FARMSCAN | jackal v3.5

monitor and controller series

For Serial Numbers 7000-7999

FARMSCAN AG

www.farmscanag.com

3 SECTION SPRAY RATE CONTROLLER
SPEED & AREA METER
TACH (RPM) METER
BATCH METER
RATE (LIQUID OR DRY) MONITOR
PRESSURE MONITOR
TEMPERATURE MONITOR
SURVEILLANCE MONITOR
WHEEL SLIPPAGE MONITOR
COUNTER FUNCTION

CONTENTS

GENERAL DESCRIPTION

Your new Farmscan Ag Jackal Spray Monitor & Controller system is the result of extensive infield development and will give many years of dependable service.

Once installed and calibrated, the system will automatically maintain the selected spray rate regardless of speed or pressure variations within the limits of the sprayer pump capacity and nozzle size.

This version of the Jackal is completely unlocked, un-restricted and has the full feature set of the Jackal-Monitor. NB: Inputs consist of 7x Pulse & 2x Varying Inputs. Simply add additional sensors to utilise the Jackal to its full potential.

Our onboard calibration wizard makes setup a breeze! It's simplified with the ability to enter either a factor (pulses per unit) or simply drive/run a set amount whilst the unit is counting the pulses and let the system calculate its own factor.

24 recordable trips allow the operator to track numerous jobs in a period of work and each input can be used to display information using imperial and metric units.

TECHNICAL SPECIFICATIONS

Specifications below are subject to change and are based on a fully unlocked Jackal.

Power Requirements	10 – 18 VDC @ 250mA
Display	128 x 64 Mono Graphic LCD
Operating Temperature	0 to 50˚c
Storage Temperature	-5 to 65˚c
Dimensions	135mm H x 100mm W x 30mm D
Sensor Inputs	9
Inputs 1-5 & 8-9 (Square Wave)	Up to 400 pulses per second (On/Off/Freq)
Inputs 6-7	Analog Voltage 0 – 5V
GPS	RS232 TX/RX
Ground	2
Output PWM	2
Output +12v	1
Output	4
Output current rating	4A/output

DISCLAIMER

The warranty offered on this Farmscan Ag product is limited to the repair or replacement of the faulty goods. No liability will be accepted for loss of profit or productivity. **WARRANTY IS VOID** if power and or sensors are not connected as described in this guide.

PARTS LIST

REF	PART NUMBER	DESCRIPTION	QTY
1	A-Jackal	Jackal Monitor	1
2	AH-407	Mounting Bracket	1
3^	P-321 x1	11 Way Input Plug	1 each colour
	P-322 x1	Green & Grey	
4^	AC-105	5m Power Cable	1
5^	HM-506	Screw Driver	1
Not Pictured	AM-200	Warranty Card	1
Not Pictured	AM-Jackal	Manual	1
6*	AC-4501/T	Jackal Tractor Harness 5m	1
7*	AC-4501/S	Jackal Section Harness 5m	1

^ Items **NOT** supplied when purchased as full spray control
* Items **NOT** supplied if full control kit purchased

PARTS PICTORIAL

MOUNTING & INSTALLATION

The Jackal Monitor & Spray Controller is provided with a suction window mount. An optional RAM style is also available for purchase at an additional cost.

Slide mount onto unit and push sideways to lock into place. Make sure you hear a click of the mount locking into place.

Place in a convenient position on the windscreen and using the toggle lever pictured above (Item 2), push all the way to the bottom until lever locks into position.

Note: Monitor should be mounted in a clearly visible position in the cab for the operator, but not in a position where it is subject to intense heat or moisture.

The connector on the rear of the Jackal Controller has the following connection points available for use
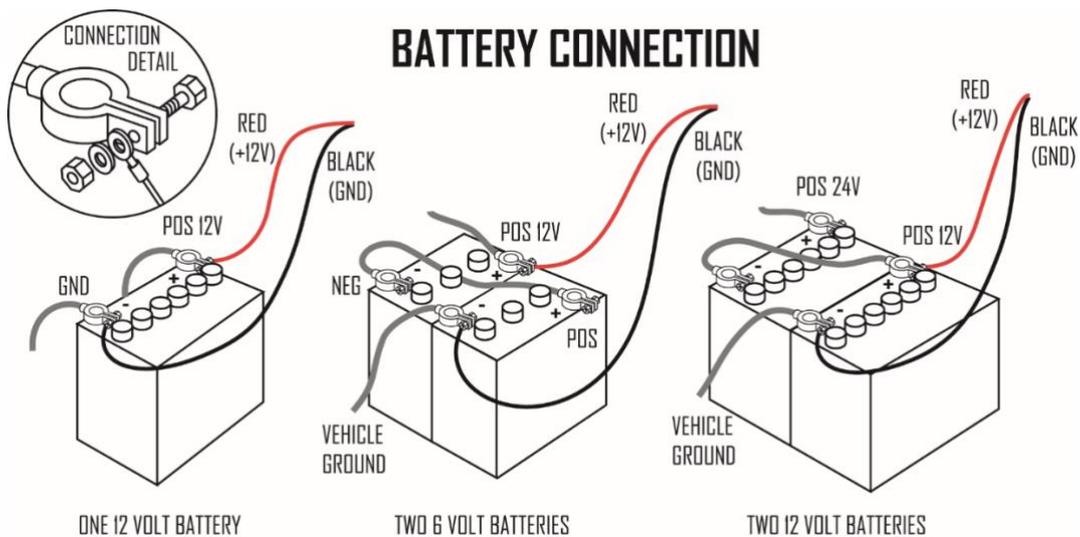
POWER CONNECTION

Power connection must come direct from the battery terminals. **WARRANTY IS VOID** if power is not connected as described in this section.

The supplied harness comes pre-terminated; however, this information is important if required in the future.

GND : Black or Red with Black Stripe
+ve 12v : Red
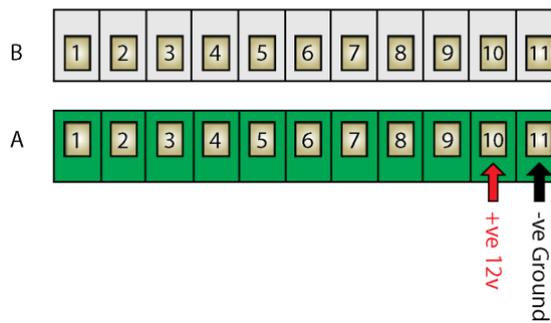
1. Connect power cable supplied **DIRECTLY TO BATTERY**
2. Ring terminals are used for battery connection and the bare end used to connect to the rear Jackal. (Refer above image for power connection)
3. Connect Ground to BATT -VE, **Terminal B11** using the **RED** with **BLACK** stripe wire
4. Connect **+12** Volts (+battery terminal) to BATT +VE, **Terminal B10** using the **RED** wire
5. Ensure that the battery connection to the Jackal is +**12 Volts**

Connecting 24V to the Jackal will VOID WARRANTY

Disconnect the terminal plugs from the Jackal if ARC WELDING on machinery

REAR CONNECTIONS (MONITOR & CONTROL VERSION)

The connector on the rear of the Jackal Monitor & Controller has the following points available for use when the supplied Tractor & Section/Implement harness is not used.
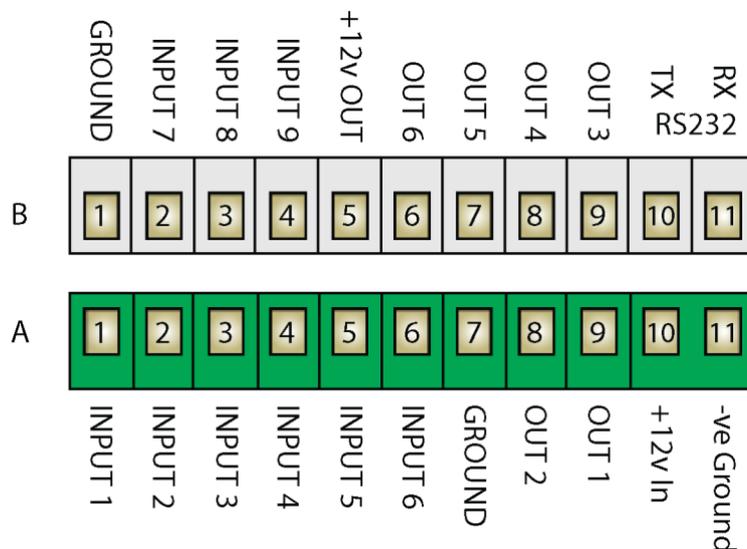
A	BOTTOM ROW (GREEN PLUG)	B	TOP ROW (GREY PLUG)
A1	**INPUT 1** Prox / Reed / High-Low / On-Off / Alarm	B1	**GROUND** Earth / 0v
A2	**INPUT 2** Prox / Reed / High-Low / On-Off / Alarm	B2	**INPUT 7** Varying Voltage Sensor
A3	**INPUT 3** Prox / Reed / High-Low / On-Off / Alarm	B3	**INPUT 8** Prox / Reed / High-Low / On-Off / Alarm
A4	**INPUT 4** Prox / Reed / High-Low / On-Off / Alarm	B4	**INPUT 9** Prox / Reed / High-Low / On-Off / Alarm
A5	**INPUT 5** Prox / Reed / High-Low / On-Off / Alarm	B5	**+12v OUT** Supply Out / Sensor Power
A6	**INPUT 6** Varying Voltage Sensor	B6	**OUT 6** Dump
A7	**GROUND** Earth / 0v	B7	**OUT 5** Section 3
A8	**OUT 2** GND/+12v/Run/Hold/Alarm/Freq/Batch	B8	**OUT 4** Section 2
A9	**OUT 1** GND/+12v/Run/Hold/Alarm/Freq/Batch	B9	**OUT 3** Section 1
A10	**+12v In** +12v Battery	B10	**RS232 TX** From GPS
A11	**-Ve In** Ground / GND Battery	B11	**RS232 RX** From GPS

Need an extra Square Wave Input? Consider swapping your wheel sensor input for out T-135 GPS Speed sensor

- B5 supplies 12v out to sensors when the Jackal is turned on
- Any free INPUTS can be used as the remote/run hold function
  - Excludes Varying Voltage Inputs
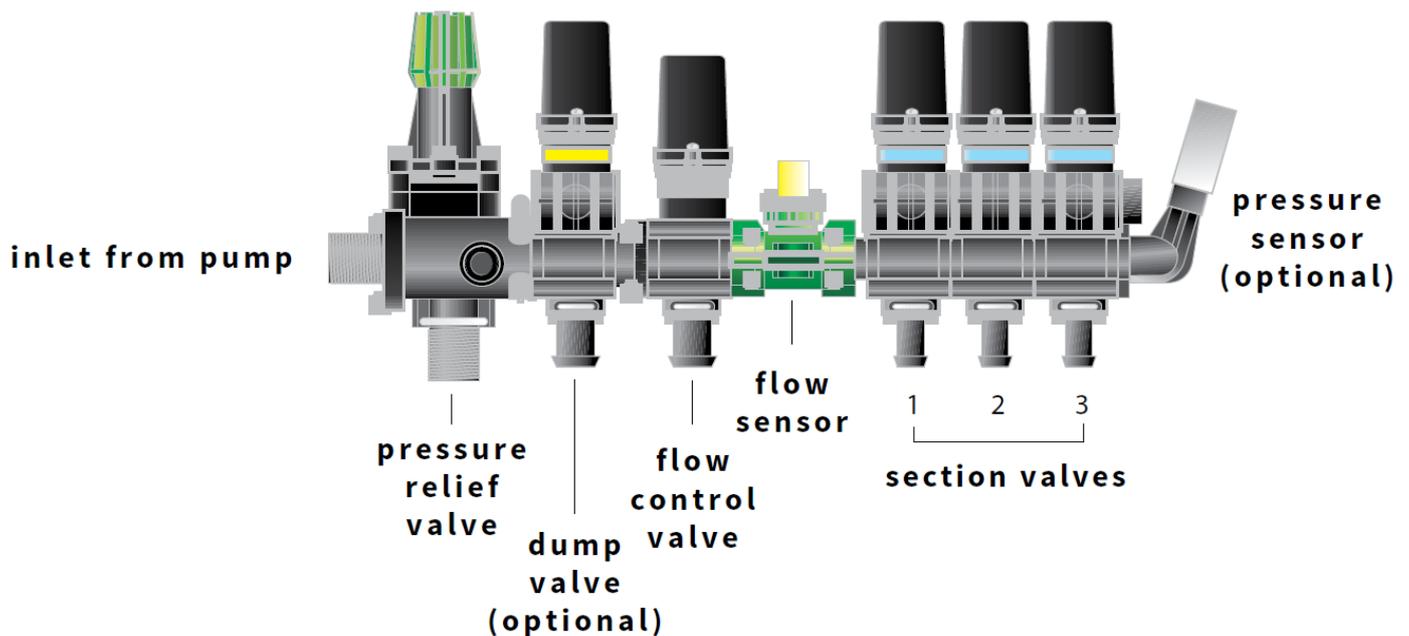
REAR CONNECTIONS (CONTROL VERSION & SPRAY)

The Jackal Spray Controller & Monitor harness comes pre-terminated for ease of install and convenience.

The following table outlines the pre-termination of this cable.

A	BOTTOM ROW (GREEN PLUG)	B	TOP ROW (GREY PLUG)
A1	INPUT 1 / NOT USED	B1	GROUND / GPS PIN 5
A2	INPUT 2 / FLOW SENSOR	B2	INPUT 7 / NOT USED
A3	INPUT 3 / TANK LEVEL SENSOR	B3	INPUT 8 / NOT USED
A4	INPUT 4 / WHEEL SENSOR	B4	INPUT 9 / NOT USED
A5	INPUT 5 / NOT USED	B5	+12v OUT / COMMON SENSOR POWER
A6	INPUT 6 / PRESSURE SENSOR	B6	OUT 6 / DUMP VALVE
A7	COMMON SENSOR GROUND	B7	OUT 5 / SECTION 3
A8	OUT 2 / MASTER MOTOR -	B8	OUT 4 / SECTION 2
A9	OUT 1 / MASTER MOTOR +	B9	OUT 3 / SECTION 1
A10	+12v IN / +12V BATTERY	B10	RS232 TX
A11	-Ve IN / BATTERY GROUND	B11	RS232 RX

Notes as below:

- The Jackal sprayer harness is wired to suit the Farmscan Ag control valve bank (see below)
- The Jackal Harness comes pre-terminated with Packard plugs & Pins
  - Adapter cables maybe purchased or included with some kits (Page7)
- This cable can be modified for different valve bank assemblies.
- Please refer to your implement supplier or auto electrician to determine the current requirement and wiring if you are not using a Farmscan Ag control valve bank.
- The Jackal controller should only be connected directly to 3-wire motorised valves.
- If you are connecting to a 2 Wire section valve (E.g., Arag or Hardi) you will require a 2-3 Wire Converter **(Farmscan Ag Part Number A-2091) These are available to order at an additional cost.**

