Spreader V1 Variable Rate
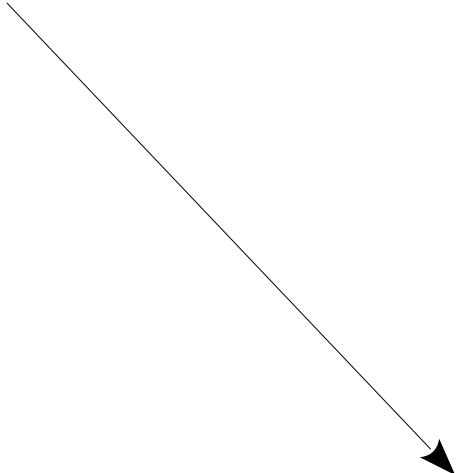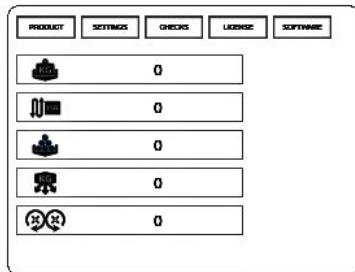
Operators Guide i4M Controller Variable Rate
Marshall Multispread Hydraulic Drive
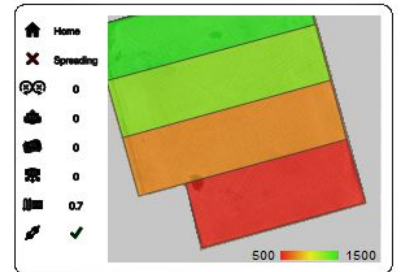**Tablet Type iPad**
Version 03

i4M MONITOR
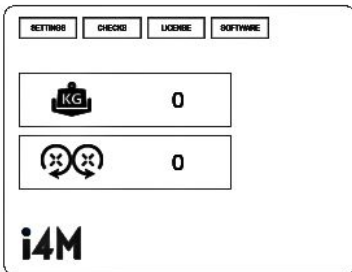
i4M FIXED RATE

i4M VARIABLE RATE

Foreward

This is a basic guide for the i4M Control System only. Important Safety and Operating information is contained in the Spreader Operators Manual, and must be read prior to operating this equipment. This guide provides supplimentary information only.

Contents
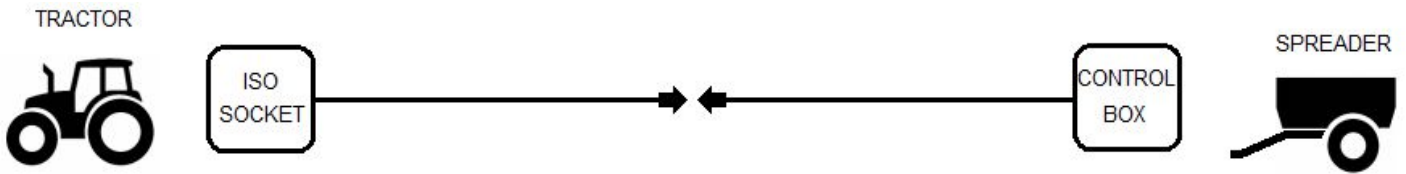
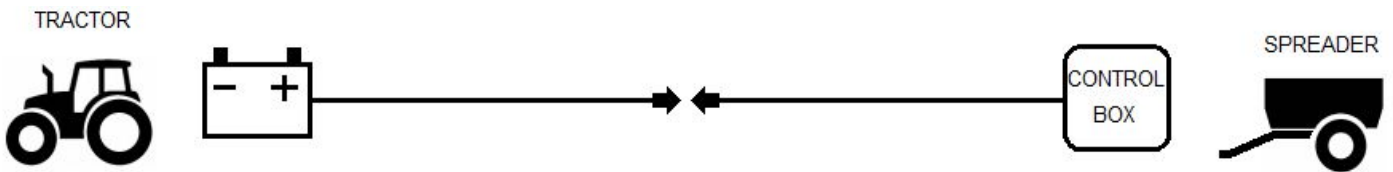SAVE YOUR MONEY
LEAVE THE HOPPER EMPTY UNTIL SETUP IS DONE

