FARMSCAN | jackal v3.5

one monitor,
many possibilities

For Serial Numbers 30007000-7999

FARMSCAN AG
www.farmscanag.com

BASIC VERSION

SPEED & AREA METER
TACHO METER

OCTOBER 2018

GENERAL DESCRIPTION

The Jackal Basic is capable of monitoring 3 functions simultaneously (2 inputs) – e.g. Speed/Area & Tachometer. **Input 1 – RPM Only / Input 2 – Speed/Area Only**

The inputs can have both high and low alarm thresholds set which can trigger a visual and audible alarm if necessary.

The unit employs a large daylight readable LCD to provide legible characters on the display and enable calibration data to be clear and descriptive.

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 allows the operator to track numerous jobs in a period of work.

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 Jackal with all features unlocked.

Power Requirements	12 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	TX/RX
Ground	2
Output PWM (Control Version Only)	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.

INSTALLATION

PARTS LIST

REF	PART NUMBER	DESCRIPTION	QTY
1	A-Jackal	Jackal Monitor	1
2	AH-407	Mounting Bracket	1
3	P-321 x1 P-322 x1	11 Way Input Plug Green Grey (Required if using a Prox Sensor or GPS)	
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

PARTS PICTORIAL

MOUNTING & INSTALLATION

The Jackal Basic is provided with a suction window mount.

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.

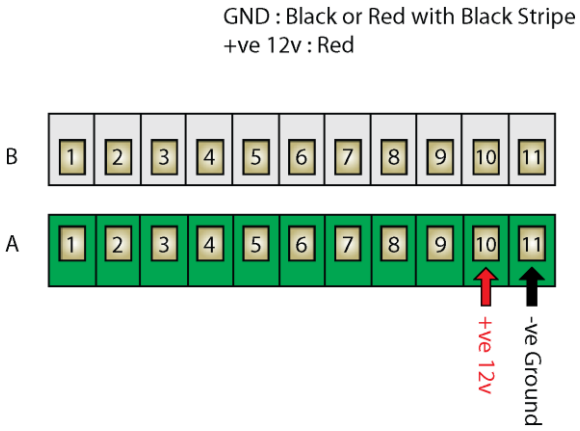
Note: Monitor should be mounted in a clearly visible position in the cab for the operator, but not in a position where it is subject to intense heat or moisture.

CONNECTIONS

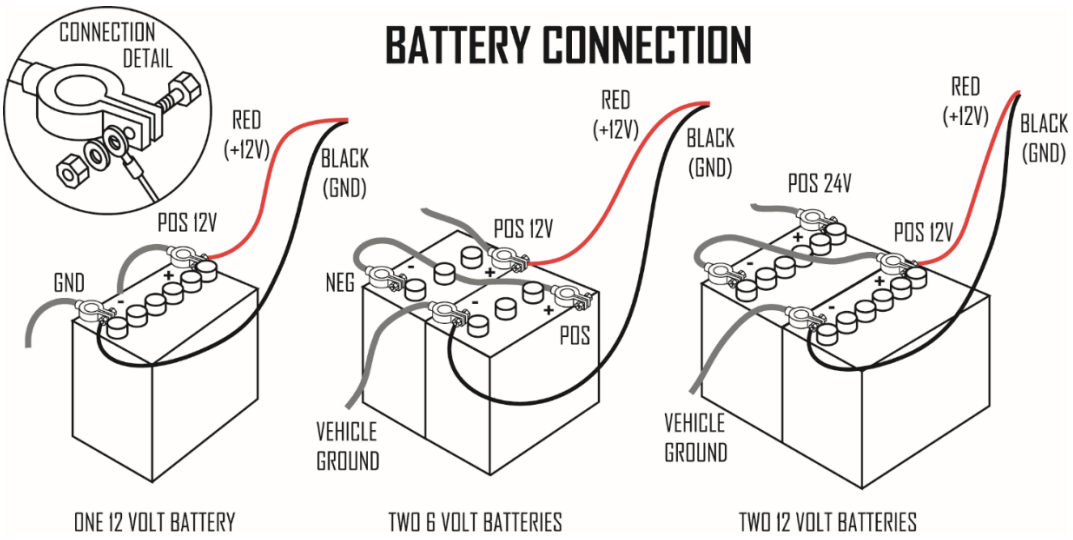
The connector on the rear of the Jackal Basic has the following connection points available for use

POWER CONNECTION

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



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 – 12V ONLY

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

INSTALLING SENSORS

The following examples will help to determine appropriate sensor input connections into the Jackal.

