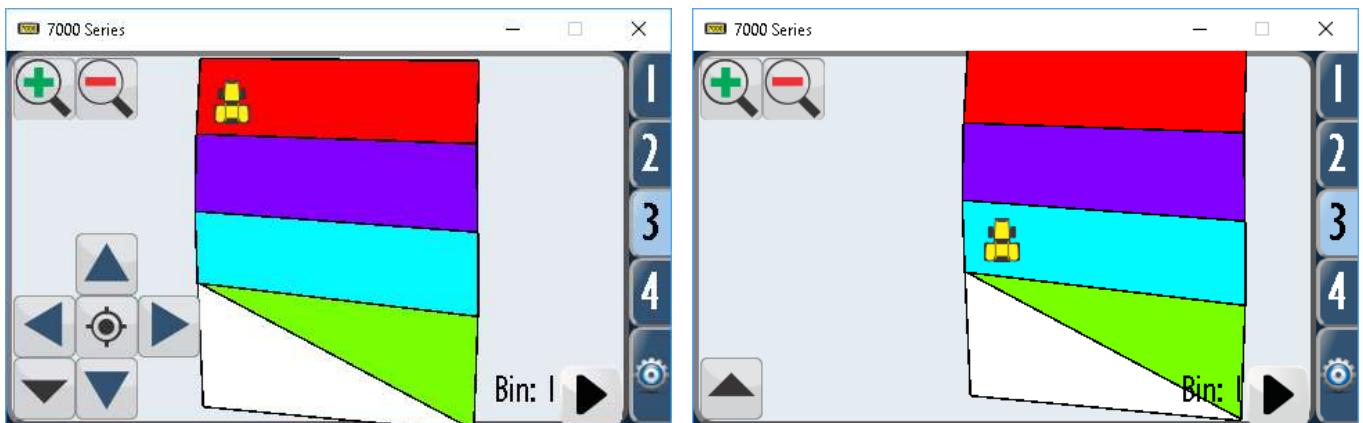
When the Mapping and or Coverage TAB has be activated the 7000 will display a live coverage of the worked area as shown or the VRC Prescription Map being applied.

The coverage and map are basic and provide live coverage and position of the field being worked in.

Refer to PAGE 91 for setup instructions.



Example Above : The COVERAGE Tile is displayed on TAB 4



Example Above : The MAP Tile is displayed on TAB 3

More features will be added to this function in further upgrades.

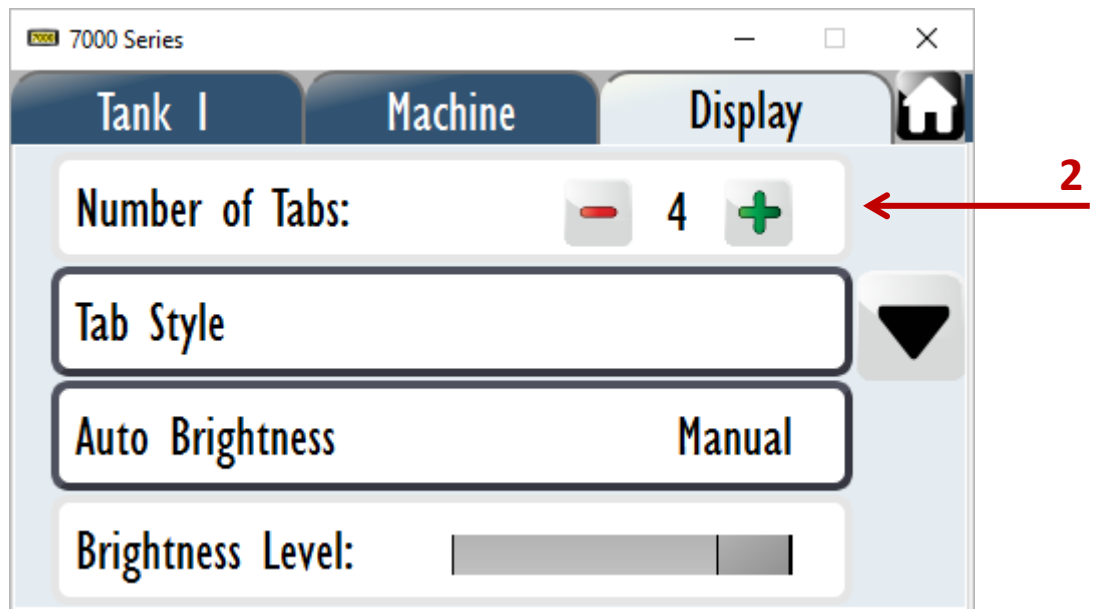
DISPLAY

The **Front Screen** can have 1, 2, 3 or 4 tabs on it. Each tab can be set up individually to display different information.