WANT THE FASTEST SETUP?
FOLLOW THIS GUIDE FROM START TO FINISH

Installation – Tractors with ISO Socket

- Install the master switch in the tractor cab
- Connect the harness to the ISO socket
- The ISO socket is used for power only, it is not connected to the tractor CANBUS

Installation – Tractors without ISO Socket

- Install the master switch in the tractor cab
- Connect the power harness to 12volts and ground
- If possible use a switched power source (power is off when the tractor key is off)
- Connect to power located after the battery isolator (prevent the tractor battery going flat)
- Power source should be capable of supplying 20amps
- If connecting direct to the battery, unplug the spreader cable when not using the spreader

Power On

- The i4M controller takes 60 seconds to boot up
- There is a diagnostic LED on the box
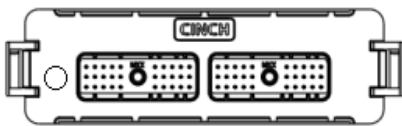
LED is off
No power
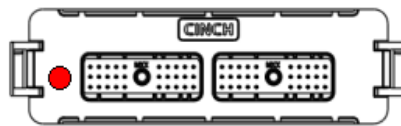
LED is red
Starting up
Please wait
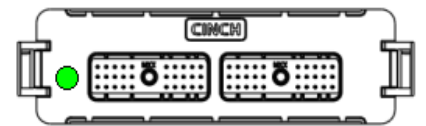
LED is green
Controller is running
Wifi is available

iPad App
  • Install the i4M Spreader app on your iPad
  • After the app is installed, connect the iPad to the controller
  • Open the wifi settings and connect to MACHINE WIFI

Settings

	Wi-Fi
MR Matt Roesner Apple ID, iCloud, iTunes & App Store	MACHINE WIFI Unsecured Network
	CHOOSE A NETWORK...
Finish Setting Up Your iPad 1 >	Other...

  • Open the i4M Spreader app

No SIM   2:22 PM   97%

Work Screen

Rates

TAP MACHINE 👉 🔧 Machine

ⓘ About

i4M
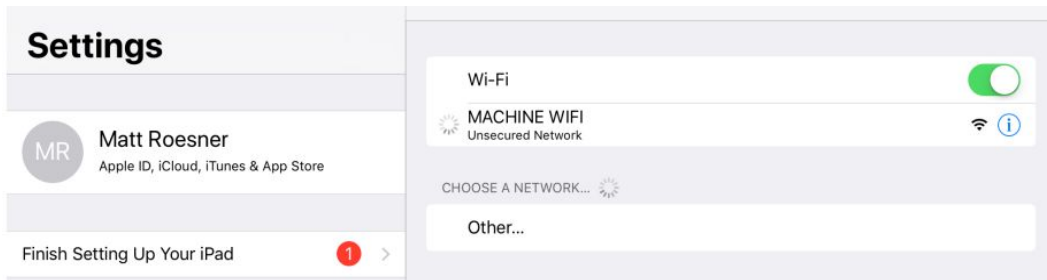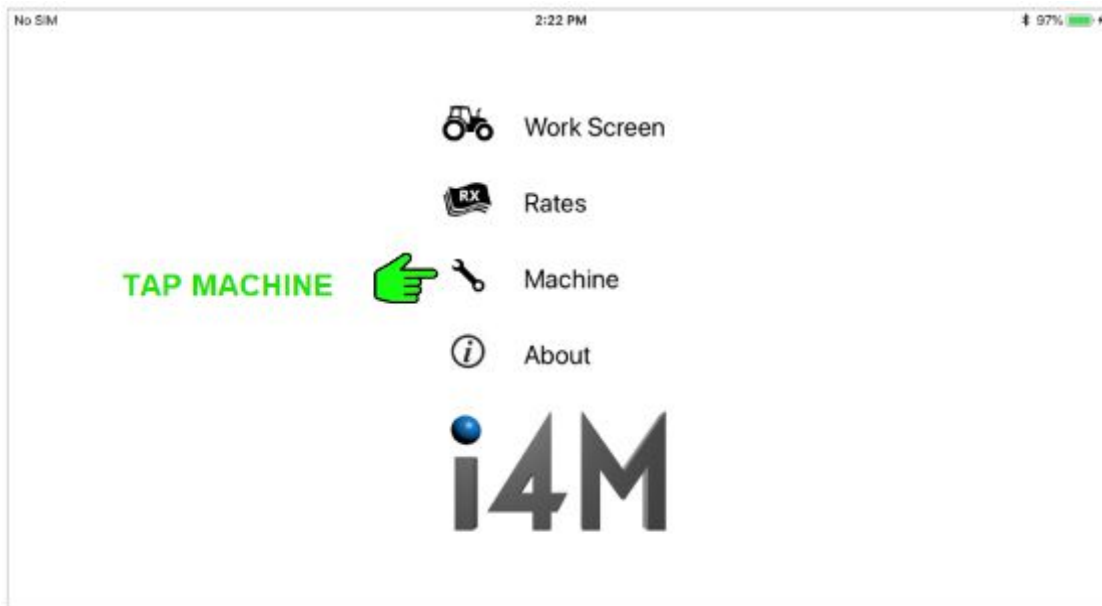
Machine Setup