Example – Farmscan Ag 3 Section Valve Bank
(Farmscan Ag Part Number AA-24V1/3)
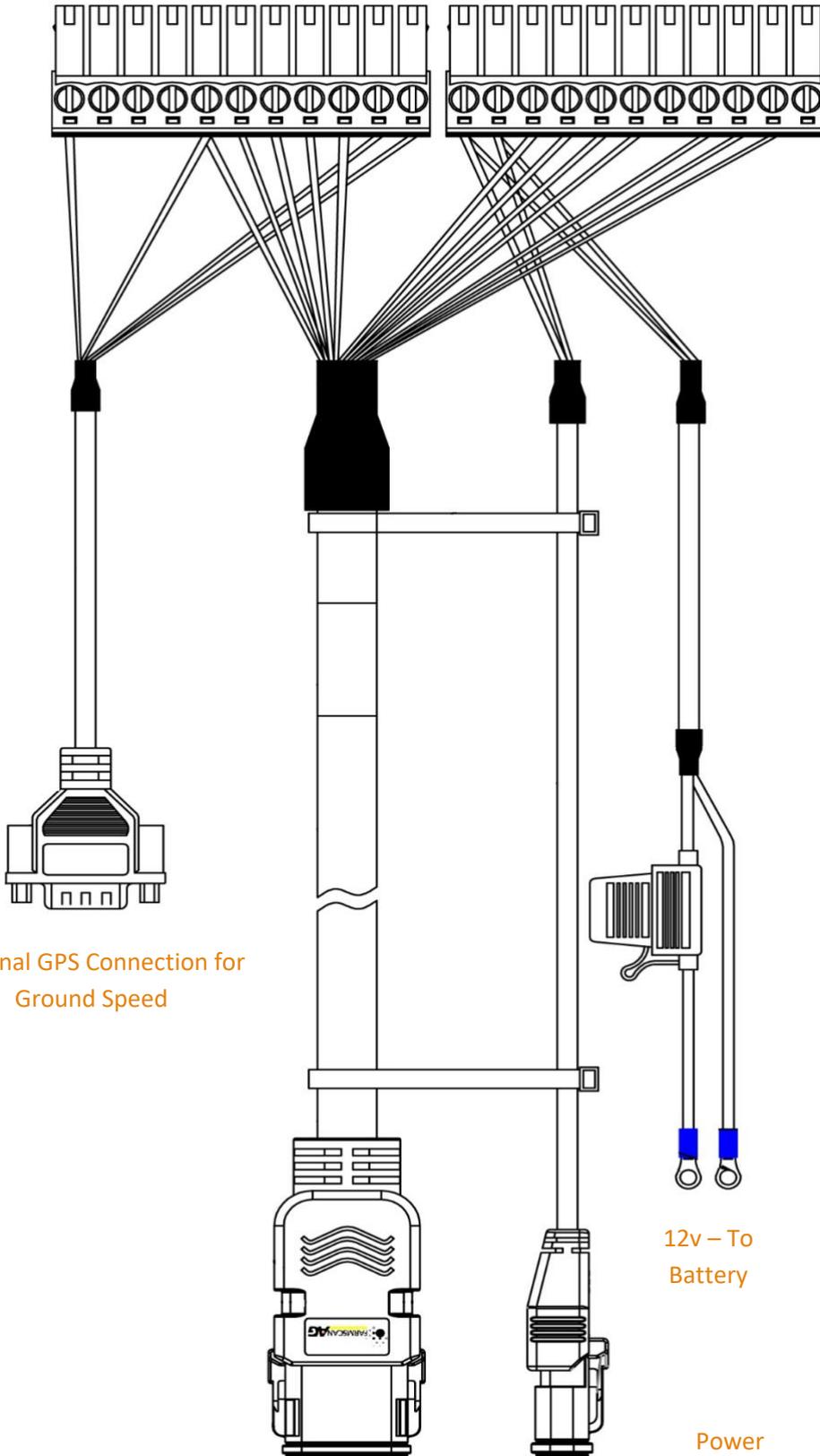
Overview of Tractor Harness as below

Connect to rear of Jackal

P2 - GREY   P1 - GREEN

Jackal Tractor
Harness

Part #
AC-4501/T

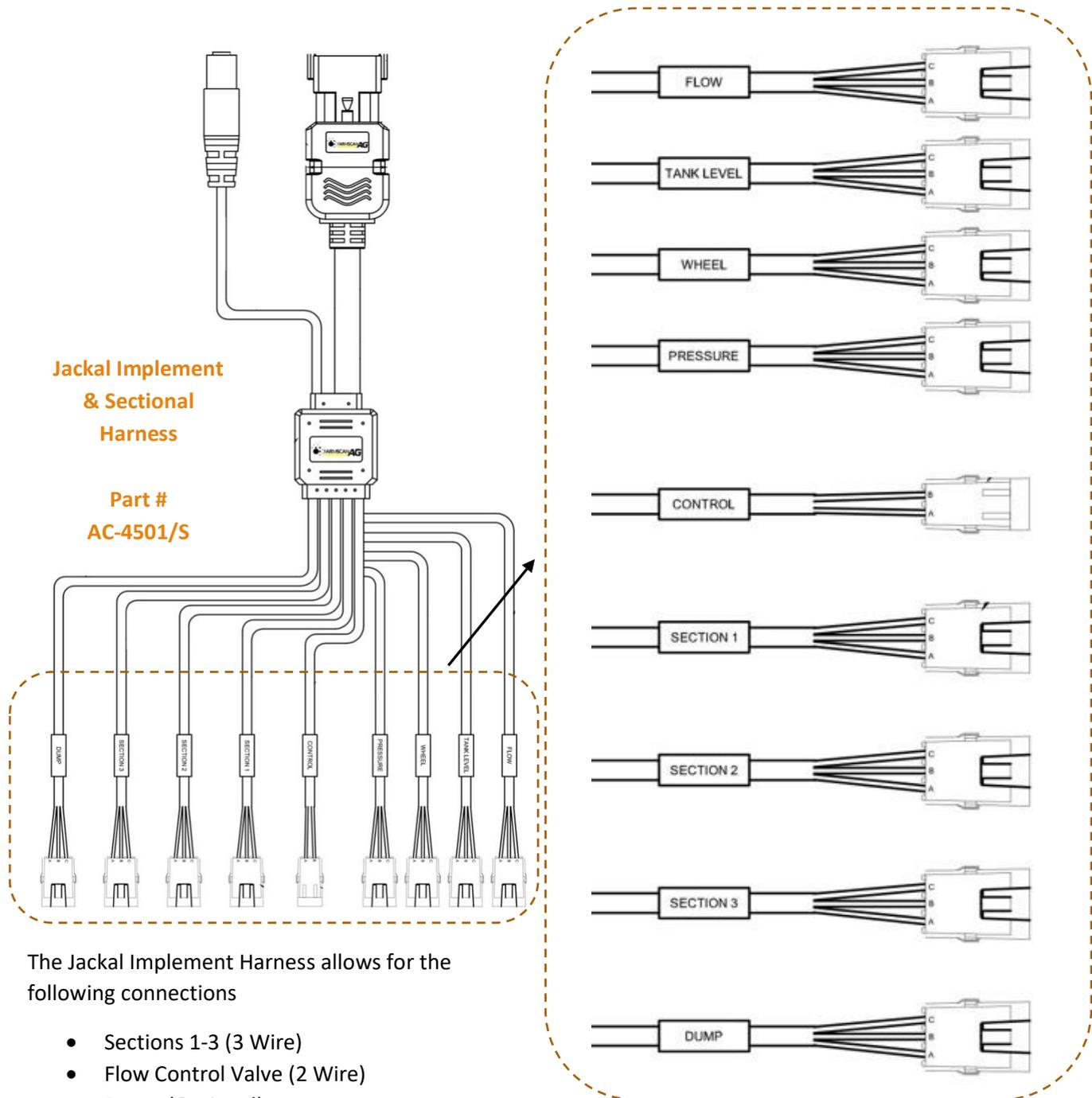Optional GPS Connection for
Ground Speed

12v – To
Battery

Sensor
Connector

Power
Connector to
Sensors

IMPLEMENT/SECTION HARNESS (CONTROL VERSION & SPRAY)

Overview of Implement/Section Harness as below

Jackal Implement & Sectional Harness

Part # AC-4501/S

The Jackal Implement Harness allows for the following connections

- Sections 1-3 (3 Wire)
- Flow Control Valve (2 Wire)
- Dump (Optional)
- Pressure
- Wheel Input (Speed)
- Tank Level Sensor
- Flow Meter (3 Wire)

NB: The Jackal harness comes pre-terminated with Packard's. Kits purchased directly may include adapters as below.

Packard Adapters are as follows:

- AC-7722 – Packard to Flow Control
- AC-7721 – Packard to Section Valves

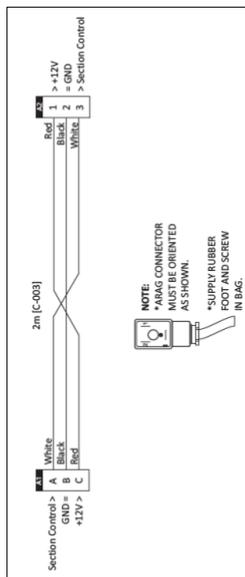**Connect to implement as required. Unused connectors and wires should be taped back to avoid weather corrosion or accidental shorting and damage.**
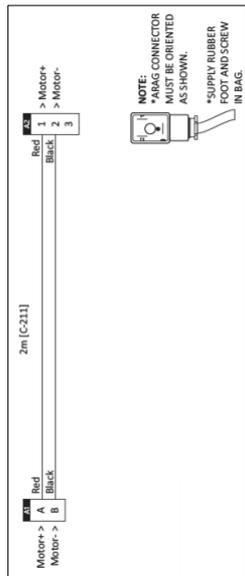**NB: All Red Wires are +12v (live when Jackal is on) – DO NOT SHORT**

IMPLEMENT CABLE

Flow — C6
C	Red	> 12V
B	Black	= GND
A	Grey	< Flow

Tank Level — C7
C	Red	> 12V
B	Black	= GND
A	Pink	< Tank Level

Wheel — C8
C	Red	> 12V
B	Black	= GND
A	White	< Wheel

Pressure — C9
C	Red	> 12V
B	Black	= GND
A	Brown	< Pressure

Control — C1
| B | Green | = Valve- |
| A | Red/White | = Valve+ |

Section 1 — C2
C	Red	> +12V
B	Black	= GND
A	Purple	> Control

Section 2 — C3
C	Red	> +12V
B	Black	= GND
A	Yellow	> Control

Section 3 — C4
C	Red	> +12V
B	Black	= GND
A	Blue	> Control

Dump — C5
C	Red	> 12V
B	Black	= GND
A	Orange	> Dump

2m [C-211]

A3
| A | Red | Motor+ > |
| B | Black | Motor- > |

A3
| 1 | Red | > Motor+ |
| 2 | Black | > Motor- |

NOTE:
*ARAG CONNECTOR MUST BE ORIENTED AS SHOWN.

*SUPPLY RUBBER FOOT AND SCREW IN BAG.

AC-7722 - Packard to Control Valve

2m [C-003]

A1
A	White	Section Control >
B	Black	GND =
C	Red	+12V >

P2
1	Red	> +12V
2	Black	= GND
3	White	> Section Control

NOTE:
*ARAG CONNECTOR MUST BE ORIENTED AS SHOWN.

*SUPPLY RUBBER FOOT AND SCREW IN BAG.

AC-7721 - Packard to Section Valve

VEHICLE CABLE

Supply Dust Cap with attachment

12pin MALE Deutsch — B1
1 2 3 4 5 6 7 8 9 10 11 12

12pin FEMALE Deutsch — A1
1 2 3 4 5 6 7 8 9 10 11 12

Supply Dust Cap with attachment

2pin MALE — B2
1 2

2pin FEMALE — A2
1 2

Supply Dust Cap with attachment

Breakaway

A3
1		
2	< Rx	
3	> Tx	
4		
5	= GND	
6		
7		
8		
9	> +12V	

Phoenix Plug 1 - GREEN — P1
1	Grey	In 1 (Freq Coil) <
2	Pink	In2 (On/Off/Freq) <
3	White	In3 (On/Off/Freq) <
4	Brown	In4 (On/Off/Freq) <
5	Black	In5 (On/Off/Freq) <
6	Green	In6 (Volt) <
7	Red/White	GND =
8	Red	Out 2 >
9	Black	Out 1 >
10		+12V <
11		GND =

Ring Terminals

- VE

+ VE

10A Fuse

Phoenix Plug 2 - GREY — P2
1	Yellow	RS232 Rx <
2	Blue	RS232 Tx >
3	Purple	Out 3 >
4	Yellow	Out 4 >
5	Blue	Out 5 >
6	Orange	Out 6 >
7	Red	+12V Out Switched >
8		In9 (Volt) <
9		In 8 (Volt) <
10		In 7 (Volt) <
11	Black	GND =

The following examples will help to determine appropriate sensor input connections into the Jackal **IF** you choose to alter the pre-terminated cable to your specifications or have purchased the fully unlocked Jackal Control.

## TWO WIRE "REED" – BLACK END SENSOR
KIT # 1007P, 2009, 2076

These kits will all include a "reed" type sensor. The reed type sensor is a 2 wire sensor (normally black end) and only uses a ground/earth wire and a signal wire.

The diagram to the right shows which terminals to connect your sensors to.

Insert the black ground wire to either **(A7 or B1)** and the white/coloured signal wire into any **(A1-A5 or B3-B4)**

Use the wizard to setup the port and calibrate a sensor once installed.
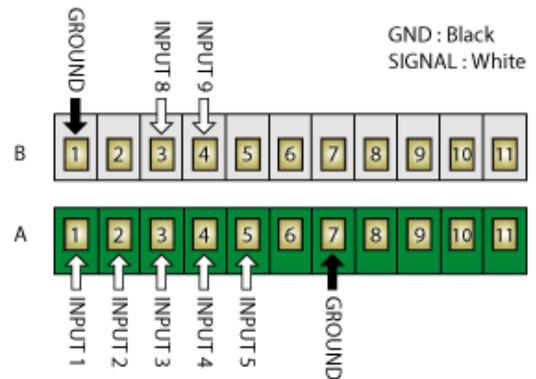
THREE WIRE – PROX SENSOR OR 3 WIRE FLOW METERS
KIT # AA-2010P, AA-123P, AA-125, AA-242, AA-230X, AA-232X, AA-231

These kits will all include a "square wave" type sensor. The sensor is 3 wires and uses a ground/earth wire, a signal wire and a 12v power wire.

These inputs are also used with 3 wire (square wave) flow meters.

The diagram to the right shows which terminals to connect your sensors to.

Insert the ground wire to either **(A7 or B1)** and the sensor wire into any **(A1-A5 or B3-B4)** and the power wire to **(B5)**

Use the wizard to setup the port and calibrate a sensor once installed.

NB: A Proximity sensor can be used for wheel speed or RPM.

Polmac : A Signal (Green) | B Ground (White) | C Power (Brown)
Prox : A Signal (Black) | B Ground (Blue) | C Power (Brown)
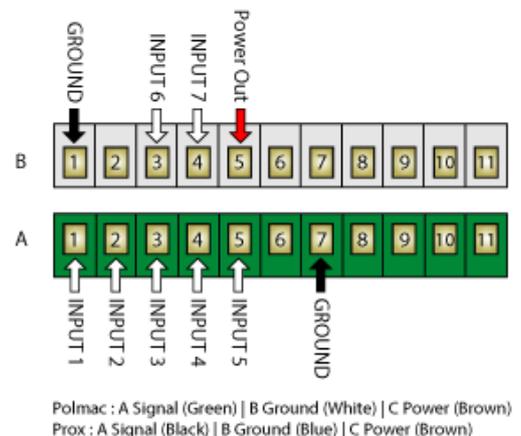
THREE WIRE "ANALOGUE/VOLTAGE" – PRESSURE SENSOR OR DEPTH SENSOR
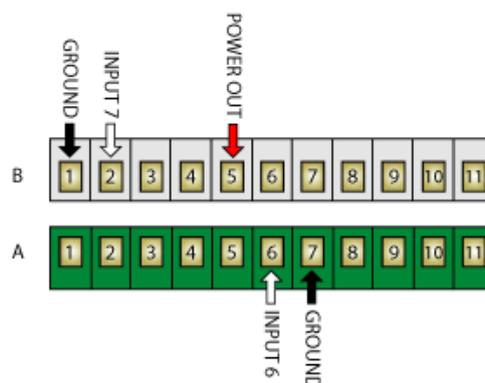## KIT # AA-114, AA-119-H, AA-119-L, AA-430

These kits will all include an "analogue" type of sensor. The analogue sensor is 3 wire and uses a ground/earth wire, a signal wire and a 12v power wire.

Typical sensors would include Pressure & Depth.

The diagram to the right shows which terminals to connect your sensors to.

Insert the ground wire to either **(A7 or B1)** and the sensor wire into **(A6 or B2)** and the power wire to **(B5)**

Use the generic wizard to setup the port and calibrate a sensor once installed.

NB: The AA-430 (Depth Sensor) is powered by 5v – Please contact us to discuss powering options via the Outputs Menu

THREE WIRE "BIN/TANK LEVEL"
KIT # 2060, A-2220P

These kits will all include an "on/off, high/low, empty/full" type of sensor. The analogue sensor is 3 wire and uses a ground/earth wire, a signal wire and a 12v power wire.

The diagram to the right shows which terminals to connect your sensors to.

Insert the ground wire to either **(A7 or B1)** and the sensor wire into any **(A1-A5 or B3-B4)** and the power wire to **(B5)**

Use the generic wizard to setup the port and calibrate a sensor once installed.
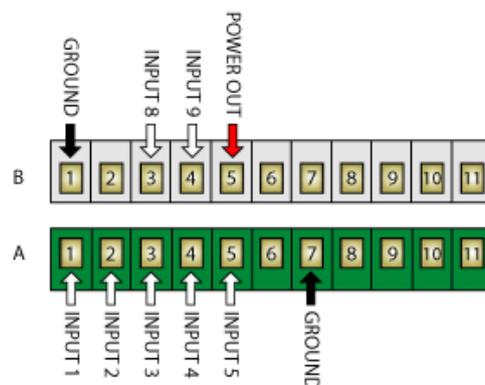
GPS
KIT #T-135

GPS units supplied from Farmscan Ag are pre-programmed and ready to use with the Jackal Monitor.