TABS STYLE (SCREENS) & TILES

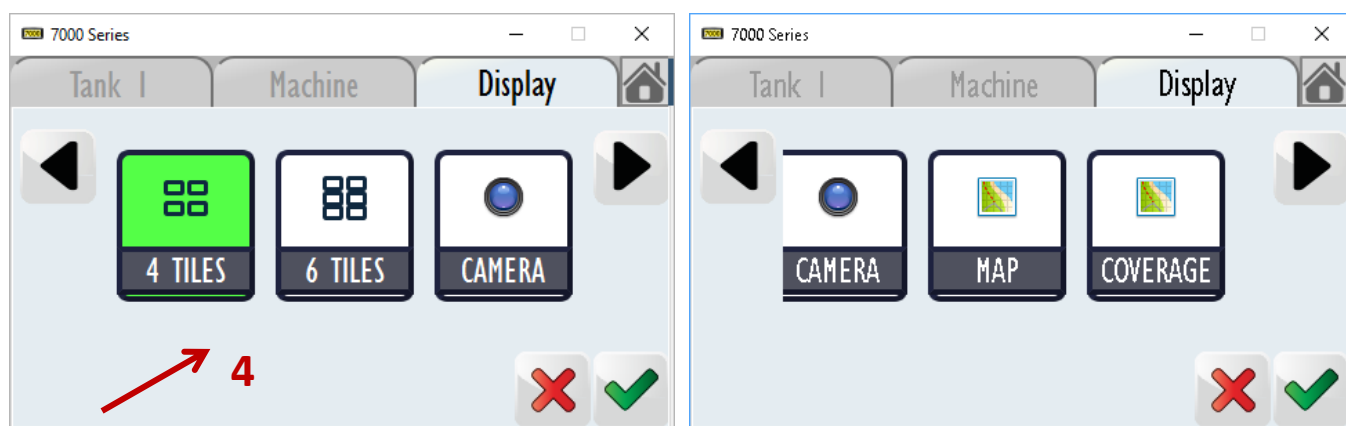
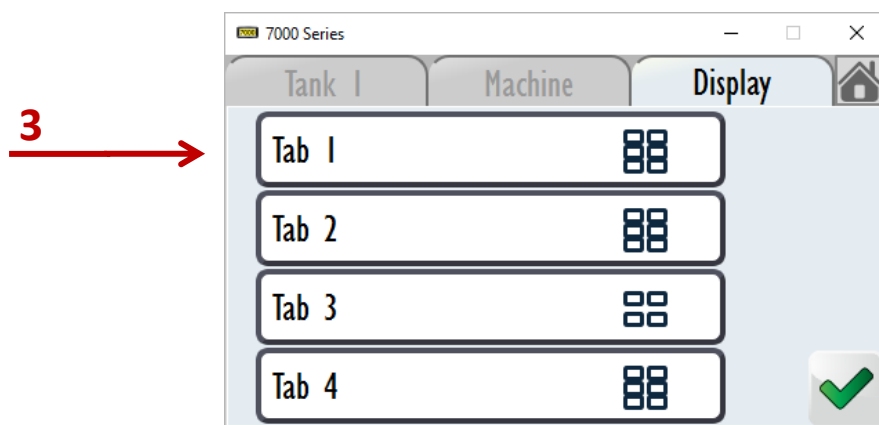
1. Navigate to the **Display** tab from the **Setup** menu



2. Select the + or – button for the **Number of Tabs** you wish to be displayed on the **Front Screen**.

WARNING: If you remove a tab then any configured tiles will be lost.

3. Select which screen tab (Screen 1/2/3/4) you wish to change and then select that button.
4. Select what screen tile layout or screen configuration you want
 - a. 4 tiles
 - b. 6 Tiles
 - c. Camera
 - d. Map (Requires Shape file to be loaded) Displays the active layer being applied
 - e. Coverage (Requires GPS)
 - i. If you choose to enable this option, 1 full tab will be used to display the live coverage. **We recommend placing this on TAB 4.**



5. Select the green **Tick** button & Warning Screen if prompted
WARNING: If you change a tab screen layout then any display configurations for it will be lost.