NB: The Jackal Basic is Unlocked only for Input 1 – Fan or Shaft RPM & Input 2 – Wheel Speed & Area

TWO WIRE "REED" – BLACK END SENSOR WITH MAGNET

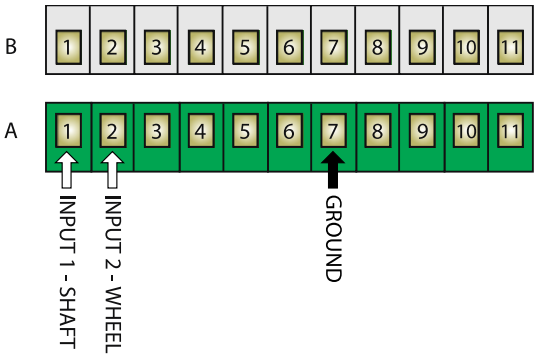
KIT # 1007P – WHEEL SENSOR (2 WIRE)

KIT # 2076 – SHAFT SENSOR (2 WIRE)

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.

- Insert the black ground wire into **(A7)** and the white/coloured signal wire into **(A2)** for Wheel Input
- Insert the black ground wire into **(A7)** and the white/coloured signal wire into **(A1)** for Shaft/RPM Input

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



THREE WIRE "PROX" – BLUE END SENSOR

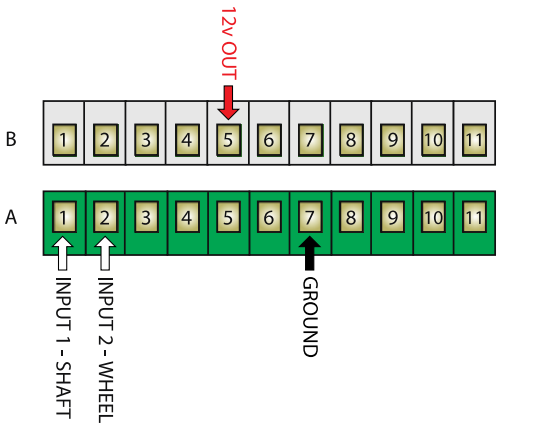
KIT # AA-2010P – WHEEL OR FAN SENSOR (3 WIRE)

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.

- Insert the black ground wire into **(A7)** and the white/coloured signal wire into **(A2)** for Wheel Input & **(B5)** for 12v Sensor Power
- Insert the black ground wire into **(A7)** and the white/coloured signal wire into **(A1)** for Shaft Input & **(B5)** for 12v Sensor Power

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.