The diagram to the right shows which terminals to connect your GPS to.

Insert the black or green wire to **(B1)** and the white or yellow wire into **(B11)** and the red wire into **(B5)**

Use the wizard to setup the port and calibrate once installed.

NB: If you BYO GPS please ensure: GGA, VTG, RMC, 5Hz and a baud rate over 19200kbps.
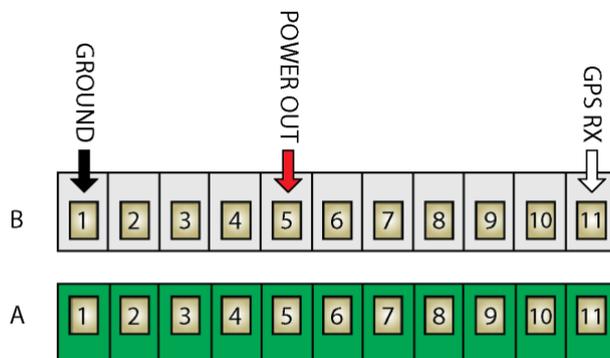
GND : Black
SIGNAL : White
POWER : Red

BATCH (SOLENOID)
KIT # 1501

The Batch function is designed to measure bulk water into a spray tank via either a bottom or top fill system. The minimum flow rate for effective operation is 75 L/min to a maximum of 750L/min using our standard 2" flow sensor.

Water may be pumped, or gravity fed through the flow sensor, which will give accurate readings providing no air enters the system. The Flow sensor can be installed on either the suction or pressure side of the water delivery system, and the readout will count up to display the total litres delivered.
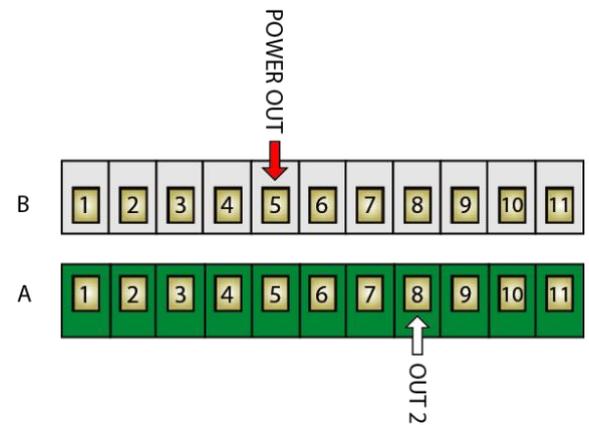
Alternatively, the TANK BATCHMETER may be automated by installing either the SOLENOID SHUTOFF option which will automatically stop the flow after the readout counts down to zero from a preset batch total.

When using the Jackal as a batch meter with liquid, please ensure the appropriate flow meter is setup as per the previous instructions.

Insert one wire to **(B5 POWER OUT)** and the other wire into **(A8 OUT 2)**

Use the wizard & instructions to setup the port and calibrate once installed.

If water quality is doubtful, water intake should be filtered via an 80-mesh filter before the flow sensor, to avoid foreign matter clogging / jamming the turbine. Chemicals may be introduced into the water stream without causing damage to the flow sensor, but some chemicals may damage or reduce the solenoid diaphragm life, particularly if undiluted.

REMOTE RUN/HOLD (ACTIVATE BY INPUT)

The Jackal can connect an external Run/Hold trigger (e.g. Remote Switch) & wire into any unused signal INPUT port **(A1-A6 & B3-B4)**

This allows the Jackal to be remotely placed on hold or run mode from an external source or switch without having to press the Run/Hold button on the Jackal itself. When the external Run/Hold is active on any input the Run/Hold button on the Jackal is then disabled.

Insert the ground wire from your external switch to any of the unused ports as mentioned above.

NB: In some cases, you may have to use an automotive relay to provide the appropriate ground output.
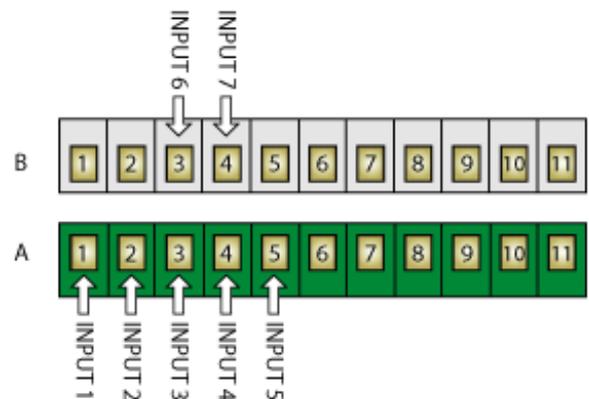
NORMALLY ON	NORMALLY OFF
WHEN A CIRCUIT EXISTS BETWEEN THE SELECTED INPUT AND GROUND (GND), SELECTING NORMALLY ON WILL RESULT IN THE JACKAL GOING INTO HOLD MODE	SELECTING NORMALLY OFF WILL RESULT IN THE REVERSE I.E. THE JACKAL WILL BE IN RUN MODE UNTIL THE CIRCUIT IS BROKEN AFTER WHICH IT WILL GO INTO HOLD MODE.

Enable the remote run/hold via **OTHER SETTINGS** as further described on **PAGE 44.**
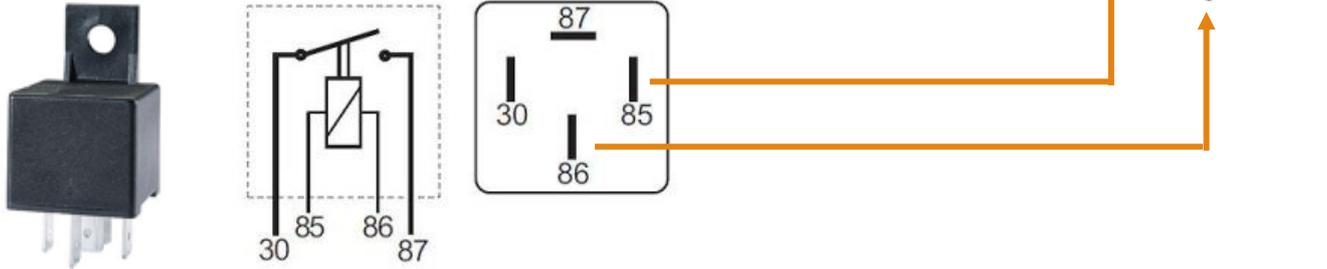
The Jackal Monitor has the ability to Run/Hold an external device such as a remote clutch switch.

This allows you to press the Run/Hold on the Jackal to enable an external operation.

NB: This function is used in conjunction through an automotive relay.

Example: Hella Automotive Relay (12v / 30A) – 4RA003510-08

Pin 86 to **A9 Out 1** (Jackal +12v Run/Hold Output)
Pin 85 to **A7** (Ground)
Pin 30 to **12v in** (Direct to Vehicle Battery)
Pin 87 to **Positive Side** of clutch switch *(Ensure negative/ground on other side of switch returns to battery)*
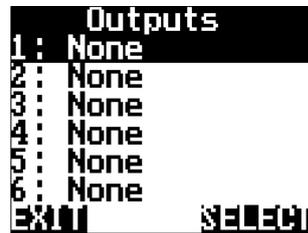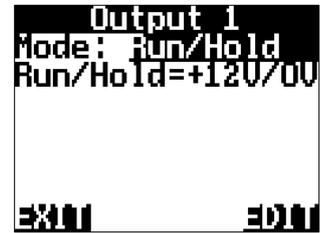
Enable the remote run/hold out by:

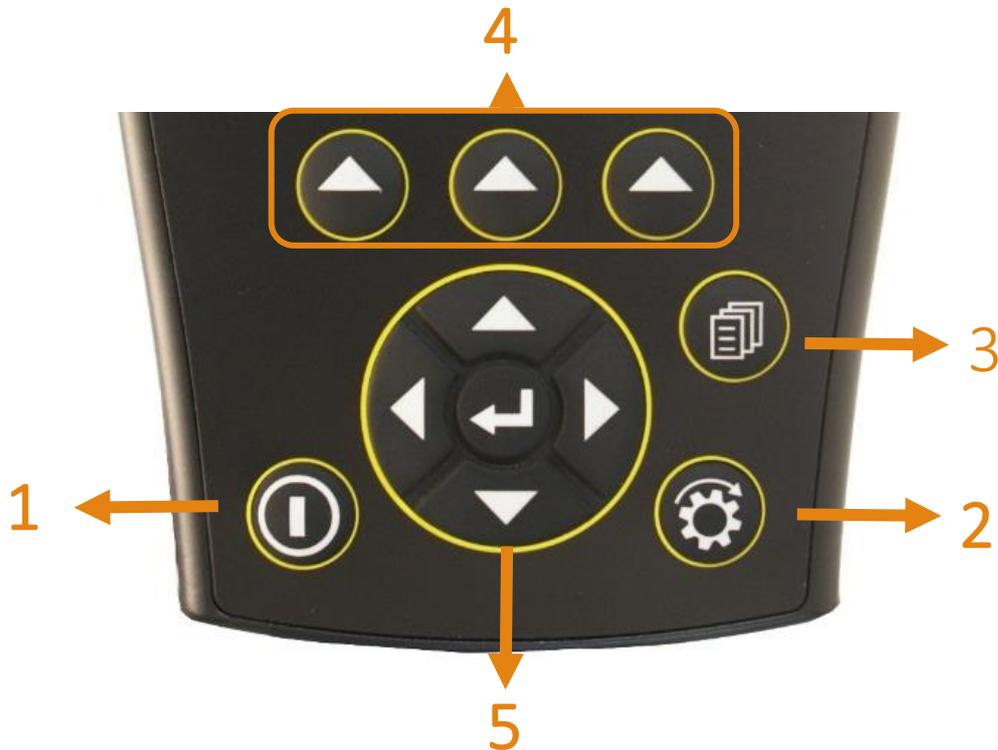From the front screen press
SETUP

Highlight **OUTPUTS** and press
SELECT

Highlight **1: NONE** and press
SELECT

Press **EDIT** and change to
MODE: Run/Hold
Press **EXIT**

Press **EXIT** when done.

BUTTON FUNCTIONS

1. **Power On/Off button**

   a. Power is turned on by pressing the **ON/OFF** button for 1 second.
   b. Power is turned off by holding the **ON/OFF** button for 2 seconds.

2. **Run/Hold button**

   a. The **RUN/HOLD** button has a dual function.
      a. Press **RUN/HOLD** once to place the 'MONITOR ON HOLD'.
      b. Press **RUN/HOLD** again to resume operation.
   b. The **RUN/HOLD** state is indicated in the top left-hand corner of the screen. When the monitor is in RUN mode, the unit displays RUN to signify that the monitor is active.
   c. When the monitor is in **HOLD** mode the unit displays the word "**HOLD" & "BEEPS"** every 2 seconds

3. **Page button**

   a. The **PAGE** button is used to scroll through BATCH mode screens or Spray Control functions.

4. **Select button (3 of)**

   a. The Jackal has 3 buttons placed directly under the LCD. These buttons will change function in different menus.
   b. The function of the button is indicated at the bottom of the screen directly above the button.

5. **Navigation button (Up, Down, Left, Right, Enter)**

   a. The Round navigation (**NAV**) buttons are used to navigate **UP/DOWN/LEFT/RIGHT** in calibration screens as well as scrolling through the display lines on the main screen.
   b. **ENTER** is used to select the option highlighted onscreen.

The Jackal can display one, two or three lines of live information at any one time.

Using the middle **NAV/Enter** button allows you to toggle between the different display modes when multiple inputs are being used.
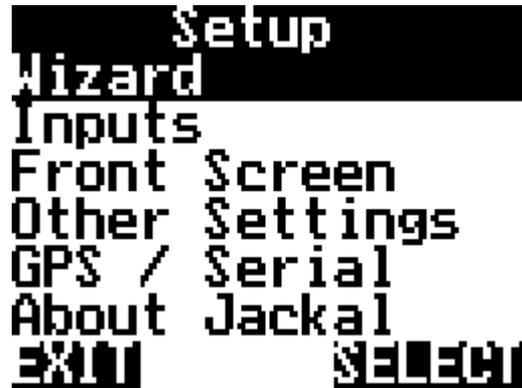

Example: 1 Line

Example: 2 Line

Example: 3 Line

The level of Jackal unlock will determine what options are viewable and available to be edited.

Use the NAV button down to reveal further menu information

Wizard	Run a predefined wizard for setting up the Jackal Monitor as:
	• Sprayer (Automatic Mode) – *Control Version*
	• Area/Speed Wheel
	• Area/Speed GPS
	• Tachometer (Fast & Slow option available)
	• Flow Meter
	• Slippage Meter
	• Generic Wizard
Inputs	Manually enable or edit ports in which sensors are connected to.
Front Screen	Enable/define/order/edit/name the lines on the front screen. Select the number of decimal places displayed and edit the alarms.
Other Settings	Change speed input, implement & section widths, external run/hold alarm notification *s*ettings (beep & on hold), language options, speed simulation for diagnostics.
Outputs	This menu is used to control the Jackal outputs. Refer to this manual and edit the outputs described ONLY to prevent damage to external sensors connected to the Jackal.
GPS/Serial	When an external GPS is connected view and ensure the GPS is setup correctly. Setup baud rate and confirm GPS messages (NMEA messages RMC or GGA+VTG are required) Latitude, Longitude, heading, speed, date & time.
About Jackal	Shows current version of Jackal software and unlock codes installed on the unit.
Diagnostics	Shows current input voltage and input diagnostics on enabled ports.
Factory Reset	Returns the Jackal to factory default.

The Jackal can be setup to control an application rate when using both a speed & flow input. It offers Fully Manual, or Manual with auto dump valve open when stopped & Full Rate Control when varying speed.
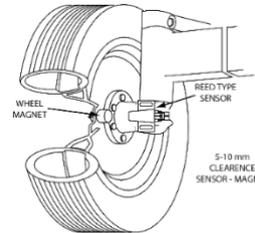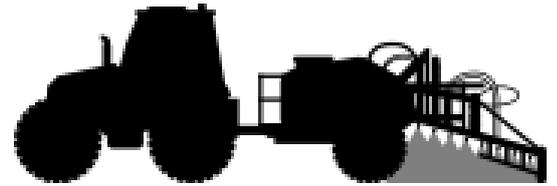
Rates and 3 sections can be controlled from the main screen

Sensors Required:

- Wheel Sensor/GPS for Speed & Area calculation
- Flow meter (any style) to display Litres

Available Connections: Refer to Installing Sensors from **PAGES 9-11**

NB: The following setup uses information from multiple pages in this manual.
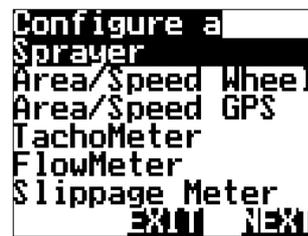
SETUP – AUTO MODE (WIZARD)

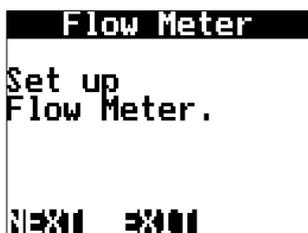|			
HOLD **ALARM TRIP SETUP**	**Setup** Wizard Inputs Front Screen Other Settings GPS / Serial About Jackal **EXIT SELECT**	**Configure a** **Sprayer** Area/Speed Wheel Area/Speed GPS TachoMeter FlowMeter Slippage Meter **EXIT NEXT**	**Sprayer** Select sprayer mode **AUTO EXIT MANUAL**
From the front screen press **SETUP**	Highlight **WIZARD** and press **SELECT**	Highlight **Sprayer** and Press **NEXT**	Select Spray Mode **Auto**: Requires Speed & Flow Input. Auto rate adjust **Manual**: Adjust the Flow Control Valve Manually **PAGE 18**

Flow Meter
Set up
Flow Meter.
 	