SCREEN BRIGHTNESS (AUTO OR MANUAL)

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

1. Navigate to the **Display** tab of the **Setup** menu.
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. This can be changed to **Automatic** or **Manual**

UNIT TYPE



The unit type allows the user to choose **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.



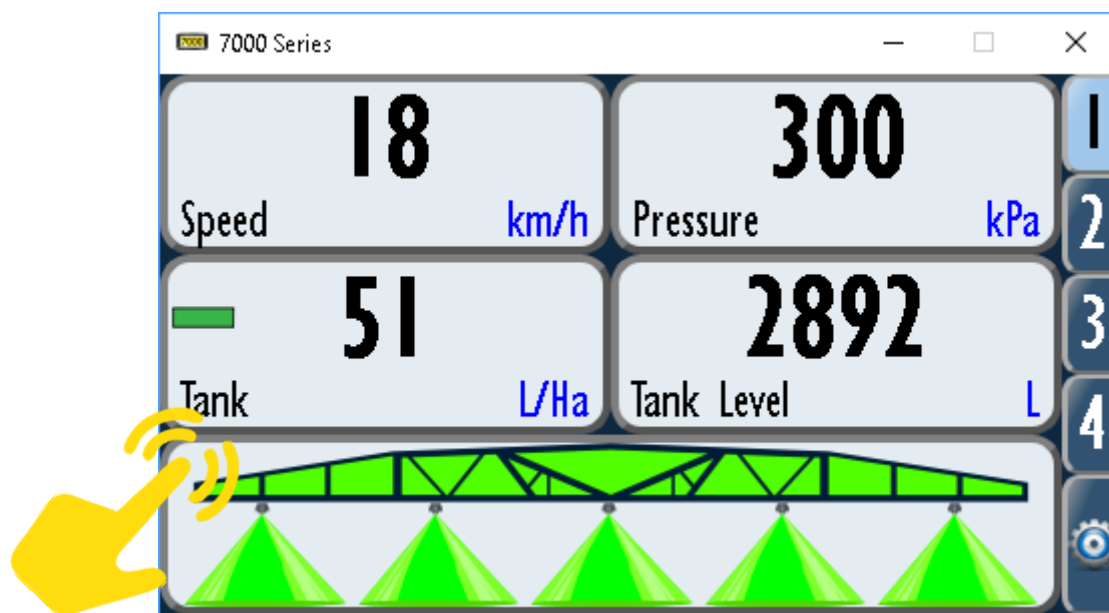
BEEP ON PRESS

This allows for an audible “Beep” each time you press anywhere on the touchscreen



FRONT SCREEN CONTROL

FRONT SCREEN CONTROL (SPRAY BAR)



To set up **Spray Section Control** on the **Front Screen** tiles, follow these steps (once the sections have been configured from the previous section):

1. Hold a finger on the tile you desire to turn into a **Spray Section Control** for ~1 second and release.
2. Select the **Other** tab.
3. Select **Spray Bar** from the list.
4. Select the green **Tick** button.

NOTE: **Spray Section Control** tiles can be joined together to make them bigger just like any other tile; this will make it easier to operate if the optional switch box is not installed.

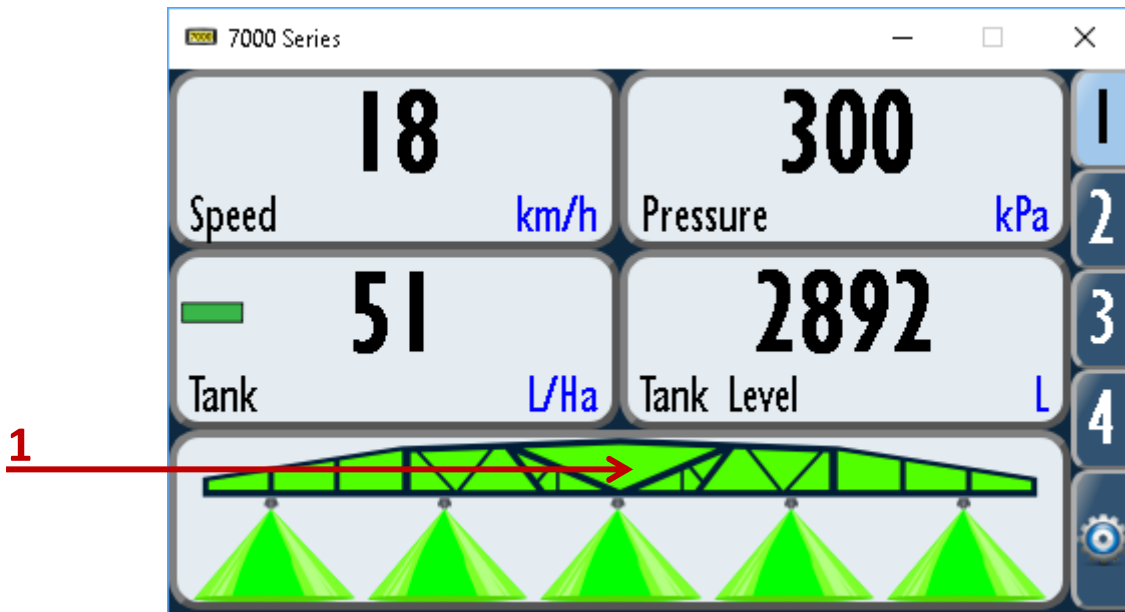
FRONT SCREEN CONTROL (APPLICATION RATE)