| PRODUCT | SETTINGS | CHECKS | LICENSE | SOFTWARE |

| HOME | HOPPER | HECTARES | MACHINE | DEVICE |

Check these settings

Machine Settings

| 0.231 | Diameter of the belt drive roller in metres |

800 Series = 0.181
900 Series = 0.231
916T = 0.281

| 0.730 | Width of the door opening in metres |

All Models = 0.730

| 560 | Belt sensor, pulses for one revolution of the drive roller |

Factory hydraulics = 560
Ground drive conversion = 784

| 605.0 | Distance cal, adjust so this matches your tractor speed: 0 km/h |

Drive the machine and adjust this until the km/h matches your tractor speed

| CHANGE | Door actuator is installed |

Change if required

Auto Door Control - Door Actuator
  • Electrical actuator that automatically sets the height of the door
  • Optional equipment, it may not be installed
 • The actuator contains a position sensor that requires calibration

| PRODUCT | SETTINGS | CHECKS | LICENSE | SOFTWARE |

| HOME | SYSTEM | LOADCELLS | BELT | DOOR |
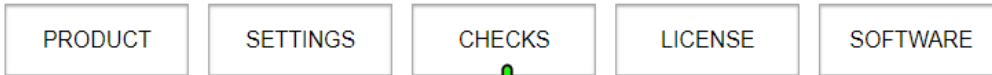
Door Info

Item	Value	Unit	Description
Flags	?	Hex	Flags variable from main control processor
Open	?	Status	Actuator retract command
Close	?	Status	Actuator extend command
Target Height	?	mm	Desired door height or opening
Actual Height	?	mm	Actual door height or opening
Door Sensor	?	mV	Door position sensor voltage reading
Sensor Min	?	mV	Position sensor min reading
Sensor Max	?	mV	Position sensor max reading

Door Control

| SET | Set door to the target height for spreading |

| OPEN |

| CLOSE |

| STOP |
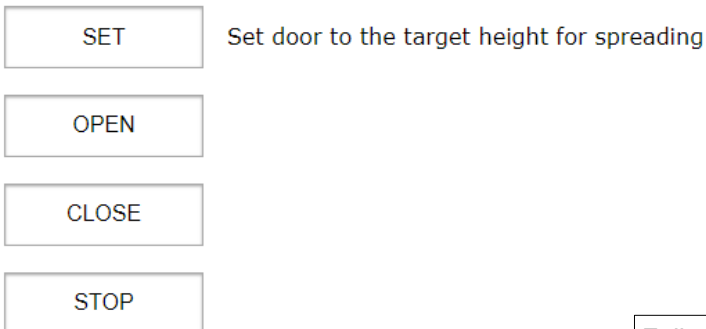
Follow these steps
Reset Actuator will calibrate
the position sensor