NEXT   EXIT
	Input 2 Edit
	pulse/L
	Auto Set:
	Target:0.000L
	Meas.pulses: 0
	Manual Ratio:
	     500.000000
	NEXT BACK EDIT
		pulse/L:
		      668.000000
		
		EXIT DEL INS
			Input 2 Edit
			pulse/L
			Auto Set:
			Target:0.000L
			Meas.pulses: 0
			Manual Ratio:
			     668.000000
			NEXT BACK EDIT

Press **NEXT** to setup your Flow Meter *NB: Please have your Pulse Per Litre (PPL) factor from your flow meter ready to enter.*	Press the **DOWN** arrow to the Manual Ratio value of 500.00 & Press **EDIT** to change the unit of Pulse.	Using the **NAV** buttons enter the PPL factor as displayed on **the flow meter tag.** Press **EXIT** when done.	Press **NEXT** to accept the new manual ratio (PPL)

```
 Units of Display        Alarm Settings         Select a Name          Speed Sensor
1: L/Ha              Alarm Min: 0.00                              Set up
2: gal/Ac            Alarm Max: 0.00        Current:              Speed input.
3: m^3/Ha                                       RATE
                                                                  Wheel sensor
                                                                  or GPS?
 NEXT  BACK           NEXT  BACK  EDIT        NEXT  BACK  EDIT     WHEEL BACK  GPS
```

Using the **NAV** buttons select how you would like the **UOD** to be displayed on the front screen.
Press **NEXT**
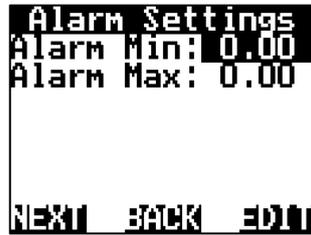
You have the option to set Alarm Min/Max points if required. Using the **NAV** buttons select and **EDIT** as required. Press **NEXT**
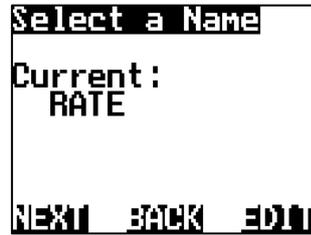
Change the input name if you desire, Press **EDIT**, or Press **NEXT**
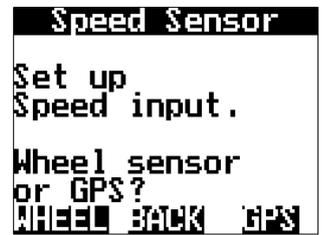
Select **WHEEL** or **GPS** to setup the speed input. This depends on the speed option you have purchased.
For Wheel:
Refer to Page 21 & 23

For GPS:
Refer to Page 24

```
 Spray Boom            Boom Width             Preset Rates
                   Implement Width:        Unit: L/Ha
Set up                  12.000m            RateA    :   50.00
Boom Sections.     Section1:   4.000       RateB    :   60.00
                   Section2:   4.000       RateC    :   70.00
# Sections:    3   Section3:   4.000       Step     :    5.00

 NEXT  SKIP  EDIT     NEXT  BACK  EDIT       NEXT  BACK  EDIT
```

The Jackal has the ability to have **Preset Rates** across the bottom of the screen. Example 50l/ha, 60l/ha etc.

Press **EDIT** and change the number of sections required to control.
Press **NEXT**

Using the **NAV** & **EDIT** keys, highlight and edit the section width values as required. The Section Widths will also Total and be displayed. Press **NEXT**
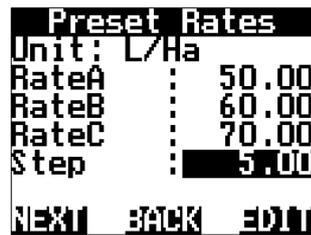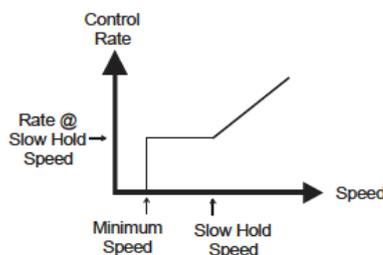
Using the **NAV** & **EDIT** keys, highlight and edit the "Quick set Rates" & Quick rate Step Value.
Press **NEXT**

The Step rate allows you to easily up the rate by this amount quickly from the front screen.
Press **NEXT**

```
 Preset Rates
Hold   @ 4.0km/h
Stop   @ 2.0km/h




 NEXT  BACK  EDIT
```
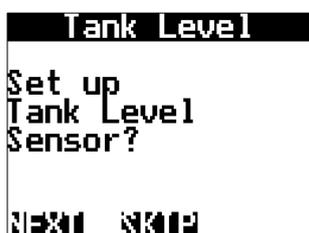
Using the **NAV** & **EDIT** keys, highlight and edit the **HOLD** & **STOP** values as described below

Press **NEXT**

- 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).
- **STOP**: Will simply put the Jackal on hold at a set speed.

```
 Select a Name          Tank Level                                       HOLD
                   Set up                  ▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓            2 RATE
Current:           Tank Level              ▓  Wizard    ▓              L/Ha
   AREA            Sensor?                 ▓ Configuration▓         3.6 SPD
                                           ▓  Successful ▓              km/h
                                           ▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓         0.0 AREA
                                                                        Ha
 NEXT  BACK  EDIT     NEXT  SKIP            NEXT                   ⚊1  ⚊2  ⚊3
```

Change the input name if you desire, Press **EDIT**, Press **NEXT**
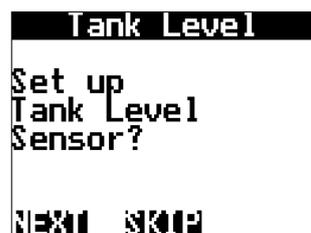
If you wish to setup a Tank Level Sensor please refer to **PAGE 36.** If not, Press **SKIP**

Press **NEXT** to finalise the Wizard and return to the front screen

THIS ENDS THE AUTO SET WIZARD SETUP FOR SPRAYER SETUP

The Jackal can be setup to work in **MANUAL** mode in the event of no wheel speed or flow meter input, or combination of both. Manual mode simply allows adjustment of the flow control valve. In the event of a dump valve being installed, manual mode will close the dump valve & open all sections when the Run/Hold button is pressed.

Sprayer	Pressure Sensor	Speed Sensor	Spray Boom
Select sprayer mode	Set up Pressure Sensor.	Set up Speed input. Wheel sensor or GPS?	Set up Boom Sections. # Sections: 3
AUTO EXIT MANUAL	NEXT SKIP	WHEEL SKIP GPS	NEXT SKIP EDIT
Select **MANUAL**: To Adjust the Flow Control Valve Manually	Press **SKIP**	Press **SKIP**	Press **EDIT** and change the number of sections required to control. Press **NEXT**

Boom Width	Tank Level		HOLD SPD
Implement Width: 12.000m Section1: 4.000 Section2: 4.000 Section3: 4.000	Set up Tank Level Sensor?	Wizard Configuration Successful	1.0 km/h
NEXT BACK EDIT	NEXT SKIP	NEXT	/1\ /2\ /3\
Using the **NAV** & **EDIT** keys, highlight and edit the section width values as required. The Section Widths will also Total and be displayed. Press **NEXT**	Press **SKIP**	Press **NEXT** to finalise the Wizard and return to the front screen	When you return to the **Front Screen** the Jackal needs to display a value. *The value of 1.0km/h is not relevant. It's simply used for the manual fucntion*

HOLD SPD	
1.0 km/h	**Press the Run/Hold button**
Rate+ Rate- Flush	**You can now manually adjust your flow control valve by pressing the Rate + or Rate –**
	Simply drive to a set speed

Press the **PAGE** button to display Rate+/-Flush

**THIS ENDS THE MANUAL SET WIZARD SETUP FOR SPRAYER SETUP**

Once the Sprayer Wizard has been run you are now ready to start spraying. Familiarise yourself with the Spray Controller layout as described below.

The Jackal Spray Controller Menu is laid out in 4 easy to use menus. These can be easily accessed by pressing the
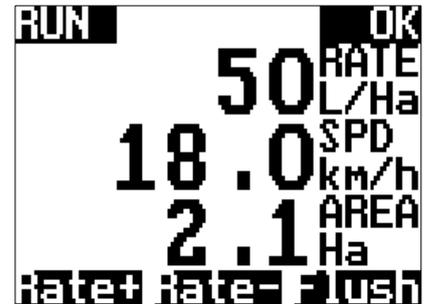
PAGE button
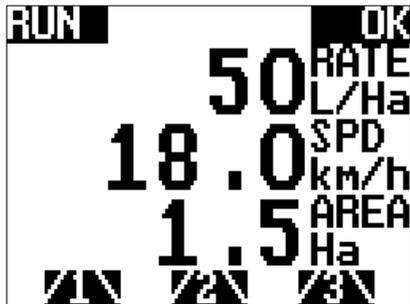
Default **Section On/Off Control** & **Run** Screen
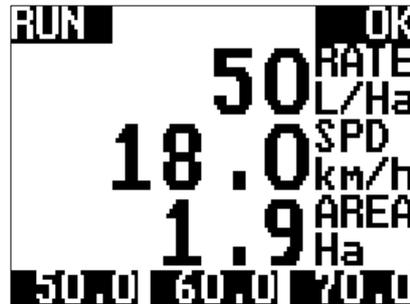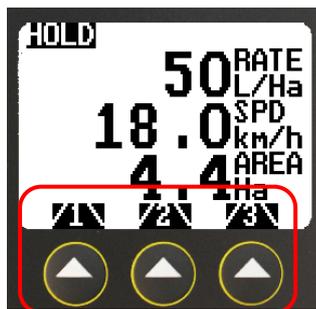

Pre-Set A/B/C Rate Screen

Step Rate Adjust & **Flush** Screen

Alarm, **Trip** & **Setup** Layout

DEFAULT RUN & HOLD SCREEN

Sections can be individually turned On/OFF by pressing the soft keys underneath the sections numbers "/x\"

Pressing the Run/Hold button changes the Jackal from **HOLD** to **RUN**
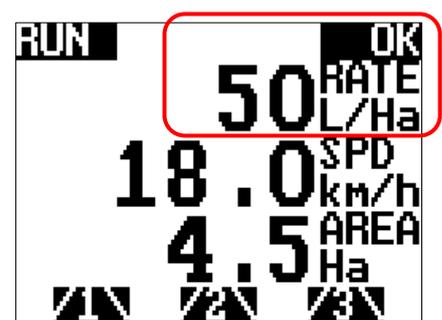
The LIVE rate in L/Ha is displayed and if the desired target is reach, **OK** will also be displayed
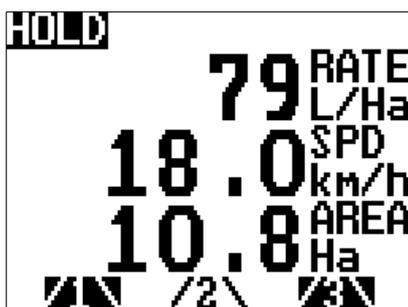
Example shows **Section 2** as OFF

Example - **HOLD**
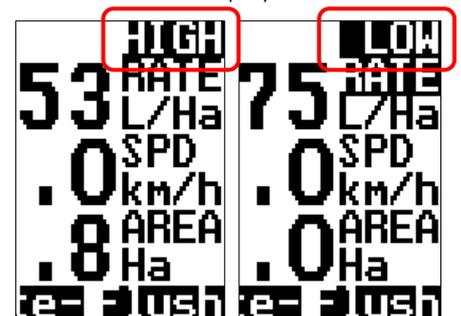
Both **HIGH** & **LOW** rate warnings are also displayed

PRESET RATES SCREEN

Quick Pre-set rates allows you to change rates on the go with ease. The Jackal will control up or down to the desired rate depending on vehicle speed.
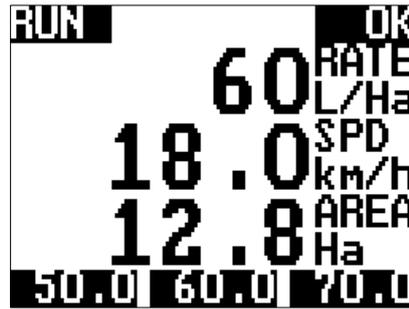
Pre-Set Rates can be changed via

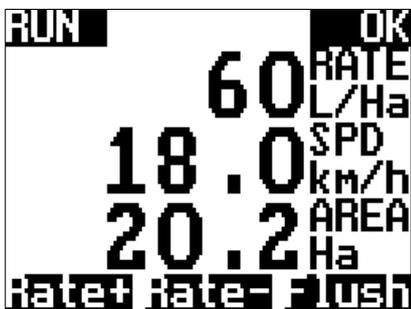**SETUP > FRONT SCREEN > RATE**

RateA/B/C/D

When changing rates, the Jackal will adjust the master control valve to allow more or less flow.

NB: If you believe the rate is not being maintained correctly when you speed up and slow down, it's possible the Flow Control Valve is opening back to front.

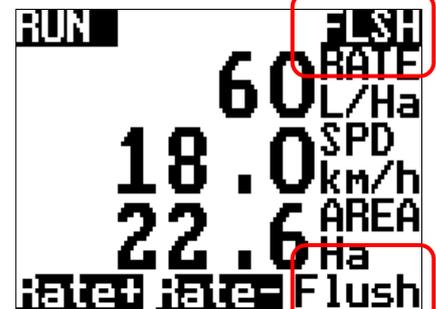Please refer to the OUTPUTS on

PAGE 45 to swap the + & - Outputs

MANUAL RATE & STEP ADJUST DURING FLUSH

The **Rate +** & **Rate (STEP) –** allows you to adjust your flow rate with the Pre-Defined **STEP** rate previously input via the Wizard.
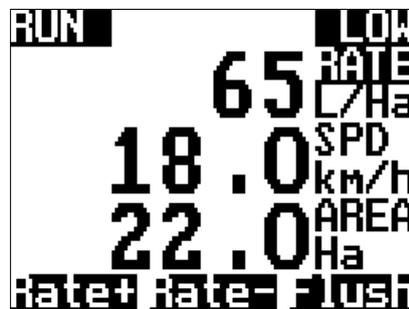
Your STEP can be changed via

SETUP > FRONT SCREEN > RATE

The **FLUSH** function will enable the full flow rate possible on your system.

Dump valve will close & all sections and control valve will open fully.

The Jackal can display Speed & Area in any combination of km/Ha or mph/acre.

A pickup can be mounted either on a wheel hub or shaft. (Example image right)

NB: THERE SHOULD BE A 5-10MM CLEARANCE BETWEEN SENSOR AND MAGNET

Sensors Required:

- Wheel sensor pickup 2 (Reed) or 3 wire (Proximity)
- Magnet (Used with 2 wire sensor)
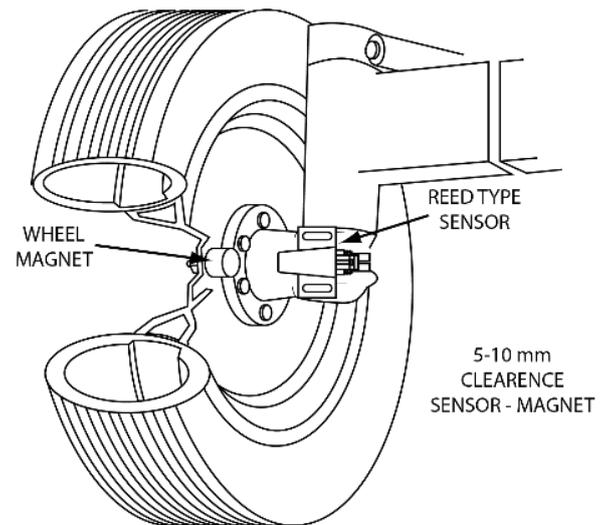
Available Connections: Refer to Installing Sensors from **PAGES 9-11**.