If there is no **Front Screen** tile showing the value for **Tank 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).

1. Select the **Front Screen** tab that contains the **Tank X Rate** tile (where X is the number of the tank you wish to adjust).
2. Select the tile which will now show the desired application rate for the tank.
3. Select the **+** button to increment the desired application rate by the desired application rate step (**Step Size** option).
4. Select the **-** button to decrement the desired application rate by the desired application rate step (**Step Size** option).
5. Select the tile again to return it to its normal state.

SPRAY SECTION CONTROL OPERATION

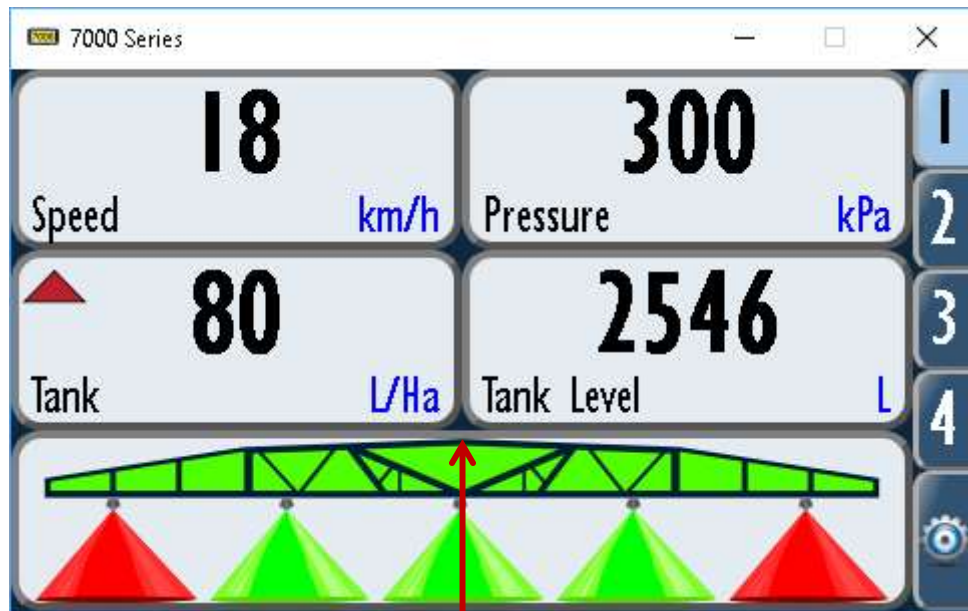


AUTOMATIC CONTROL

1. Select the **Master On/ Off** button
 - a. If the **Master On/ Off** button is greyed out then the all of the Spray Sections will be turned **OFF**.
 - b. If the **Master On/ Off** button is green/on (shown) then the Spray Sections will all operate normally.

MANUAL SECTION CONTROL (ON SCREEN)

1. Make sure the **Master On/ Off** button is green/ on.
2. Select an individual **Spray Section** button (1, 2, 3, 4, 5).
 - a. If an individual **Spray Section** button is green then that section will be **ON**.
 - b. If an individual Spray Section button is red then that section will be **OFF**.



Section Off

Master On/ Off

Section Off



The Smart Switch
has a MASTER
on/OFF

Quick Rate
Change

Individual Section
Shutoff On/OFF

MANUAL RATE CONTROL OR FLUSH MODE

Manual rate or flush function can be used to clean the spray lines or test nozzle operation. This function can also be helpful if the speed input is damaged or you need a “limp home” mode until repairs on the sprayer can be made.