Reset Actuator

1 Check the door is not jammed or blocked
2 Tractor running
3 Tap OPEN, wait for it to stop
4 Tap CLOSE, wait for it to stop
5 Tap SET, door should move to the correct spreading height

Products

PRODUCT	SETTINGS	CHECKS	LICENSE	SOFTWARE

KG   5000

HA   48.7

     Urea

HOME	←	→

Tap to choose a product
There's 10 stored products

Current Product

Urea	Name

Edit the name if you want
Enter the width
Enter your desired door height

24	Spread width m

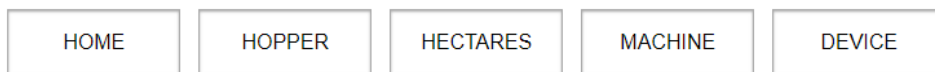| 25	Door height mm

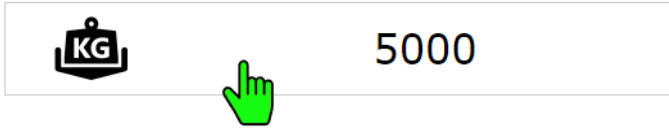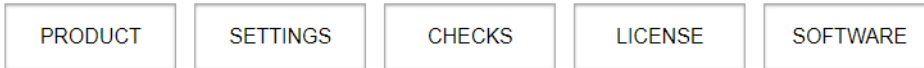**Changing the Spread Width**
• After the product is calibrated, you can change the Spread Width anytime, you don't need to calibrate again
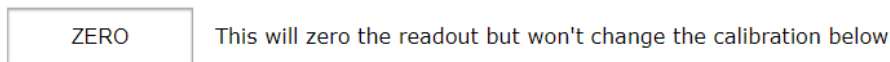
Changing the Door Height
• After the product is calibrated, you can change the Door Height anytime, you don't need to calibrate again
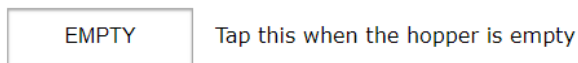
Hopper Kilograms – Machines with Loadcells
- Electrical weigh scales to show the amount of product in the hopper
- Optional equipment, they may not be installed
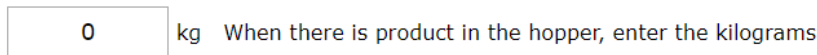- Loadcells do not work until they are calibrated

PRODUCT	SETTINGS	CHECKS	LICENSE	SOFTWARE

KG	👆	5000

HOME	HOPPER	HECTARES	MACHINE	DEVICE

Loadcell Quick Zero

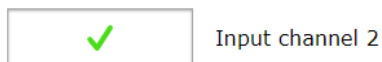| ZERO	This will zero the readout but won't change the calibration below

Calibrate Loadcells

Calibrate the loadcells
Follow both these steps

EMPTY	Tap this when the hopper is empty

0	kg When there is product in the hopper, enter the kilograms

Loadcell Settings
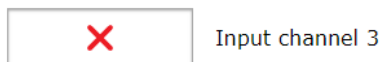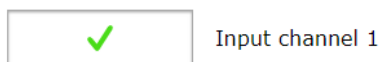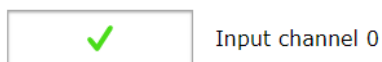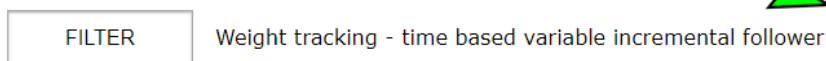
Use Weight Tracking or Moving Average filter