NB: The Implement harness has 3 wires by default. If using our standard wheel sensor kit, please only use the black & colored wire. The RED (Positive) does not need to be connected. – Trim this back or cover with heat shrink to prevent shorting out.
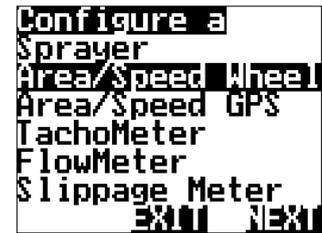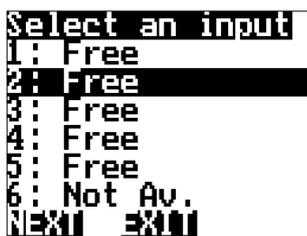
SETUP

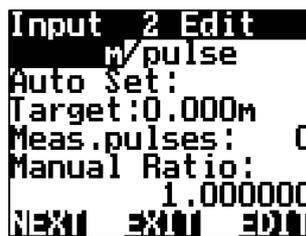From the front screen press **SETUP**

Highlight **WIZARD** and press **SELECT**

Highlight **Area/Speed Wheel** and Press **NEXT**

Highlight the **INPUT** number the speed is connected into the back of Jackal & press **NEXT**

Leave the unit of pulse calibration method as **M**

Choose your calibration method

Auto Set > PAGE 22

Manual Ratio > PAGE 23

CALIBRATION (AUTO SET)

1. Ensure that the sensor and pickup are end-end before continuing
2. Mark bottom centre of tyre on which the sensor is fitted and peg ground in corresponding position
3. Measure out a known distance to calibrate i.e. 20m-100m
4. Peg the corresponding point i.e. at the 20/100m mark

Input 2 Edit m/pulse Auto Set: Target:0.000m Meas.pulses: 0 Manual Ratio: 1.000000 NEXT START EDIT	**m to Calibrate:** 20.0000 EXIT DEL INS	**Input 2 Edit** m/pulse Auto Set: Target:20.00m Meas.pulses: 0 Manual Ratio: 1.000000 NEXT START EDIT	**Input 2 Edit** m/pulse Auto Set: Target:20.00m Meas.pulses: 66 Manual Ratio: 1.000000 STOP
Select **TARGET** Select **EDIT**	Using the **NAV** buttons enter your measured distance. i.e. 20.0000 Press **EXIT** when done.	Press **START** and move forward slowly. This will allow pulses to register.	When you arrive at the center mark point of tyre to peg press **STOP**

Input 2 Edit m/pulse Auto Set: Target:20.00m Meas.pulses: 66 Manual Ratio: 1.000000 CALC	**Input 2 Edit** m/pulse Auto Set: Target:20.00m Meas.pulses: 66 Manual Ratio: 0.303030 NEXT START EDIT	**Other Settings** Speed Input: 2 No. Sections:N/A Implement Width: 12.000m Section1: N/A Section2: N/A NEXT EXIT EDIT	**Units of Display** 1: Ha 2: Ac 3: m^2 4: km^2 NEXT EXIT
Press **CALC.** This will divide the distance travelled by the number of pules registered.	**MANUAL RATIO** will now be updated to reflect the calibration factor. Press **NEXT**	Using the NAV buttons and pressing **EDIT** enter your implement width in (m). e.g. **12m** Press **NEXT**	Using the **NAV** buttons select how you would like the area to be displayed on the front screen. Press **NEXT**

Alarm Settings Alarm Min: 0.00 Alarm Max: 0.00 NEXT EXIT EDIT	**Select a Name** Current: AREA NEXT BACK EDIT	**Display km/h** on front screen? YES EXIT NO	**Select a Name** Current: SPD NEXT BACK EDIT
You have the option to set Alarm Min/Max points if required. Using the **NAV** buttons select and **EDIT** as required. Press **NEXT**	Change the input name if you desire, Press **EDIT**, Press **NEXT**	Select either **YES** or **NO** to display Speed on the front screen with the area covered.	Change the input name if you desire, Press **EDIT** Press **NEXT**

Wizard Configuration Successful NEXT	Press **NEXT** to finalise the Wizard and return to the front screen	**RUN** **AREA** 3.03 Ha SPD 10.8 km/h ALARM TRIP SETUP

THIS ENDS THE AUTO SET WIZARD SETUP FOR SPEED/AREA METER

1. Ensure that the sensor and pickup are end-end before continuing
2. Mark bottom centre of tyre on which the sensor is fitted and mark ground in corresponding position
3. Drive ONE full rotation of the wheel, returning the mark point on tyre to bottom centre
4. Measure between the two points.
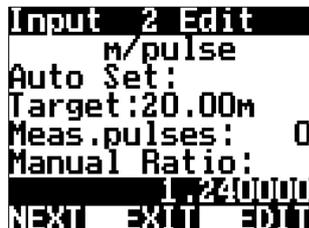   o This is your Manual Ratio (Example 1.24m)

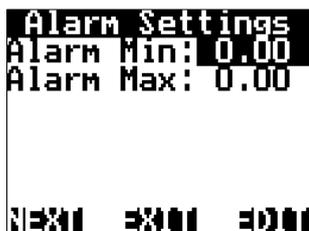|			
Input 2 Edit m/pulse Auto Set: Target:0.000m Meas.pulses: 0 Manual Ratio: 1.000000 NEXT START EDIT	**m/pulse:** 1.240000 EXIT DEL INS	**Input 2 Edit** m/pulse Auto Set: Target:20.00m Meas.pulses: 0 Manual Ratio: 1.240000 NEXT EXIT EDIT	**Other Settings** Speed Input: 2 No. Sections:N/A Implement Width: 12.000m Section1: N/A Section2: N/A NEXT EXIT EDIT
Select **MANUAL RATIO** Select **EDIT**	Using the **NAV** buttons enter your measured distance. i.e. 1.240000 Press **EXIT** when done.	Press **NEXT**	Using the **NAV** buttons and pressing **EDIT** enter your implement width in (m). e.g. **12m** Press **NEXT**

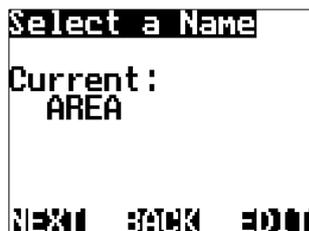|			
Units of Display 1: Ha 2: Ac 3: m^2 4: km^2 NEXT EXIT	**Alarm Settings** Alarm Min: 0.00 Alarm Max: 0.00 NEXT EXIT EDIT	**Select a Name** Current: AREA NEXT BACK EDIT	**Display km/h on front screen?** YES EXIT NO
Using the **NAV** buttons select how you would like the area to be displayed on the front screen. Press **NEXT**	You have the option to set Alarm Min/Max points if required. Using the **NAV** buttons select and **EDIT** as required. Press **NEXT**	Change the input name if you desire, Press **EDIT** Press **NEXT**	Select either **YES** or **NO** to display Speed on the front screen with the area covered.

Select a Name Current: SPD NEXT BACK EDIT	**Wizard Configuration Successful** NEXT	**RUN** **AREA** 3.03 Ha SPD 10.8 km/h ALARM TRIP SETUP
Change the input name if you desire, Press **EDIT**, Press **NEXT**	Press **NEXT** to finalise the Wizard and return to the front screen	

THIS ENDS THE MANUAL RATIO SET WIZARD SETUP FOR SPEED/AREA METER

The Jackal can display Speed & Area in any combination of km/Ha or mph/acre.

A wheel sensor is not required when using a GPS. GPS purchased from Farmscan Ag are pre-programmed. If you BYO please ensure the following:

- GPS programmed with RMC – GGA - VTG NMEA messages.
- Any Baud Rate of - 4800,9600,19200,38400,115200 @ 5hz minimum.

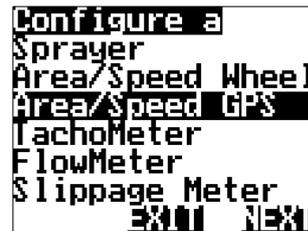**Available Connections:** Refer to Installing Sensors from **PAGES 9-11**
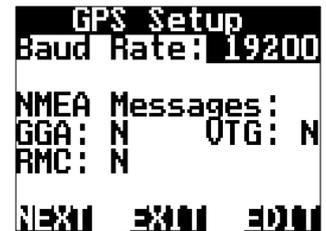
SETUP

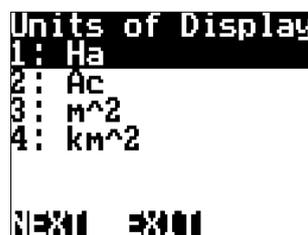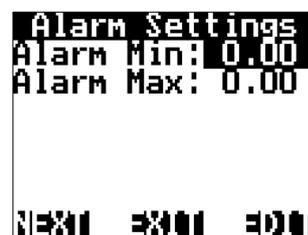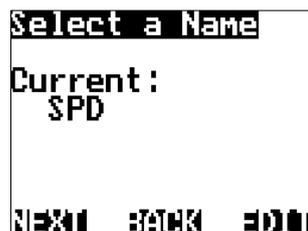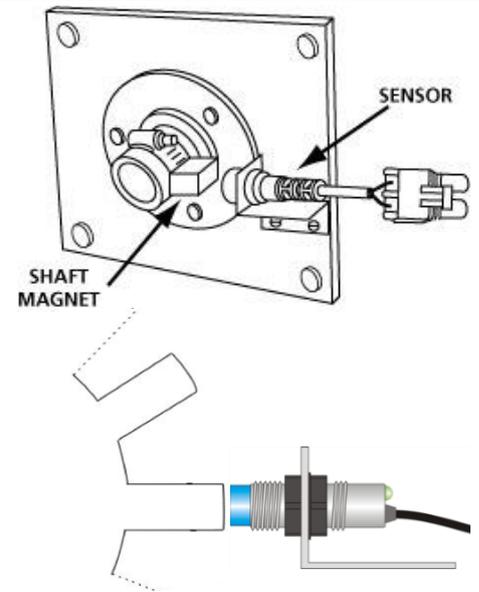|			
HOLD ALARM TRIP SETUP	Setup **Wizard** Inputs Front Screen Other Settings GPS / Serial About Jackal EXIT SELECT	Configure a Sprayer Area/Speed Wheel **Area/Speed GPS** TachoMeter FlowMeter Slippage Meter EXIT NEXT	GPS Setup Baud Rate: 19200 NMEA Messages: GGA: N VTG: N RMC: N NEXT EXIT EDIT
From the front screen press **SETUP**	Highlight **WIZARD** and press **SELECT**	Highlight **AREA/SPEED GPS** and press **NEXT**	Press the **EDIT** button to change the baud rate, when the correct baud rate is selected the corresponding NMEA message will be acknowledged with a Y. Press **NEXT**

Other Settings
Speed Input: GPS
No. Sections:N/A
Implement Width:
   12.000m
Section1:   N/A
Section2:   N/A
NEXT EXIT EDIT
	Units of Display
	1: Ha
	2: Ac
	3: m^2
	4: km^2
	
	NEXT EXIT
		Alarm Settings
		Alarm Min: 0.00
		Alarm Max: 0.00
		
		NEXT EXIT EDIT
			Select a Name
			
			Current:
			   AREA
			
			NEXT BACK EDIT

Using the **NAV** buttons and pressing **EDIT** enter your implement width in (m). e.g. 12m Press **NEXT**	Using the **NAV** buttons select how you would like the area to be displayed on the front screen. Press **NEXT**	You have the option to set Alarm Min/Max points if required. Using the **NAV** buttons select and **EDIT** as required. Press **NEXT**	Name the input if you desire, Press **EDIT**. e.g. SPEED Press **NEXT**

Display km/h
on front screen?
 	
YES   EXIT   NO
	Select a Name
	
	Current:
	   SPD
	
	NEXT BACK EDIT
		Wizard Configuration Successful
		
		NEXT
			RUN
			AREA
			   3.03 Ha
			SPD
			   10.8 km/h
			ALARM TRIP SETUP

Select either **YES** or **NO** to display Speed on the front screen with the area covered.	Change the input name if you desire, Press **EDIT**, Press **NEXT**	Press **NEXT** to finalise the Wizard and return to the front screen	**THIS ENDS THE SETUP FOR SPEED/AREA METER USING GPS INPUT**

The Jackal can display an rpm (Revolutions per minute) which is useful for monitoring fans or shafts. Available in slow & fast options.

NB: THERE SHOULD BE A 5-10MM CLEARANCE BETWEEN SENSOR AND MAGNET OR 2-5MM BETWEEN PROX AND PICKUP

Sensors Required

- Shaft Sensor pickup 2 (Reed) or 3 wire (Proximity)
- Magnet (Used with 2 wire sensor)

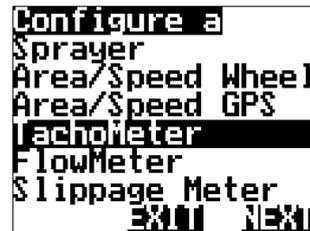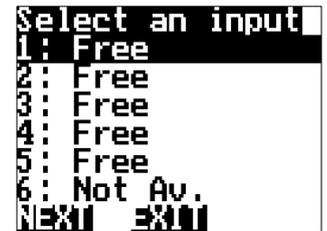**Available Connections:** Refer to Installing Sensors from **PAGES 9-11**

SETUP

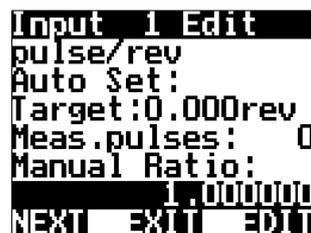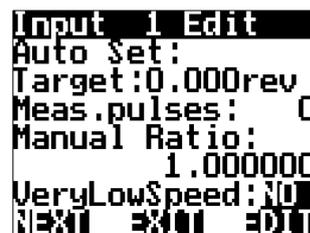|			
HOLD ALARM TRIP SETUP	Setup Wizard Inputs Front Screen Other Settings GPS / Serial About Jackal EXIT SELECT	Configure a Sprayer Area/Speed Wheel Area/Speed GPS Tachometer FlowMeter Slippage Meter EXIT NEXT	Select an input 1: Free 2: Free 3: Free 4: Free 5: Free 6: Not Av. NEXT EXIT
From the front screen press **SETUP**	Highlight **WIZARD** and press **SELECT**	Highlight **TACHOMETER** and press **NEXT**	Highlight and select the appropriate sensor **INPUT** and press **NEXT**

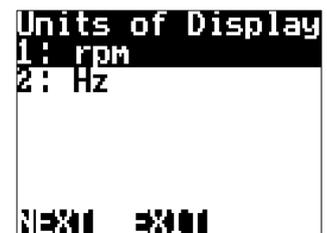|			

Input 1 Edit
pulse/rev
Auto Set:
Target:0.000rev
Meas.pulses: 0
Manual Ratio:
    1.000000
NEXT EXIT EDIT
	Input 1 Edit
	pulse/rev
	Auto Set:
	Target:0.000rev
	Meas.pulses: 0
	Manual Ratio:
	    1.000000
	NEXT EXIT EDIT
		Input 1 Edit
		Auto Set:
		Target:0.000rev
		Meas.pulses: 0
		Manual Ratio:
		    1.000000
		VeryLowSpeed:NO
		NEXT EXIT EDIT
			Units of Display
			1: rpm
			2: Hz
			
			NEXT EXIT
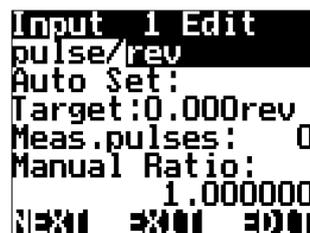
Leave the default value of **pulse/rev** and press **NEXT**	Select MANUAL RATIO Select EDIT The manual ratio is the number of magnets or bolt heads/teeth (for proximity). In most cases the ratio will be **1.** or Press **NEXT**	**FOR LOW RPM (1rpm-20rpm)** Press the **DOWN** button and change **VeryLowSpeed** from **NO** to **YES** by pressing **EDIT** Press **NEXT** when done	Leave the default value of RPM. Select **NEXT**

Alarm Settings	Select a Name		RUN
Alarm Min: 0.00	Current:	Wizard	TACH
Alarm Max: 0.00	TACH	Configuration	60 rpm
		Successful	
NEXT EXIT EDIT	NEXT BACK EDIT	NEXT	ALARM TRIP SETUP

You have the option to set Alarm Min/Max points if required. Using the NAV buttons select and **EDIT** as required. Press **NEXT**
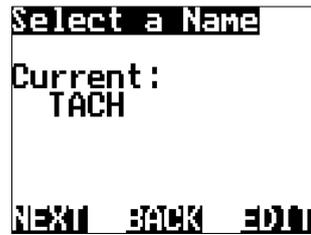
Change the input name if you desire, Press **EDIT**, Press **NEXT**

Press **NEXT** to finalise the Wizard and return to the front screen

THIS ENDS THE WIZARD SETUP FOR A TACHOMETER

The Jackal can be configured to monitor liquid products. If only one input is used the Jackal main screen will display the flow information of your choice. If the Jackal is also setup and installed with a Wheel Sensor input, the Jackal can be setup to display L/Ha for example.

NB: AT NO STAGE CAN THE JACKAL MONITOR TAKE INTO ACCOUNT MULTIPLE SPRAY SECTIONS TURNING ON/OFF. TALK TO USE ABOUT THE JACKAL CONTROL SERIES.

Sensors Required

- 3 Wire Flow Sensor (Square Wave)

Available Connections: Refer to Installing Sensors from **PAGES 9-11**

The example uses Input 2 – Polmac Flow Sensor

SETUP

From the front screen press **SETUP**

Highlight **WIZARD** and press **SELECT**
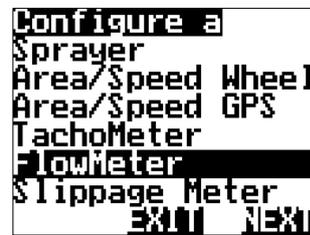
Highlight **FLOWMETER** and press **NEXT**
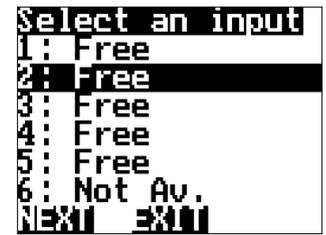
Highlight and select the appropriate sensor **INPUT** as described above and press **NEXT**

Edit the unit of Pulse or leave as is.