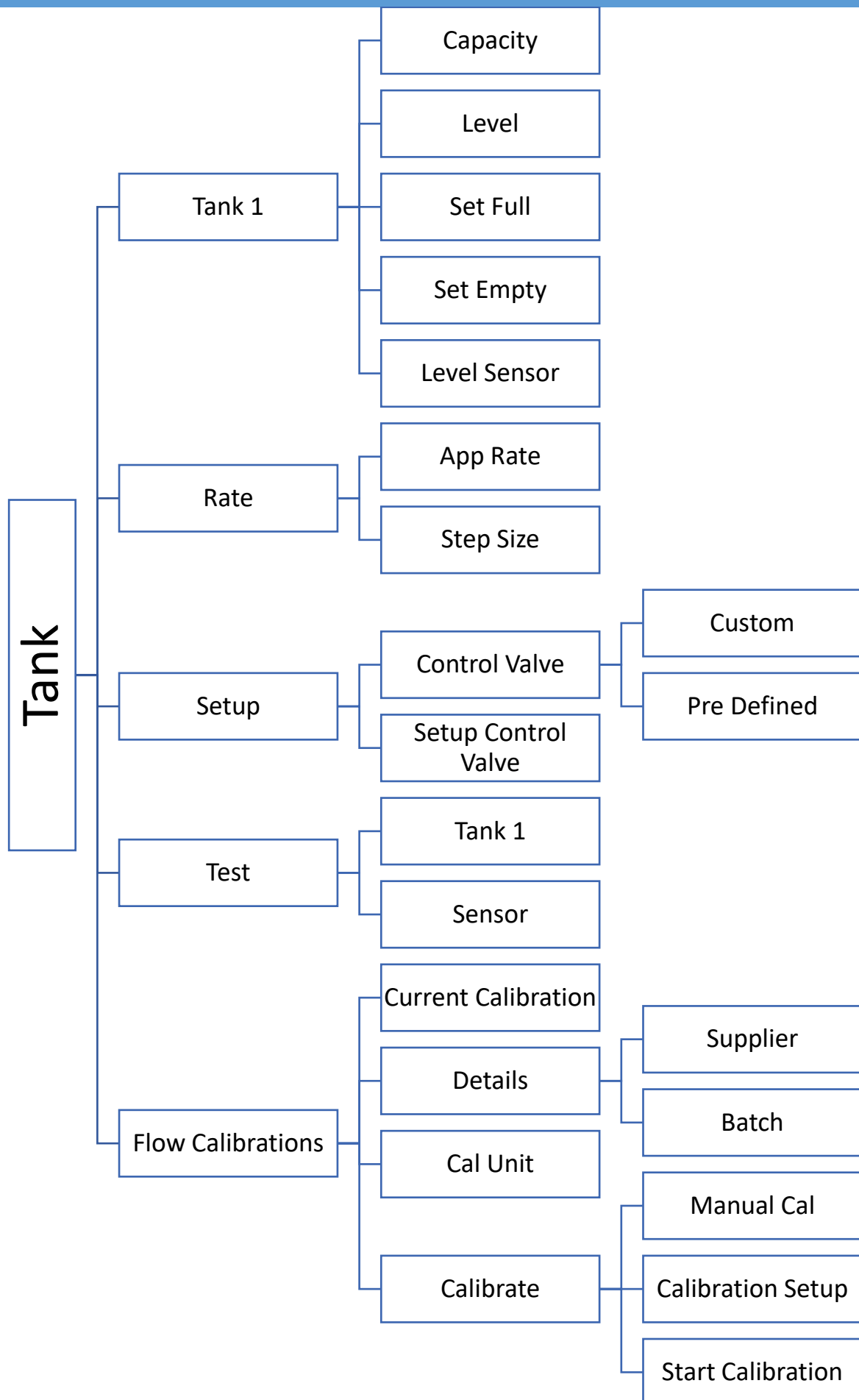
This assumes that there is power to the UniPOD, control valve and section valves.

1. Make sure the **Manual Control Widget** is on any tile (either single tile or joined tile).
2. Select the **Play** button (liquid should start flowing).
 - Master and sections are now on.
3. Use the **Plus/ Minus** buttons to manually adjust the rate or flush individual sections.
 - Individual sections can also be turned on/ off.
 - For instant L/Min ensure one tile has been selected to display this value.