Machines with 3 loadcells – turn on the first 3 channels

Machines with 4 loadcells – turn on all 4 channels

FILTER	Weight tracking - time based variable incremental follower
✓	Input channel 0
✓	Input channel 1
✓	Input channel 2
✗	Input channel 3

Turn off unused channels

Operating the Spreader
 • When first using the spreader, do not fill the hopper (save your money, test it empty)
 • Go to the app Main Menu

No SIM   2:22 PM   ⚹ 97% ▬ᐧᐧ

🚜 Work Screen

👉 RX Rates

🔧 Machine

ⓘ About

i4M
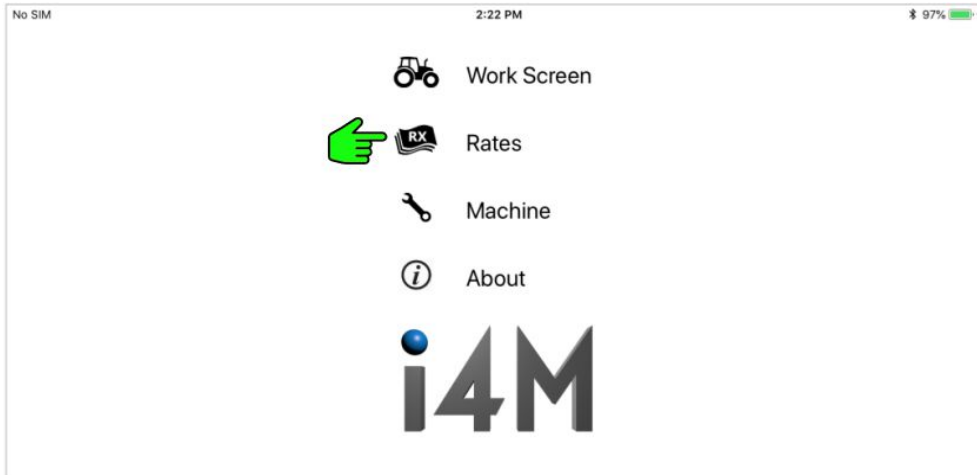
🏠 Home   Select a Map or Fixed Rate Below

👤 User   Fixed Rate kg/ha   👉

☁ Download

Enter a Rate（in kg/ha）

🏠 Home

👤 User   1000

☁ Download   1500

〽HA Zero ha   2000

You can enter more rates if you want to change them on the run

👉 🚜 Work Screen

RX Rates

🔧 Machine

ⓘ About

i4M

🏠 Home

👉 ✗ Spreading → Tap to turn Spreading ON/OFF
Or press the Master Switch

WARNING: The door will move!
WARNING: The belt will move!

KG 0 → Hopper Kilograms

HA 0 → Hectares

👉 KG 1000 → Target Rate kg/ha
Tap to change rates, if you entered more than one Fixe Rate

KG 0 → Actual Live Rate kg/ha

⊗⊗ 0 → Spinner Speed RPM

🔌 ✓ → Wifi Connected to Controller

• Alerts will appear if any problems are detected when Spreading is ON

HA 0.7

🔌 ✓

⚠️ Door height problem

• The controller is ready to use
• If the hydraulics are already setup, you can start spreading
• If hydraulics need to be setup, see the Hydraulics Section

Calibrating Products

PRODUCT	SETTINGS	CHECKS	LICENSE	SOFTWARE

KG	5000
HA	48.7
(product icon)	Urea

HOME	←	→

Current Product

Urea	Name
24	Spread width m
25	Door height mm
811.7	Calibration factor

Use default cal for existing products
Use bulk density for new products

There are 10 products, use the arrows to choose one
Tap any box to edit
Increasing the cal factor will put out less product

Calibration Sample

Follow these steps to calibrate
More kilograms will be more accurate

NEW	Start a new sample
531.2	Amount dispensed kg

1 Start a new sample
2 Go spreading, or manually run out some product
3 Come back to this page, enter the actual kg that went out