Choose your calibration method

Auto Set > PAGE 28

Manual Ratio > PAGE 29

CALIBRATION (AUTO SET)

1. Ensure tank has water & pump is ready
2. Have a bucket ready to collect the water
3. Have a measuring device to measure the amount of liquid

```
Input  2 Edit
pulse/L
Auto Set:
Target:0.00L
Meas.pulses:    0
Manual Ratio:
        1.000000
NEXT  START EDIT
```

Highlight **TARGET** & press **EDIT**

```
m to Calibrate:
          20.0000




EXIT   DEL  INS
```

Using the **NAV** buttons enter the target amount (L) to be measured. i.e. 20.0000
Press **EXIT** when done.

```
Input  2 Edit
pulse/L
Auto Set:
Target:20.00L
Meas.pulses:    0
Manual Ratio:
        1.000000
NEXT  START EDIT
```

Press **START** & let water flow. This will allow pulses from the flow meter to register and the number of pulses will be displayed next to Meas.pulses:

```
Input  2 Edit
pulse/L
Auto Set:
Target:20.00L
Meas.pulses:4540
Manual Ratio:
      190.250000
      STOP
```

When the desired test volume has been reached press **STOP**

```
Input  2 Edit
pulse/L
Auto Set:
Target:20.00L
Meas.pulses:4831
Manual Ratio:
      190.250000
      CALC
```

Press **CALC.** This will divide the measured amount by the number of pules registered.

```
Input  2 Edit
pulse/L
Auto Set:
Target:20.00L
Meas.pulses:4831
Manual Ratio:
      241.550000
NEXT  START EDIT
```

MANUAL RATIO will now be updated to reflect the calibration factor.

Press **NEXT**

```
Units of Display
1: L/min
2: gal/min
3: m^3/hr
4: m^3/min
5: m^3/s
6: gal/hr
NEXT  BACK
```

Using the **NAV** buttons select how you would like the UOD to be displayed on the front screen.
Press **NEXT**

```
Alarm Settings
Alarm Min: 0.00
Alarm Max: 0.00




NEXT  EXIT  EDIT
```

You have the option to set Alarm Min/Max points if required. Using the **NAV** buttons select & **EDIT** as required. Press **NEXT**

```
Select a Name

Current:
   RATE



NEXT  BACK  EDIT
```

Name the input if you desire, Press **EDIT**
or Press **NEXT**

```
Wizard
Configuration
Successful

NEXT
```

The Wizard is now complete.
Press **NEXT**

```
RUN
RATE
62.10 L/min

ALARM TRIP SETUP
```

You will be returned to the Front Screen.

THIS ENDS THE AUTO SETUP WIZARD FOR FLOW METER

REFER TO PAGE 30 TO SETUP AS RATE MONITOR L/Ha

Manual set allows for the manual input of a known pulse per litre (PPL) factor. The pulse per litre factor can be obtained from the flow meter manufacture or from the plastic tag attached to the flowmeter.

Input 2 Edit pulse/L Auto Set: **Target:0.000L** Meas.pulses: 0 Manual Ratio: 1.000000 **EXIT START EDIT**	pulse/L: 668.000000 **EXIT DEL INS**	Input 2 Edit pulse/L Auto Set: Target:0.000L Meas.pulses: 0 Manual Ratio: **668.000000** **EXIT EDIT**	Units of Display **1: L/min** 2: gal/min 3: m^3/hr 4: m^3/min 5: m^3/s 6: gal/hr **NEXT BACK**
Highlight 1.000000 under **MANUAL RATIO** & press **EDIT**	Using the NAV buttons enter the PPL factor as displayed on the flow meter tag. i.e. 91.2 Press **EXIT** when done.	Press **NEXT** to accept the new manual ratio (PPL)	Using the NAV buttons select how you would like the UOD to be displayed on the front screen. Press **NEXT**
Alarm Settings Alarm Min: **0.00** Alarm Max: 0.00 **NEXT EXIT EDIT**	Select a Name Current: RATE **NEXT BACK EDIT**	 **Wizard Configuration Successful** **NEXT**	RUN RATE 49.85 L/min **ALARM TRIP SETUP**
You have the option to set Alarm Min/Max points if required. Using the NAV buttons select & **EDIT** as required. Press **NEXT**	Name the input if you desire, Press **EDIT** or Press **NEXT**	The Wizard is now complete. Press **NEXT**	You will be returned to the Front Screen.

THIS ENDS THE MANUAL CALIBRATION WIZARD SETUP FOR FLOW METER

** IT IS ADVISED TO CHECK YOUR MANUAL CALIBRATION BY MEASURING OUT A KNOWN QTY TO CONFIRM PPL** THIS CAN BE DONE BY COMPLETING THE CALIBRATION AUTO SET ON THE PREVIOUS PAGE (28)
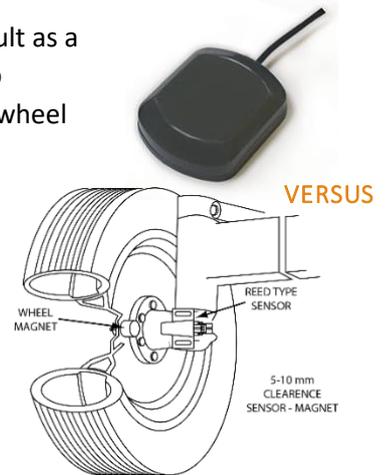
The Jackal Monitor can allow the operator to compare two inputs and provide the result as a percentage. This is applicable when speed over ground is not necessarily equivalent to rotational speed of the wheel/s. This will enable you to set up a comparison between wheel speed and actual speed (using GPS)

Sensors Required:

- Wheel sensor input (wheel or shaft pickup)
- GPS

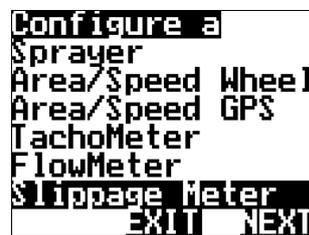**Available Connections:** Refer to Installing Sensors from **PAGES 9-11**

VERSUS

WHEEL MAGNET

REED TYPE SENSOR

5-10 mm CLEERENCE SENSOR - MAGNET

SETUP

```
HOLD



ALARM TRIP SETUP
```
From the front screen press **SETUP**

```
      Setup
Wizard
Inputs
Front Screen
Other Settings
Output
GPS / Serial
EXIT     SELECT
```
Highlight **WIZARD** & press **SELECT**

```
Configure a
Sprayer
Area/Speed Wheel
Area/Speed GPS
TachoMeter
FlowMeter
Slippage Meter
       EXIT  NEXT
```
Highlight **SLIPPAGE METER** press **NEXT**

```
Wheel Sensor On
1: Free
2: Free
3: Free
4: Free
5: Free
6: Free
NEXT   EXIT
```
Highlight the **INPUT** number X: the WHEEL sensor wire is connected into on the rear of the Jackal & press **NEXT**
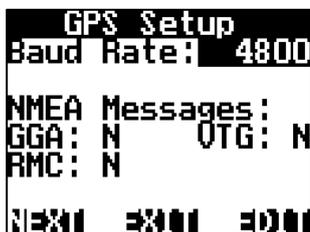
```
  GPS Setup
Baud Rate: 4800

NMEA Messages:
GGA: N    OTG: N
RMC: N

NEXT  EXIT  EDIT
```
Press the **EDIT** button to change the baud rate, when the correct baud rate is selected the corresponding NMEA message will be acknowledged with a Y. Press **NEXT**
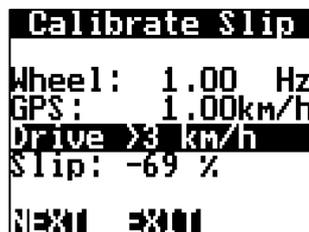
```
Calibrate Slip

Wheel:  1.00  Hz
GPS:    1.00km/h
Drive >3 km/h
Slip: -69 %
NEXT  EXIT
```
As indicated, drive above 3km/hr
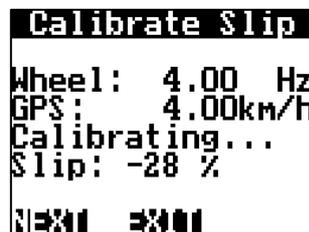
```
Calibrate Slip

Wheel:  4.00  Hz
GPS:    4.00km/h
Calibrating...
Slip: -28 %
NEXT  EXIT
```
Wheel input will then increment up (displayed in Hz) & GPS speed will start to show.
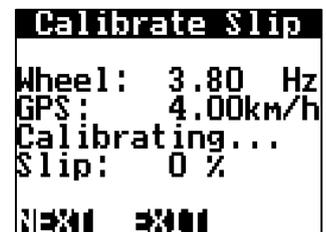
```
Calibrate Slip

Wheel:  3.80  Hz
GPS:    4.00km/h
Calibrating...
Slip:   0 %
NEXT  EXIT
```
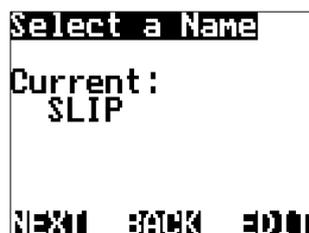As the system self-calibrates the slip % will get closer to 0%.

When the slip has settled close to 0% press **NEXT**
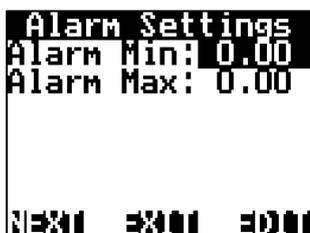
```
Alarm Settings
Alarm Min: 0.00
Alarm Max: 0.00



NEXT  EXIT  EDIT
```
You have the option to set Alarm Min/Max points if required. Using the NAV buttons select & EDIT as required. Press NEXT

```
Select a Name

Current:
   SLIP


NEXT  BACK  EDIT
```
There is no need to EDIT the name. It will default to GPS Press **NEXT**

```
Display km/h
on front screen?



YES  EXIT   NO
```
Finally acknowlege that you wish to also display Speed (km/hr) on the front screen with the area covered. Press **YES**

```
    Wizard
Configuration
  Successful

NEXT
```
The Wizard is now complete. Press **NEXT**.

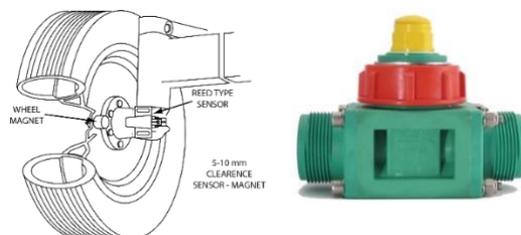**THIS ENDS THE SETUP WIZARD FOR WHEEL SLIPPAGE**

The Jackal can be setup to display an application rate when using both a speed & flow input.

Rates can be displayed in common formats such as L/Ha

Sensors Required:

- Wheel Sensor/GPS for Speed & Area calculation
- Flow meter (any style) to display Litres

Available Connections: Refer to Installing Sensors from **PAGES 9-11**
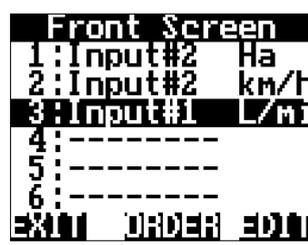
SETUP LIQUID (L/HA)

1. Follow the setup guide on page **20** for "Speed/Area Meter setup"
2. Follow the setup guide on page **26** for "Flow Meter Setup"
3. Follow the steps as described below

RUN **3.95** Ha **19.6** km/h **13** L/min ALARM TRIP SETUP	Setup Wizard Inputs **Front Screen** Other Settings Output GPS / Serial EXIT SELECT	Front Screen 1:Input#2 Ha 2:Input#2 km/h **3:Input#1 L/mi** 4:-------- 5:-------- 6:-------- EXIT ORDER EDIT	Front Screen 3 Mode: Input Input# : 1 Name: Unit:**L/Ha** Decimals: 0 AlarmMax: 0.00 EXIT EDIT
From the front screen press **SETUP**	Highlight **FRONT SCREEN** & press **SELECT**	Highlight the line in which the Flow Meter is connected to. e.g. 3: Input#3 L/min Press **EDIT**	Highlight the **UNIT** & press **EDIT** to change the unit to **L/Ha**.
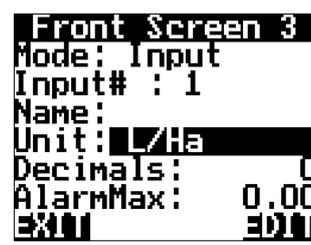
|	
RUN **5.37** Ha **19.6** km/h **49** L/Ha ALARM TRIP SETUP	**At no stage can the Jackal take into account multiple sections turning on an off and adjusting the Ha to suit.** **This feature is only available in the Jackal Spray Control configuration**
Press **EXIT** 3 times to return to the front screen. Jackal will now display the flow rate as L/Ha with Area & Speed	

THIS ENDS THE SETUP FOR RATE METER SETUP AS L/Ha

The Jackal can be setup to display an application rate when using both a speed & pulse input from a shaft or other pickup.

Rates can be displayed in common formats such as kg/Ha

Sensors Required

- Shaft sensor kit (2076) - 2 wire or
- Proximity sensor kit (2010P) (3 wire)

Available Connections: Refer to Installing Sensors from **PAGES 9-11**
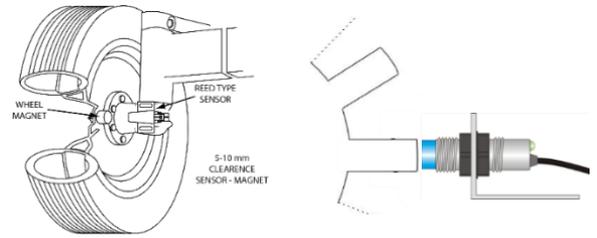
SETUP

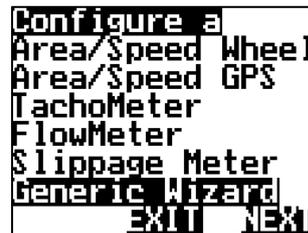1. Follow the steps below to setup the Jackal to display a pulse/kg (**accumulation**)

Note:

a) Ensure there is product in the bin/tank to calibrate
b) Have a bucket ready to catch the product
c) Have a set of scales (e.g. Farmscan Ag Part # 2199) ready to weigh the product

| ```
HOLD




ALARM TRIP SETUP
``` | ```
    Setup
Wizard
Inputs
Front Screen
Other Settings
Output
GPS / Serial
EXIT    SELECT
``` | ```
Configure a
Area/Speed Wheel
Area/Speed GPS
TachoMeter
FlowMeter
Slippage Meter
Generic Wizard
     EXIT  NEXT
``` | ```
Select an input
1: Free
2: Free
3: Free
4: Free
5: Free
6: Free
NEXT   EXIT
``` |
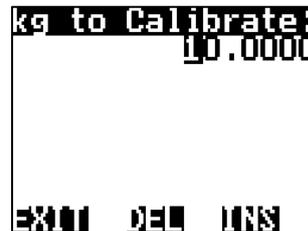| From the front screen press **SETUP** | Highlight **WIZARD** & press **SELECT** | Highlight **GENERIC WIZARD** & press **NEXT** | Highlight the **INPUT** number where the sensor wire is connected into on the rear of the Jackal & press **NEXT** |
| ```
Input  2 Edit
pulse/kg
Auto Set:
Target:0.000kg
Meas.pulses:   0
Manual Ratio:
        1.000000
NEXT EXIT EDIT
``` | ```
Input  2 Edit
pulse/kg
Auto Set:
Target:0.000kg
Meas.pulses:   0
Manual Ratio:
        1.000000
NEXT START EDIT
``` | ```
kg to Calibrate:
        10.0000




EXIT  DEL  INS
``` | ```
Input  2 Edit
pulse/kg
Auto Set:
Target:10.00kg
Meas.pulses:   0
Manual Ratio:
        1.000000
NEXT START EDIT
``` |
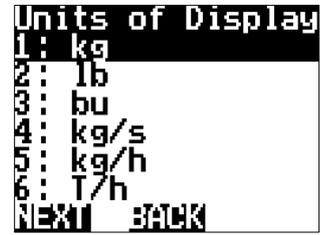| Choose your unit of pulse by pressing the **EDIT** **E.g. pulse/kg** | Highlight **TARGET** & press **EDIT** | Using the **NAV** buttons enter the target amount (kg) to be measured. i.e. 10.0000 Press **EXIT** when done. | Prime the Bin/Tank until product flows & then stop it. Press **START** on the Jackal, Run Bin & let product flow. This will allow pulses from the sensor to register and the number of pulses will be displayed next to **Meas.pulses:** |

Input 2 Edit	Input 2 Edit	Input 2 Edit	Units of Display
pulse/kg	pulse/kg	pulse/kg	1: kg
Auto Set:	Auto Set:	Auto Set:	2: lb
Target:10.00kg	Target:10.00kg	Target:10.00kg	3: bu
Meas.pulses:2744	Meas.pulses:2744	Meas.pulses:2744	4: kg/s
Manual Ratio:	Manual Ratio:	Manual Ratio:	5: kg/h
1.000000	274.400000	274.400000	6: T/h
NEXT CALC EDIT	NEXT START EDIT	NEXT START EDIT	NEXT BACK

When the scales measure the desired test volume, i.e. 10kg, stop the Bin/Tank. Press **STOP**

Press **CALC.** This will divide the measured amount by the number of pules registered.