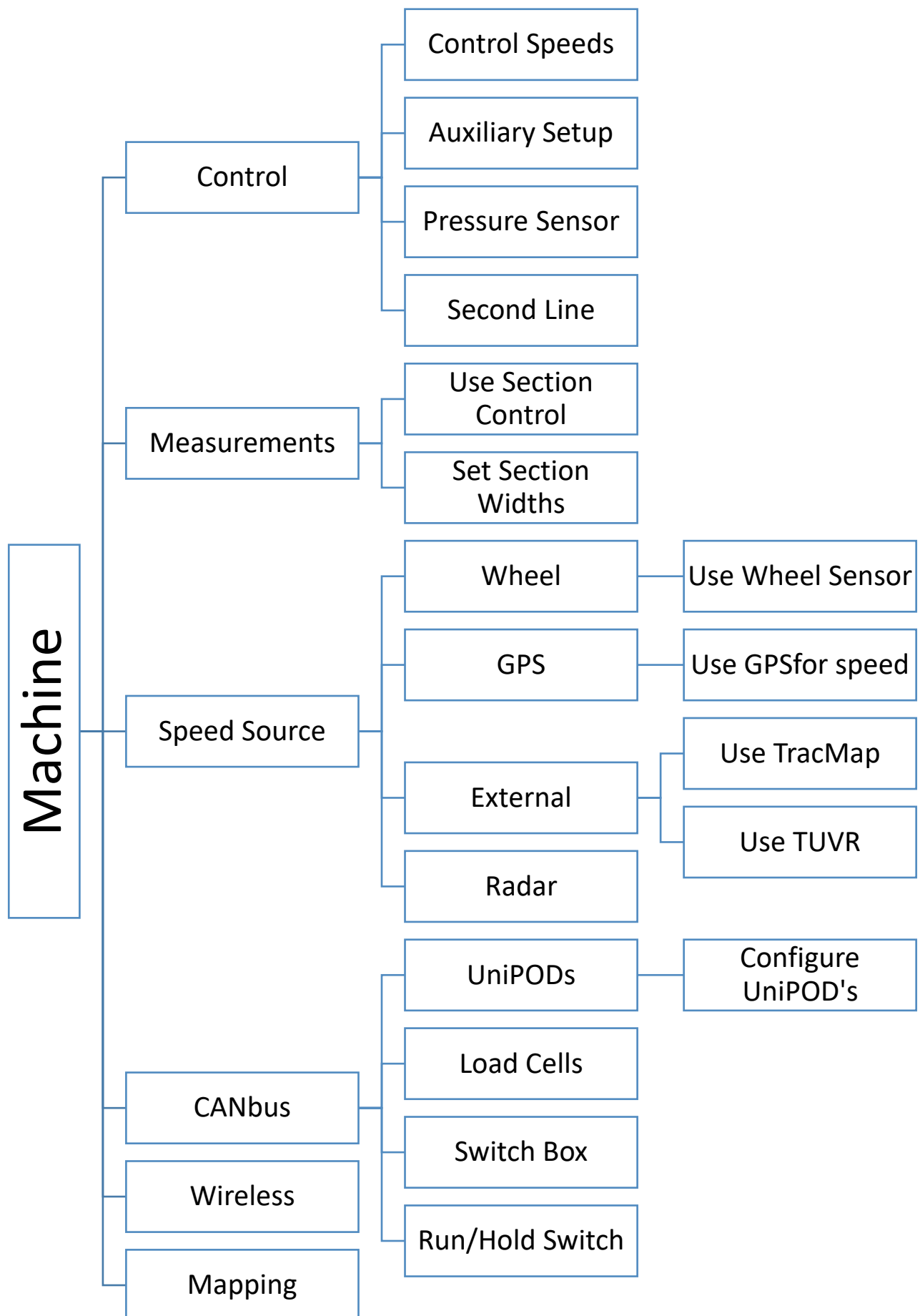
1/2/3 →



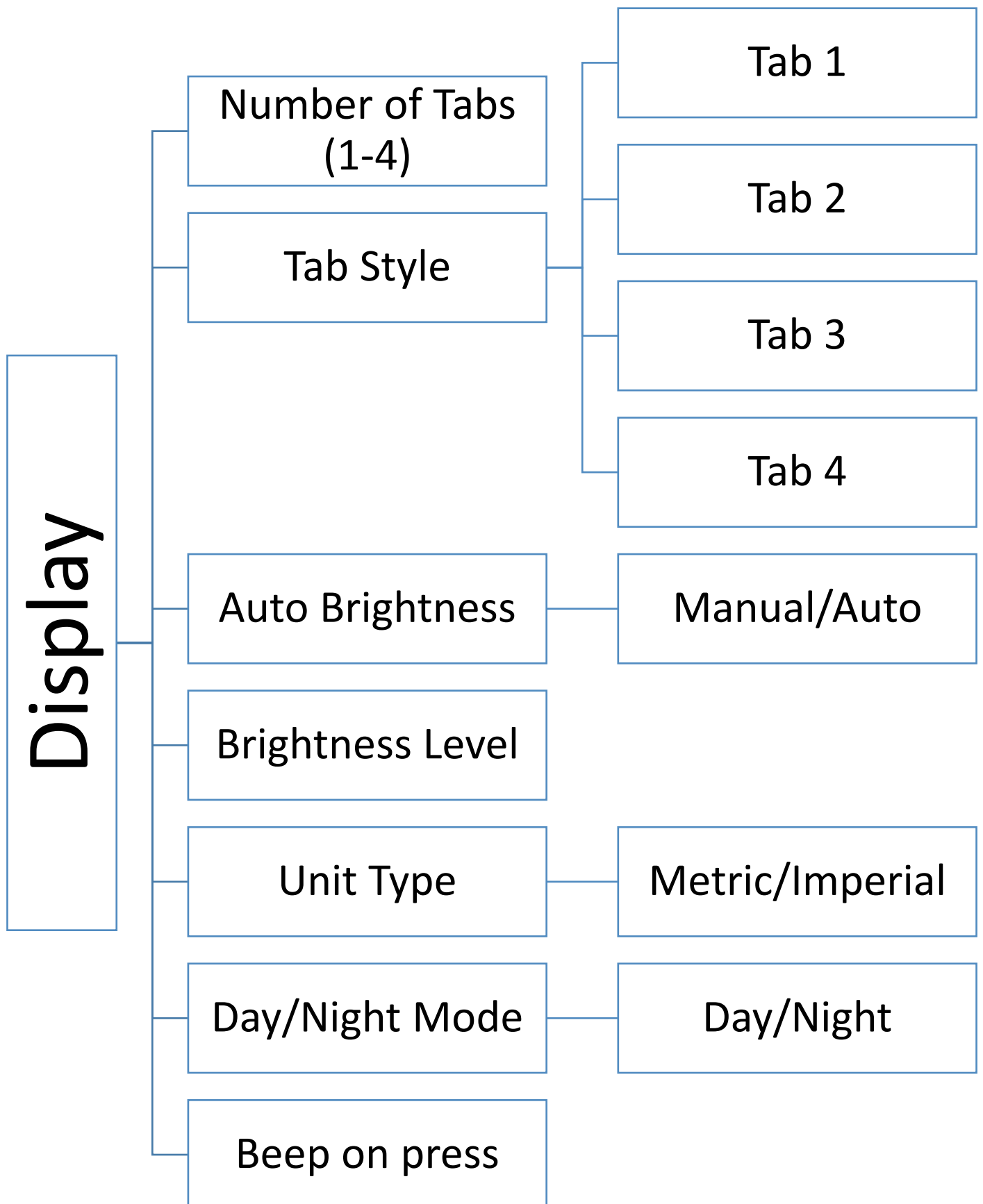
74V1 MENU LAYOUT (SETTINGS > TANK)



74V1 MENU LAYOUT (SETTINGS > MACHINE)