Hydraulics
- IMPORTANT: Low engine RPM will cause Spinner and Belt issues
- Tractor hydraulic pumps are coupled to the engine (low engine revs = low hydraulic flow)
- Tractor hydraulic specs are taken at high engine RPM (2000RPM or more)
- Auto transmissions that throttle back the engine can cause low flow issues
- Disable engine throttling, set to 1600RPM or more, as required

Setup Hydraulic Spinners
- Spinners are operated manually
- Connect hoses to tractor remote number 1 (or priority remote)
- Connect to standard remotes, Do not use high flow return, Incorrect return will damage the tractor
- If the tractor has hydraulic flow controls
    Set flow to 50% (adjust this later to set the spinner speed)
    Set time to continuous
    On the spreader, set the manual flow control to full open
- If tractor does not have hydraulic flow controls
    Use the manual flow control valve on the spreader to set your spinner speed

Setup Hydraulic Belt
- Two types of Hydraulic Belt Drives
- PWM Valve has a solenoid valve on the Spreader
- AUTO Hydraulics controls the tractor hydraulic flow (Deere CNH only)
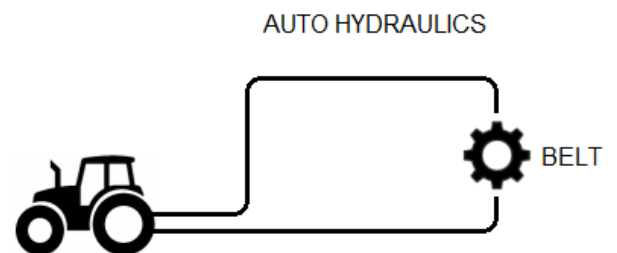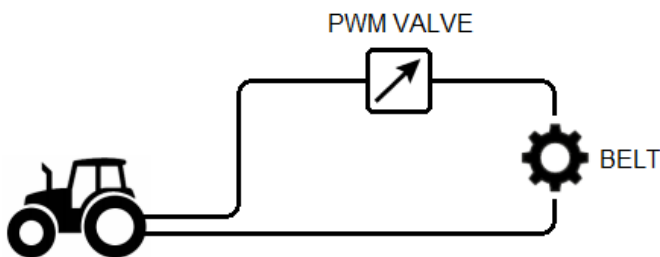
PWM Valve Setup
- Connect hoses to any tractor remote
- Connect to standard remotes, Do not use high flow return, Incorrect return will damage the tractor
- Set the tractor hydraulic flow to 50% (IMPORTANT: Too much oil will starve the Spinners)
- Set time to continuous
- Engage the remote before you start spreading

Quick Manual Test
- Engage the remote
- On the iPad go to MACHINE > CHECKS > BELT and send a Manual Command of 50
- Tap Cancel when done

AUTO Hydraulics Setup – DEERE Tractors
 • Connect the AUTO Hydraulics cable (WARNING: key and battery isolator must be off)
 • Connect the hoses to tractor remote number 3
 • Set the hydraulic flow to 70%
 • Push remote 3 forward slowly, belt must turn correctly (swap hoses if it turns backwards)

AUTO CONNECTOR

 • Check the tractor hydraulic display shows AUTO below remote number 3
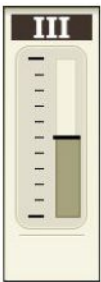
If AUTO is missing
   • Turn tractor off, kill battery isolator
   • Unplug the auto hydraulics connector at the front of the spreader
   • Start the tractor
   • Move remote lever 3 forward for 5 seconds
   • Turn tractor off, kill battery isolator
   • Plug in the auto hydraulics connector
   • Start the tractor, check the display shows AUTO

If AUTO is crossed out
   • Quickly click the lever forward and release it
   • The line should disappear
   • Don't click too far forward, that will engage float

If AUTO is showing
   • The hydraulics will run automatically when you start spreading
   • Display will turn yellow when oil is flowing
   • The tractor must be moving (this is a tractor safety feature, cannot be changed)