MANUAL RATIO will now be updated to reflect the calibration factor.
Press **NEXT**

Using the **NAV** buttons select how you would like the Unit Of Display to be displayed on the front screen. I.e. **kg**
Press **NEXT**

It's recommended to do this test 3 times to get an average pulse count per kg

Alarm Settings	Select a Name	Wizard Configuration Successful	RUN
Alarm Min: 0.00	Current:		Input#2
Alarm Max: 0.00			15.77 kg
NEXT EXIT EDIT	NEXT EXIT EDIT	NEXT	ALARM TRIP SETUP

You have the option to set Alarm Min/Max points if required. Using the NAV buttons select & **EDIT** as required. Press **NEXT**

Name the input if you desire, Press **EDIT** or Press **NEXT**

The Wizard is now complete. Press **NEXT**

You will be returned to the Front Screen.

kg will now accumulate

2. Follow the setup guide on **PAGE 21** for "Speed/Area Meter setup
3. Follow the steps as described below

SETUP SOLID (KG/HA)

RUN	Setup	Front Screen	Front Screen 3
7.65 Ha	Wizard	1:Input#2 Ha	Mode: Input
13.0 km/h	Inputs	2:Input#2 km/h	Input# : 2
1.09 kg	Front Screen	3:Input#3 kg	Name:
	Other Settings	4:--------	Unit: kg/Ha
	Output	5:--------	Decimals: 1
	GPS / Serial	6:--------	AlarmMax: 0.00
ALARM TRIP SETUP	EXIT SELECT	EXIT ORDER EDIT	EXIT EDIT

From the front screen press **SETUP**

Highlight **FRONT SCREEN** & press **SELECT**

Highlight the line in which the Metering sensor is connected to.
e.g. 3: Input#3 kg

Press **EDIT**

Highlight **UNIT** & press **EDIT** to change the unit to **kg/Ha**.

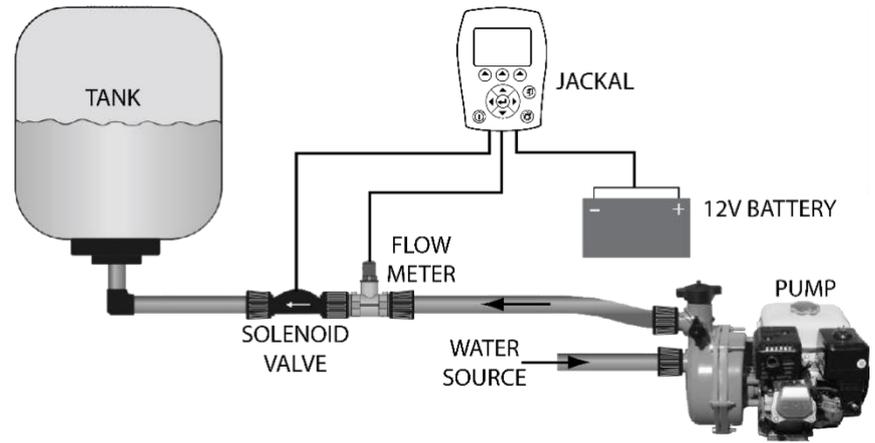Change the Decimals displayed if desired also

RUN
7.18 AREA Ha
14.4 SPD km/h
11.0 kg/ Ha
ALARM TRIP SETUP

Press **EXIT** 3 times to return to the front screen.

Jackal will now display the flow rate as L/Ha with Area & Speed

THIS ENDS THE SETUP FOR RATE METER SETUP AS kg/Ha

BATCH METER

The Jackal can be configured as a Batch Meter to use a flow sensor and optional solenoid valve to meter liquid volumes & cease flow. The output of the Jackal is suitable for direct connection to a 12V solenoid valve.

Sensors Required:

- Flow meter (any style)
- 1501 (Optional, from Farmscan Ag) or any 12V Solenoid Valve

Available Connections: Refer to Installing Sensors from **PAGES 9-11**
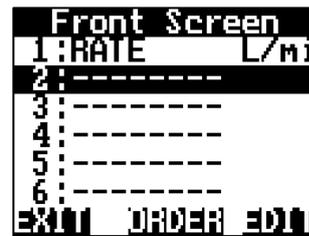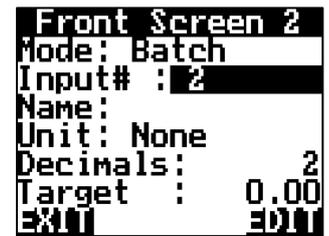
SETUP

1. Follow the setup guide on **PAGE 27** for "Flow Meter Setup"

From the front screen press **SETUP**

Highlight **FRONT SCREEN** & press **SELECT**

Select an **UNUSED** front screen position & press **EDIT**

Press **EDIT** to select **BATCH.** NB: **INPUT #** should match flow meter input. Change if necessary (Normally 2)

Highlight **UNIT** & press **EDIT** to change Unit to **L**

Highlight **TARGET** & press **EDIT** to change the batch volume required.

Using the NAV buttons enter the **volume** required. Press **EXIT** when done

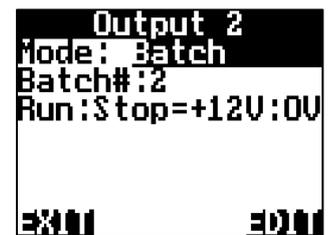Using the NAV buttons press **DOWN** and **EDIT** the **COUNT** to batch **UP** or **DOWN**. Press **EXIT** when done

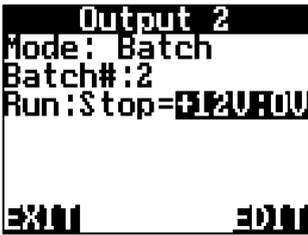Press **EXIT** again

CONTIUNE INSTRUCTIONS IF A SOLENOID IS INSTALLED OR SKIP TO OPERATION

Highlight **OUTPUTS** & press **SELECT**

Highlight 2: None & Press **SELECT** to edit Output 2

Press **EDIT** and change the MODE to **BATCH**

Output 2	Output 2	HOLD
Mode: Batch	Mode: Batch	RATE
Batch#:2	Batch#:2	60.00 L/min
Run:Stop=+12V:0V	Run:Stop=0V:+12V	Input#1
		0.00 L 150
EXIT EDIT	EXIT EDIT	START RESET

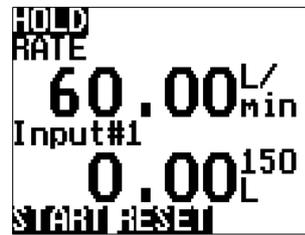Highlight & **EDIT** the **Run:Stop** value to

0V:+12V

Highlight & **EDIT** the Run to Stop voltage.
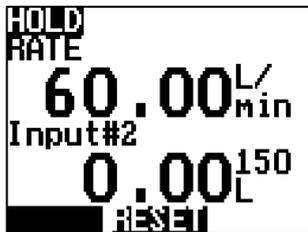
The option allows the output selected to pull from:

+12v to 0V or
0v to 12v

Press **EXIT** 3 times to return to the Front Screen

IF YOU FIND DURING THE FIRST BATCH OR ON STARTUP YOUR SOLENOID IS WORKING IN REVERSE – CHANGE THE RUN:STOP VALUE
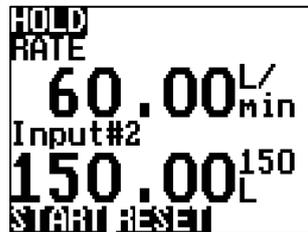
OPERATION

HOLD	HOLD	RUN	HOLD
RATE	RATE	RATE	RATE
60.00 L/min	60.00 L/min	180.00 L/min	359.28 L/min
Input#2	Input#2	Input#2	Input#1
0.00 L 150	150.00 L 150	74.00 L 150	151.57 L 150
RESET	START RESET	STOP RESET	ALARM TRIP SETUP

Start by pressing the **PAGE** button and toggle between

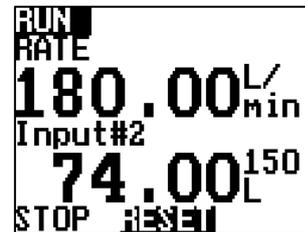**ALARM TRIP SETUP**

To

IIIIIIII RESET

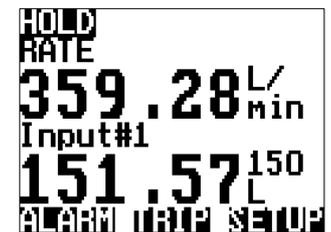Press **RESET** to clear the count value followed by **START**.
Water will flow and the batch will start to either count **UP** or count **DOWN** as selected.

START will toggle to **STOP** if you need to restart a batch.

RUN/HOLD also performs the same action

Press **RESET** if required.

If you need to keep a record of your batch, press the **PAGE** button and press the **TRIP** button to save.

More about **TRIPS** on **PAGE 40**

TIP: If you want to see a Total Litres displayed (rather than L/Min) – Change the FRONT SCREEN value from L/Min to L

Refer to the Flow Meter Setup

HOLD
RATE
291.73 L HOLD
Input#1
0.00 L 150
START RESET

All Values can be reset or saved when using the TRIP functions

THIS ENDS THE SETUP FOR A LIQUID BATCH METER

BIN LEVEL SENSOR

The Jackal can be configured with a bin level sensor for detecting empty/full. All Farmscan Ag sensor will register as High/Low (H/L) for liquid or solid.

Sensors Required:

- Bin Level Sensor (A-2220P Sensor or 2060 Kit)

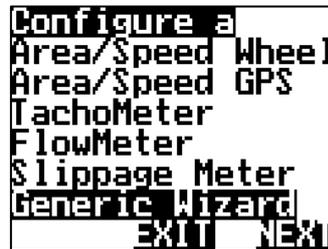**Available Connections:** Refer to Installing Sensors from **PAGES 9-11**

SETUP

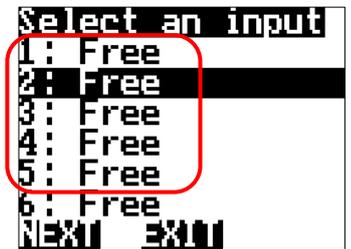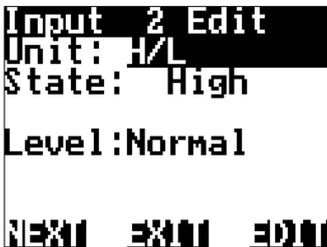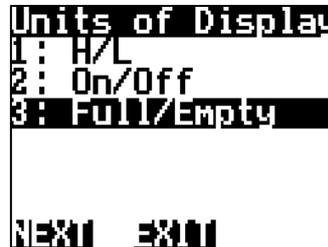|			
HOLD **ALARM TRIP SETUP**	**Setup** Wizard Inputs Front Screen Other Settings Output GPS / Serial EXIT SELECT	**Configure a** Area/Speed Wheel Area/Speed GPS TachoMeter FlowMeter Slippage Meter Generic Wizard EXIT NEXT	**Select an input** 1: Free 2: Free 3: Free 4: Free 5: Free 6: Free NEXT EXIT
From the front screen press **SETUP**	Highlight **WIZARD** & press **SELECT**	Highlight **GENERIC WIZARD** & press **SELECT**	Highlight the **INPUT** number **(1-5 or 8-9)** to where the sensor wire is connected into on the rear of the Jackal & press **NEXT**

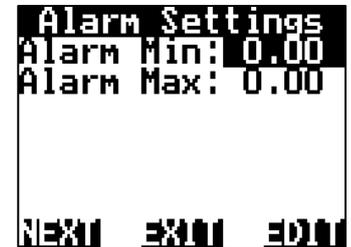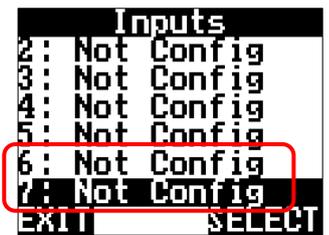|			
Input 2 Edit Unit: H/L State: High Level:Normal NEXT EXIT EDIT	**Input 2 Edit** Unit: H/L State: High Level:Normal NEXT EXIT EDIT	**Units of Display** 1: H/L 2: On/Off 3: Full/Empty NEXT EXIT	**Alarm Settings** Alarm Min: 0.00 Alarm Max: 0.00 NEXT EXIT EDIT
Press **EDIT** to change the unit to **H/L (high/low)** – Other options include On/Off, Full/Empty	State will updated "Live" For example. Low = bin empty, High = bin full. Test by placing hand around sensor.	Press **NEXT** Highlight the Unit of Display that you wish to be displayed on the front screen. Press **NEXT**	You have the option to set Alarm Min/Max points if required. Using the NAV buttons select & **EDIT** as required. Press **NEXT**

Custom Name BIN1 EXIT DEL INS	**Wizard Configuration Successful** NEXT	**HOLD** BIN1 **Full** ALARM TRIP SETUP	**HOLD** BIN1 **Empty** ALARM TRIP SETUP
Name the input if you desire, i.e. BIN1. Press EDIT & EXIT	Press **NEXT.** Wizard is now complete. Press **NEXT**	Press **EXIT** to return to the front screen Example - Full	Example - Empty

THIS ENDS THE SETUP FOR A BIN LEVEL SENSOR

The Jackal can be configured to read & display a pressure sensor, voltage, percentage, temperature and display as: kPa, psi, bar, Volt, %, ˚C. Farmscan Ag recommends sensors that can be powered by 12v but output from 0-5v in a linear style. Call us if you are unsure.

Sensors Required:

- AA-119H or AA-119L (Farmscan Ag Pressure Sensor)
- Any other style that outputs a voltage. I.e. Position sensor (AA-430) for displaying depth as a percentage (%)

Available Connections: Refer to Installing Sensors from **PAGES 9-11**

The example uses Input 9 – Liquid Pressure Sensor

CALIBRATION (MANUAL)

The example below details setting up **a LIQUID PRESSURE SENSOR**.

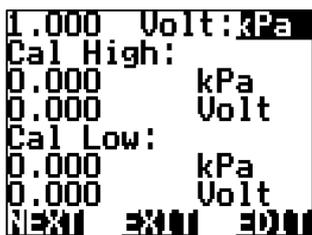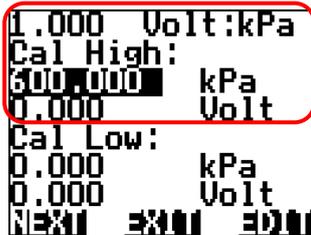|			
From the front screen press **SETUP**	Highlight **WIZARD** & press **SELECT**	Highlight **GENERIC WIZARD** & press **SELECT**	Highlight the **INPUT** number **(6-9)** to where the sensor wire is connected into on the rear of the Jackal & press **NEXT**

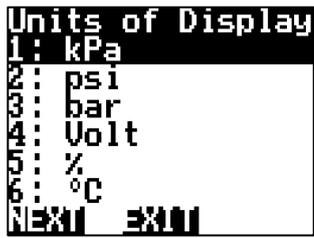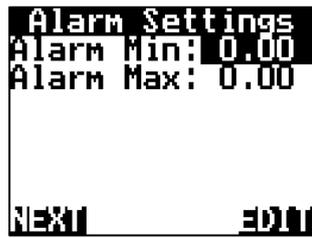|			
Press **EDIT** to change the unit. kPa, psi, bar, Volt, %, ˚C. i.e. kPa	Highlight the 1st **CAL HIGH** value and **EDIT** the field to set the maximum the device will be able to display. I.e. 600kPa. Current input voltage of input is displayed in the top left corner.	Using the manufactures guide set the maximum voltage of the sensor. e.g. 5.000v by pressing **EDIT**	Repeat the previous 2 steps to set the minimum range of the sensor. Press **NEXT** when done

NB: If manufacture values are not available, please refer to PAGE 39 for LIVE calibration instructions

```
Units of Display
1: kPa
2: psi
3: bar
4: Volt
5: %
6: °C
NEXT   EXIT
```

. Highlight or confirm the
UOD (Unit of Display)
eg kPa.
Press **NEXT** when done
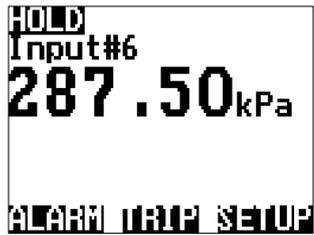
```
Alarm Settings
Alarm Min: 0.00
Alarm Max: 0.00


NEXT        EDIT
```

You have the option to set
Alarm Min/Max points if
required. Using the NAV
buttons select & **EDIT** as
required. Press **NEXT**

```
Select a Name
Current:



NEXT   EXIT   EDIT
```

Name the input if you desire,
Press **EDIT**
or Press **NEXT**

```
      Wizard
  Configuration
   Successful
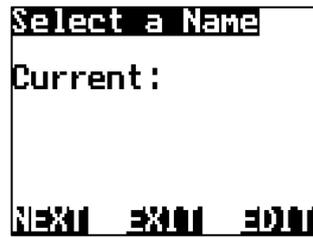
NEXT
```

The Wizard is now complete.
Press **NEXT**

```
HOLD
Input#6
287.50kPa


ALARM TRIP SETUP
```

You will be returned to the
front screen

THIS ENDS THE MANUAL SETUP FOR A VARAIBLE VOLTAGE INPUT SENSOR (LIQUID)

The Jackal also allows for a semi-automatic setup when the voltage values are unknown for a particular voltage input. A live voltage readout is displayed in the top left-hand side when the sensor is active.