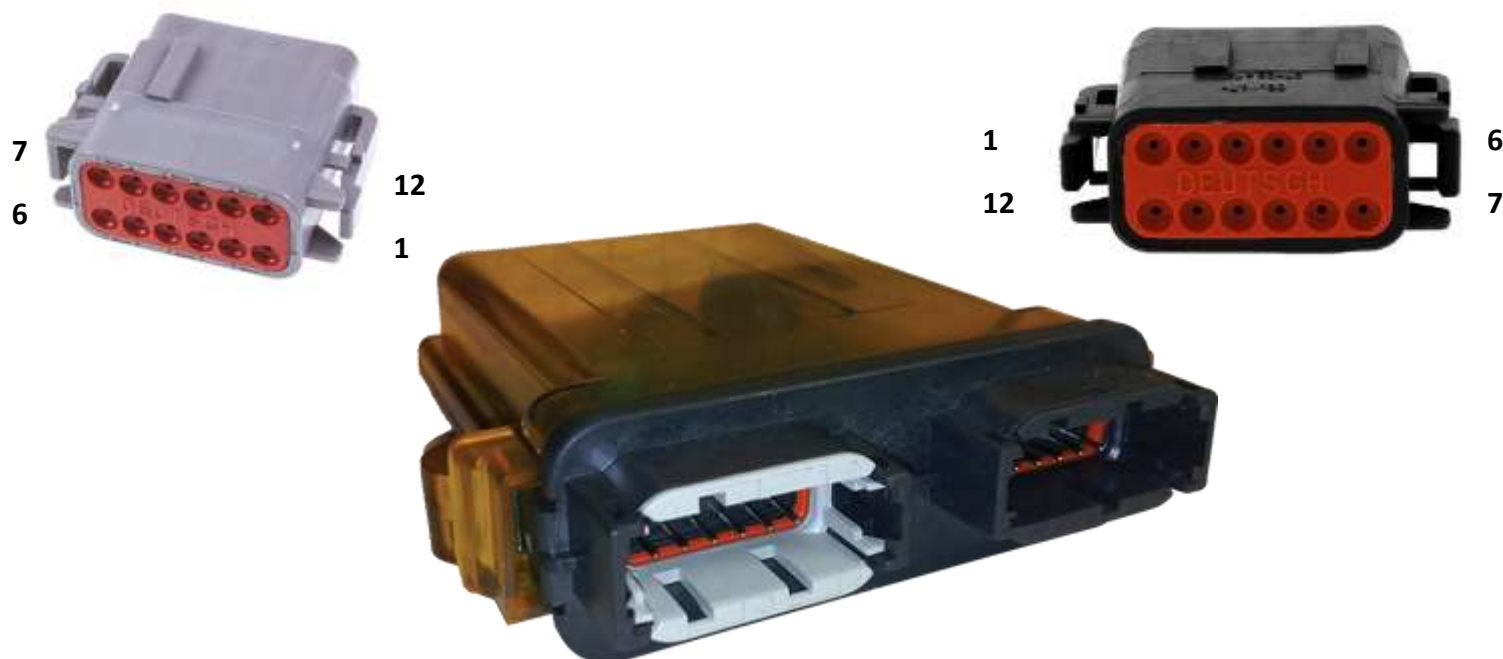


74V1 MENU LAYOUT (SETTINGS > DISPLAY)



UNIPOD PINOUT

The Farmscan Ag UniPOD is a versatile & compact ECU to suit many different requirements. The UniPOD series is a truly flexible solution for any control application.



Pin	GREY PLUG (A)	Pin	BLACK PLUG (B)
1	GROUND BLACK	1	FLOW VALE + ORANGE
2	GROUND BLACK	2	FLOW VALVE - BLUE
3	+ 12V RED	3	SECTION 1 WHITE
4	+12V RED	4	SECTION 2 WHITE
5	CANBUS HIGH YELLOW	5	SECTION 3 WHITE
6	CANBUS LOW BLUE	6	SECTION 4 WHITE
7	PRESSURE/FLOW GROUND GREEN	7	SECTION 5 WHITE
8	+5V NOT USED	8	DUMP VALVE WHITE
9	PRESSURE INPUT PURPLE	9	INPUT NOT USED
10	A/D1 INPUT NOT USED	10	INPUT NOT USED
11	FLOW INPUT WHITE	11	INPUT NOT USED
12	GROUND SPEED INPUT BROWN	12	INPUT NOT USED

Technical Specifications

Parameter	Qty	Specification
Power Supply	2	9-28V, 7.5A per pin = 15A max
CANBUS	1	(Standard) 250kbps typical. J1979/ISO11783 compatible
Bluetooth	0/1	(Optional)
WiFi	0/1	(Optional)
RS232	0/1	(Optional instead of CANBUS)
A/D Inputs	2	0-5V 10bit
General / Frequency / A/D Inputs	2	0-28V, 0/10-1000Hz (DC or AC coupled), 3V pull-up or 0V pull-down option, A/D 0-5V 8bit
I/O / PWM Outputs	8	Logic input 0-28V, 3V pull-up or 0V pull-down option, High/Low output or PWM Output Voltage/Ratio/Current controlled to 2.5A per pin (14A max total for all pins)
I/O / A/D	4	Logic input 0-28V, 3V pull-up or 0V pull-down option, A/D 8bit 0-28V, High/Low output

Some specifications are subject to change without notification



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