Quick Manual Test
   • Drive the tractor slowly
   • On the iPad go to MACHINE > CHECKS > BELT and send a Manual Command of 50
   • Tap Cancel when done

AUTO Hydraulics Setup – CNH Tractors
 • Connect the AUTO Hydraulics cable (WARNING: key and battery isolator must be off)
 • Connect the hoses to tractor remote number 3
 • Set the hydraulic flow to 70%
 • Push remote 3 forward slowly, belt must turn correctly (swap hoses if it turns backwards)
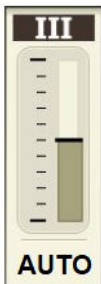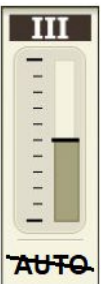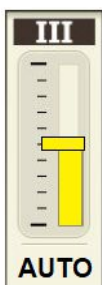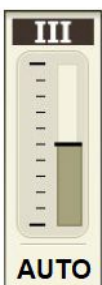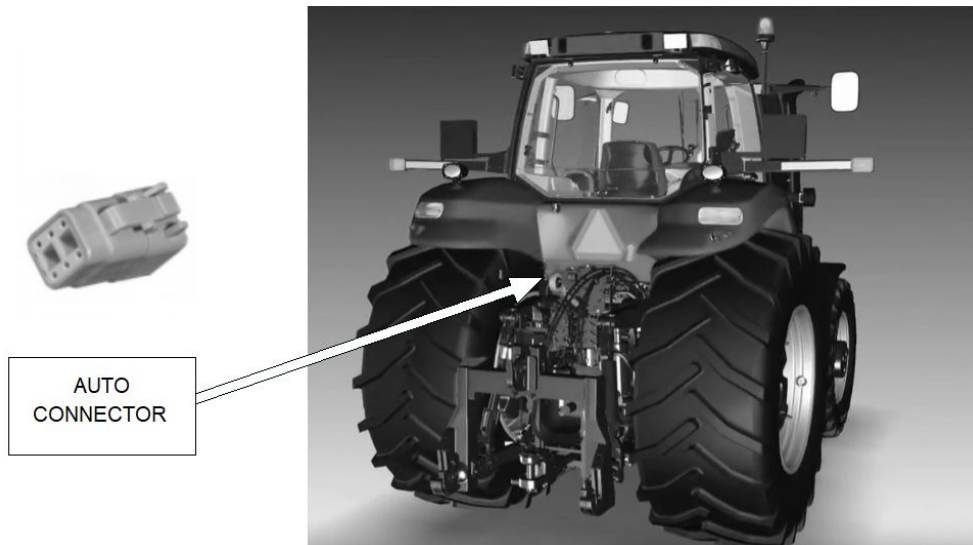

AUTO
CONNECTOR

 • Check the tractor cornerpost display shows   AUTO 1 3
 • If not, you need to activate AUTO mode
 • Steps may be different for some tractors, please contact your tractor dealer
     Key off
     Press the PROG button, do not release it
     Key on
     Wait 5 seconds
     Release PROG button
     Cornerpost shows CONFIG MENU
     Select AUX/HITCH/PTO option from the list
     Select EHR from the list (Electronic Hyd Controller)
     Select AUX SETUP from the list
     Set the SCRPR option to: 2 LASER
     Select EXIT

 • Press button 3 to put the remote in auto mode

Quick Manual Test
 • Drive the tractor slowly
 • On the iPad go to MACHINE > CHECKS > BELT and send a Manual Command of 50
 • Tap Cancel when done