Follow the previous 5 steps, followed by:

`1.000 Volt:kPa` `Cal High:` `0.000    kPa` `0.000    Volt` `Cal Low:` `0.000    kPa` `0.000    Volt` `NEXT EXIT EDIT`	`1.750 Volt:kPa` `Cal High:` `600.000   kPa` `5.000    Volt` `Cal Low:` `1.000    kPa` `1.750 Volt` `EXIT SET EDIT`	`1.750 Volt:kPa` `Cal High:` `600.000   kPa` `5.000    Volt` `Cal Low:` `1.000    kPa` `1.750 Volt` `EXIT SET EDIT`	`4.860 Volt:kPa` `Cal High:` `600.000   kPa` `4.860    Volt` `Cal Low:` `1.000    kPa` `1.750 Volt` `EXIT SET EDIT`
Press **EDIT** to change the unit. kPa,psi,bar,Volt,%,˚C. i.e. kPa	Engage the implement and/or adjust the pressure manually to the low point the sensor will need to operate in.	The voltage will now be displayed. e.g. **1.75v**. In the above example we can set the minimum of **1kPa** by **HIGHLIGHTING** & **EDITTING** the values as required. Press **SET**. This will copy the live voltage into the **CAL LOW** voltage point	Repeat the previous 2 steps for the **CAL HIGH** values

`Units of Display` `1: kPa` `2: psi` `3: bar` `4: Volt` `5: %` `6: °C` `NEXT EXIT`	`Alarm Settings` `Alarm Min: 0.00` `Alarm Max: 0.00` `NEXT EDIT`	`Select a Name` `Current:` `NEXT EXIT EDIT`	`Wizard Configuration Successful` `NEXT`
Highlight or confirm the UOD (Unit of Display) e.g. kPa Press **NEXT** when done	You have the option to set Alarm Min/Max points if required. Using the NAV buttons select & **EDIT** as required. Press **NEXT**	Name the input if you desire, Press **EDIT** or Press **NEXT**	The Wizard is now complete. Press **NEXT**

`HOLD` `Input#6` `287.50 kPa` `ALARM TRIP SETUP`

You will be returned to the front screen

THIS ENDS THE AUTO SETUP FOR A VARAIBLE VOLTAGE INPUT SENSOR (LIQUID)

The Trips page allows accumulating values to be saved and recalled at a later time.

Examples include Area, Distance, Weight, Volume etc. Instantaneous readings such as Speed, Flow & Rate etc. are not able to be recorded.

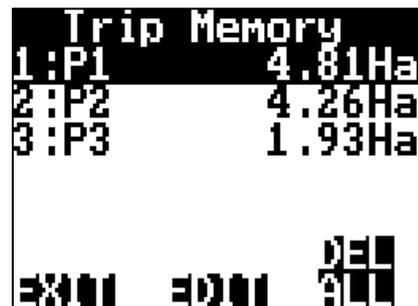- From the front-page press **TRIP**

The screen above allows you to SAVE/RESET individual trips or view SAVED TRIPS

By pressing the **SAVE/RESET** you have the ability to Reset Trip | Save Trip | Reset All

By pressing **2. Save Trip** it will be stored in the SAVED TRIPS option

You can now view the SAVED TRIPS. You also have the ability to **EDIT** and name the Trip or **DEL ALL** (Delete All Trips)

When you return to the TRIPS page the Trip will continue to accumulate. (Like above)
You will need to SAVE/RESET the trip if you want to start from Zero (0) again

Alarms are set on a per-front-screen-display-line basis. High/Low Alarm points can be set for any input including: speed, hectares, RPM, Pressure, Bin/Tank Levels.

Alarms will be displayed visually (on screen flash) and made audible.

- To **EDIT** your alarms re-run the wizard by pressing **SETUP** from the front screen.
- OR – **RUN SCREEN > SETUP > FRONT SCREEN**

Your existing settings will not be lost during the wizard re-run.

Wizard (Above) or **Manual (Right)** alarm points.
Example of a Shaft Alarm set at
Min of **1000rpm** & Max of **3000rpm**.
Press **EDIT** to adjust these values

Manual/User setup Alarm points via the
MENU > FRONT SCREEN >EDIT Input #

When the alarm point is reached e.g.: over 3000rpm the line will FLASH notifying you of the alarm point.

Press **ALARM** to enter the page showing all Alarms (active and inactive) to reset the alarm.

REFER TO OUTPUTS ON PAGE 44

IF YOU WANT TO CONNECT AN

EXTERNAL ALARM

In the example above Line 1 is ^ over the alarm set point.
If it was below it would show 1v.
You have 3 options:

=AUTO: As soon as the value moves back within the Min & Max range the monitor will automatically reset the alarm.

=ON: When the alarm is activated it will remain ON until you enter the ALARM menu and manually reset

=OFF: You can disable the alarm altogether

Each Input Is designated to display certain values as described below.

Ensure you are plugged into the appropriate port for your sensor.

RUN SCREEN > SETUP > INPUTS

- o **Input 1-5 (A1-A5) – Square Wave**
    - o m/ft/yd/in/km/mi/pulse
    - o pulse/kg/lb/L/gal/bu/rev/bale/unit/each/T/m^3
    - o Full/Empty – On/Off – H/L

- **Input 6-7 (A6 & B2) – Varying Voltage**
    - o Volt: kPa/psi/bar/volt/%/˚C/

Once your inputs are setup and calibrated you now need to display them on the front screen
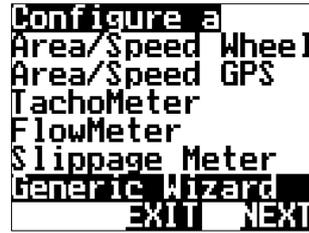
GENERIC WIZARD

The generic wizard allows to manually setup your Jackal in a customised method. You can also setup the Jackal to your requirements without using the wizard and navigating each menu by enabling and calibrating each port as required. Refer to the previous wizard guides to assist with manual setup.

From the front screen press **SETUP**	Highlight **WIAZRD** & press **SELECT**	Highlight **GENERIC WIZARD** & press **SELECT**	Highlight the appropriate port the sensor is connect to and press **NEXT**

FRONT SCREEN

RUN SCREEN > SETUP > FRONT SCREEN

When your inputs have been enabled and calibrated you can now choose to display the values in our chosen formats on the front screen. You can have up to 3-line items per page and viewable at all times. If more lines are added you can use the NAV buttons to scroll through each screen.

NB: Selectable units realte to the input type. E.g: **Input 1** setup as a **rev/pulse** could display **rpm** or **hz** as the unit
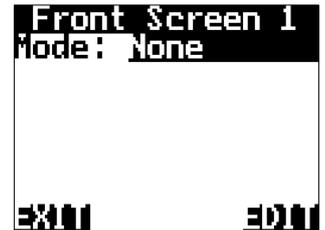
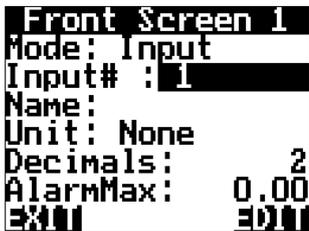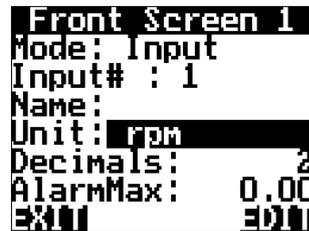|			
From the front screen press **SETUP**	Highlight **FRONT SCREEN** & press **SELECT**	Highlight the line you want to display the first value & press **EDIT**	Press **EDIT** to enable the line mode

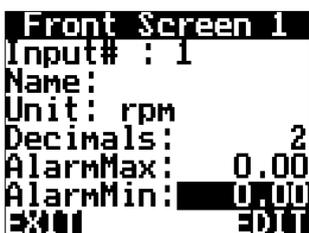|			
Highlight **INPUT #** and press **EDIT** to associate the calibrated **INPUT** to the line	Highlight **NAME** and **EDIT** the input name for easy indetifaction. Eg Shaft	Highlight **UNIT** and press **EDIT** to select the approprate unit associated with the calibrated input	Highlight **DECIMALS** and press **EDIT** to change the number of decimals displayed on the front screen

Highlight and **EDIT** the Max & Min Alarm settings if required

The front screen menu allows you to order the front screen line items. Highlight the line you wish to move, press **ORDER** (a ***** will appear to the left) then press **PLACE** to accept when you have chosen the new order.

```
 Front Screen          Front Screen          Front Screen
1:Input#1   rpm       1*Input#2   km/h       1:Input#2   km/h
2:Input#2   Ha        2:Input#1   rpm        2:Input#1   rpm
3:Input#2   km/h      3:Input#2   Ha         3:Input#2   Ha
4:--------            4:--------             4:--------
5:--------            5:--------             5:--------
6:--------            6:--------             6:--------
EXIT   ORDER               PLACE            EXIT   ORDER
```

OTHER SETTINGS

RUN SCREEN > SETUP > OTHER SETTINGS

Other Settings is used to edit the following options.

```
 Other Settings        Other Settings        Other Settings        Other Settings
Speed Input:   4      Speed Input:   4       12.000m             Section2:   4.000
No. Sections:  3      No. Sections:  3      Section1:   4.000    Section3:   4.000
Implement Width:      Implement Width:      Section2:   4.000    Extern.Run/Hold:
   12.000m               12.000m            Section3:   4.000    Disabled
Section1:   4.000     Section1:   4.000     Extern.Run/Hold:
Section2:   4.000     Section2:   4.000     Disabled             AlarmBeep:      2s
EXIT        EDIT      EXIT        EDIT      EXIT        EDIT      EXIT        EDIT
```

Quicky **EDIT** the **Speed Input**

Quickly **EDIT** the **Implement width**, **Number of Sections** & Individual Section Widths

Enable/Disable External Run/Hold Function (As described on **PAGE 11-12**)

By changing the Alarm Beep (in seconds) you can define how long audible "Beeps" can be heard during the Alarm alert before acknowledgment is required. Press **EDIT** to change these options.

```
 Other Settings        Other Settings        Other Settings        HOLD
Section3:   4.000     Disabled              AlarmBeep:      2s                  0 RATE
Extern.Run/Hold:                            AlarmOnHold:No                        L/Ha
Disabled             AlarmBeep:      2s     Language:                          SPD
                     AlarmOnHold:No         English               0.0         km/h
AlarmBeep:      2s    Language:             SimultSpeed:No                     AREA
AlarmOnHold:No        English                                     0.0         Ha
EXIT        EDIT      EXIT        EDIT      EXIT        EDIT      Spd+  Spd-   0km/h
```

EDIT the **AlarmOnHold** from YES/NO. This option allows you to have alarms active while the Jackal is ON HOLD

Change the Jackal to your local Language by pressing **EDIT**

Simulate Speed allows you to test the Jackal while stationary.

When the feature is enabled **YES** - return to the front screen to reveal a manual speed adjust.

If the feature does not appear. Press the **PAGE** button reveal the new option. Adjust your speed to the test rate required.

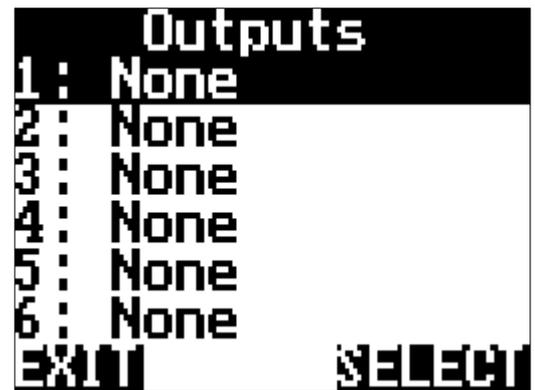**** Return to the menu to disable when finished ****

The Outputs menu should be used with caution and only as described in this instruction guide.

Failure to do this can damage sensors connected to existing inputs. This menu allows you to OUTPUT voltage & other values outputs 1-6.

RUN SCREEN > SETUP > OUTPUTS

The following Outputs are available

- GND
- + 12v Supply
- Run/Hold
- AlarmAny
    - Ability to activate an external alarm, e.g. External speaker or light. A 12v output will be triggered when AlarmAny is active. – You cannot select an alarm to an output.
- Alarm #
    - Ability to activate an external alarm (as above) on a **chosen port against a specific alarm**. E.g. an external red light could be wired in and activated for a fan alarm and a yellow light could be wired in and activated for a shaft alarm. When multiple alarms are active the available Alarm# will start at "0"

- Batch (As described on **PAGE 34**)
- Section (Sprayer Function)
- Rate + (Sprayer Function)
- Rate – (Sprayer Function)
- Dump All (Sprayer Function)
- Dump # (Sprayer Function)
- Clutch All
- Clutch #
- Section +
- Section –
- Rate PWM
- Rate PVG32
- Rate 5v
- Ratio
- Volt (Varying Voltage) 0-12v

For further explanation of setups of your OUTPUTS please contact our Farmscan Ag Service Department.

FLOW CONTROL VALVE WORKING BACK TO FRONT?

When using the Jackal Spray Wizard outputs are automatically setup for your convenience. However, this information is provided below as an overview of the setup.

In some circumstances your control valve may work back to front, i.e. opening when it should be closing. The output screen allows you to swap the direction rather than change the physical wiring.

Output 1: Rate +   **Output 2: Rate –**
Output 3: Section 1   Output 4: Section 2
Output 5: Section 3   Output 6: Dump Valve (if installed)

GPS/SERIAL

The GPS/Serial menu allows you to confirm that the GPS connected to the Jackal is function correctly.

By pressing the **SETUP** followed by **EDIT**, confirm the correct strings and Baud rate.

The NMEA messages will change from **N** to **Y**

```
        GPS               GPS Setup
Date : 00  ---      Baud Rate: 19200
Time : 00:00:00
Speed:      1.0km/h  NMEA Messages:
Heading:       0°    GGA: N       VTG: N
Long :   0.00000    RMC: N
Lat  :   0.00000
EXIT          SETUP  EXIT          EDIT
```

ABOUT JACKAL

Displays the Firmware version that's installed on the Jackal.

This screen also allows you to **UNLOCK** your Jackal to further functionality.

Please contact Farmscan Ag should you wish to purchase an unlock code.

```
Jackal Version

Aug  1 2018 DEV

Farmscan Ag P/L

farmscanag.com
EXIT        UNLOCK
```

DIAGNOSTICS

This screen provides the following information:

- **Voltage**   Displays a live input voltage to the Jackal.
- **Current**   Displays live Current draw on the Jackal.

- **Input "x"**   When inputs are enabled they will also be displayed for easy diagnostics.

```
Diagnostics
Voltage: 12.00V
Current:  0.10A




EXIT
```

FACTORY RESET

WARNING

This screen allows you to return the Jackal to factory defaults.

All values will be lost after pressing **RESET.**

Power cycle the Jackal to confirm all settings are reset.

```
Factory Reset

This will RESET
 ALL settings
back to factory
   defaults

EXIT         RESET
```

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