15

Fine Tune Hydraulic Belt
 • All tractors require some fine tuning
 • Changing products may also require some fine tuning
 • In the iPad app, Tap MACHINE > SETUP

| HOME | HOPPER | HECTARES | MACHINE | DEVICE |

Hydraulic Drive

80	Valve jump start 1 to 100
30	Valve speed 1 to 100
60	Valve damping 1 to 100
20	Green zone 1 to 100

Adjust these settings
See helpfult tips below
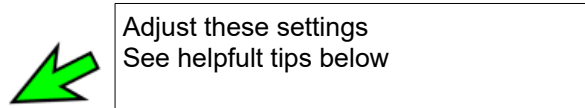
Valve Jump Start - Increase this to make the belt start up quicker
Valve Speed - How fast the valve reacts to rate/speed changes
Valve Damping - Increase this to dampen the valve when it's close the target rate
Green Zone - The area close to the target where the valve stops adjusting

Helpful Tips
 • Valve Jump Start
     Used when you tap Spreading ON
     Increase this if it takes too long for the belt to start turning
     Decrease this if it jumps to a high rate, then slows down to the correct rate

 • Valve Speed
     The valve adjusts to match your speed and rate
     A large number will make large adjustments to the valve, too big will make the rate jump up and down
     A small number will make small adjustments to the valve, too small will take a long time to reach the rate
     Increase this if it is very slow to reach the desired rate
     Decrease this if the rate is hunting up and down, also increase the Valve Damping

 • Valve Damping
     When it's close to the desired rate, the adjustments are dampened (they are very gentle)
     A large number will dampen more, if it's too large the valve won't adjust
     Increase this if the rate is hunting up and down, also decrease the Valve Speed

 • Green Zone
     When the rate is in the green zone, the valve will stop adjusting
     If the number is too large, it will stop before it reaches the target
     If it's too small, it will never stop adjusting
     Increase this if the rate adjust ok but overshoots the desired rate
     Decrease this if the rate stops adjusting before it reaches the desired rate

Prescription Maps
 • Go to the app Main Menu
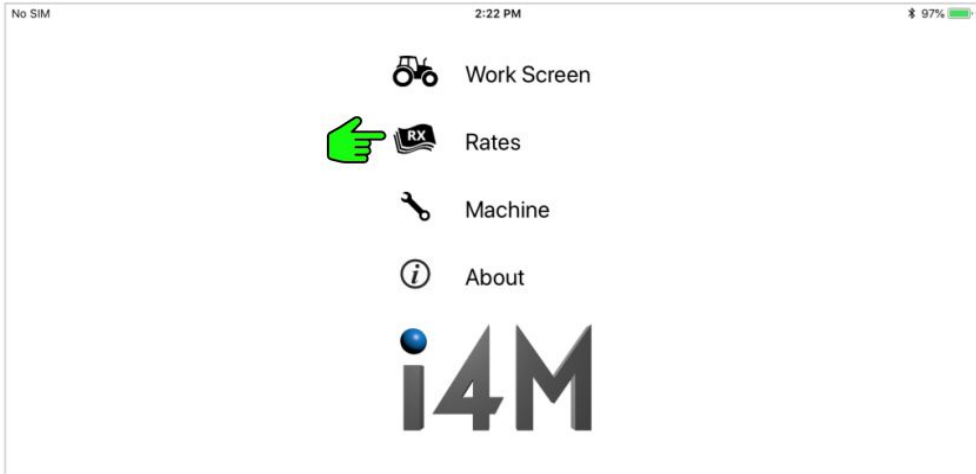
 • Login with your i4M username and password
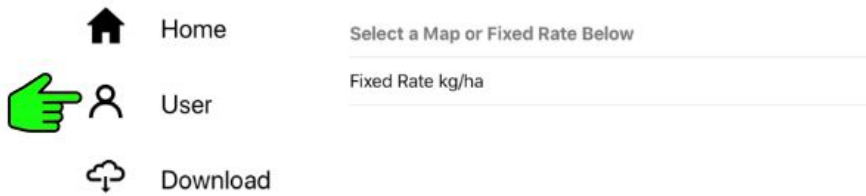
 • Dowload your maps
 • Select the map you want to use

 • Go to Work Screen, your map will be loaded