3 Wire Proximity Type Sensor
Pin A Signal (Black) | Pin B Ground (Blue) | Pin C Power (Brown)

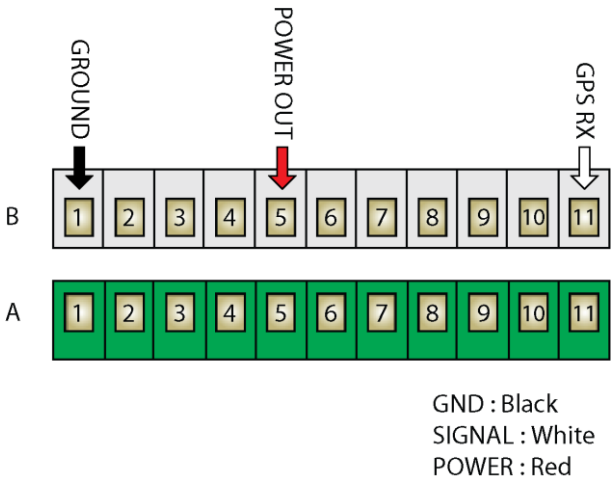
KIT #T-135

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

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

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

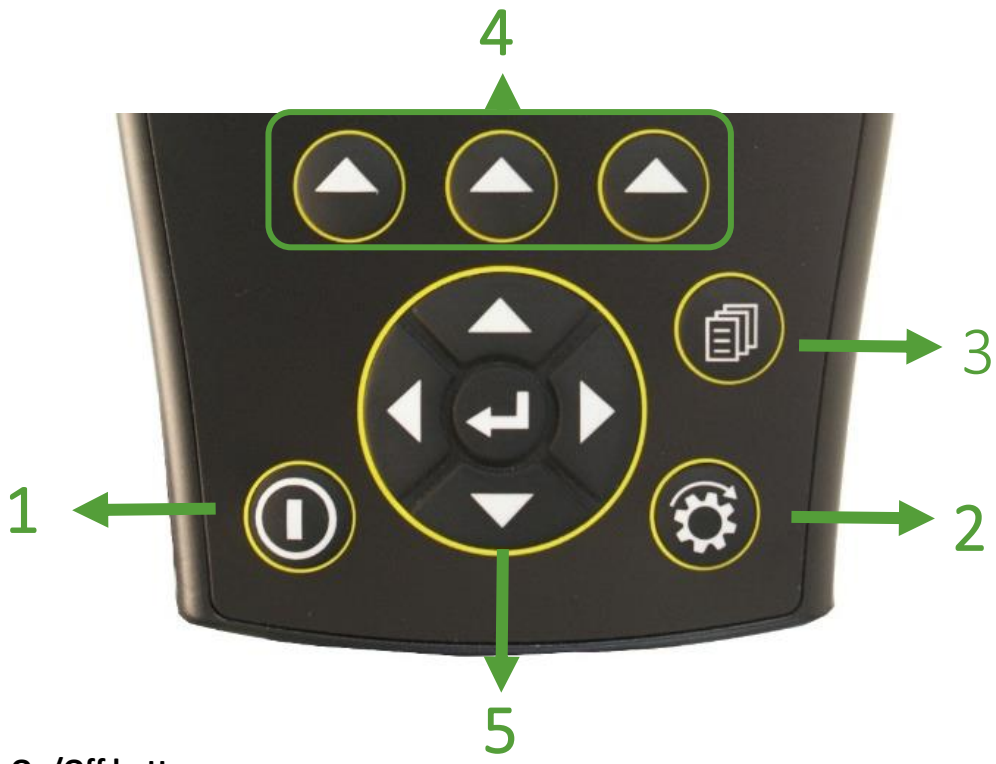
Use the wizard to setup the port and calibrate once installed using the default baud rate of **19200 baud**.



GGA, VTG, RMC supported.

An adapter cable is also available to purchase from Farmscan Ag – Part Number AC-135

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 not used in the Jackal Basic (Control Only)

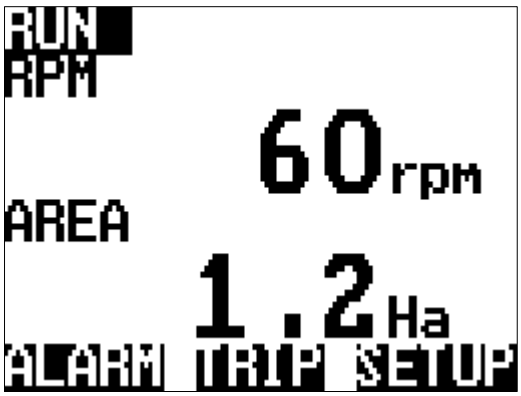
4. **Select button (3 of)**
    a. The Jackal has 3 soft buttons placed directly under the LCD. These buttons will change function in different menus.
    b. The function of the soft button is indicated at the bottom of the screen directly above the button.

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.

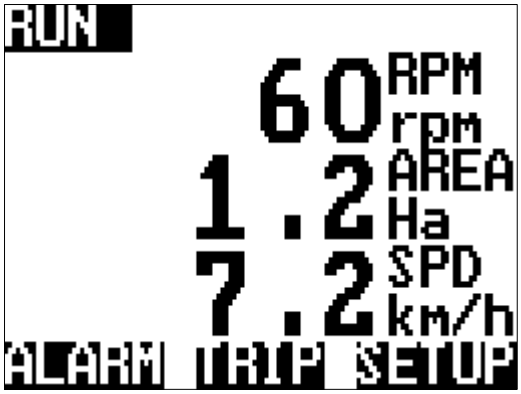
SCREEN LAYOUT

The Jackal can display up to 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 : 2 Lines



Example : 3 Lines

MAIN MENU

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

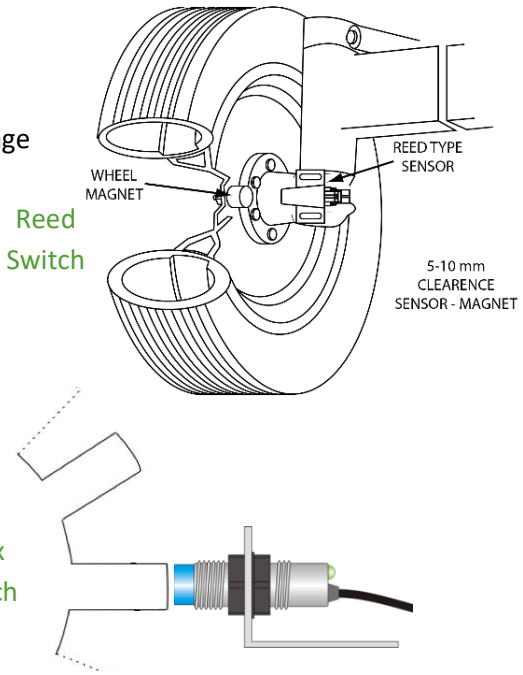
Wizard	Run a predefined wizard for setting up the Jackal Basic as an Area Meter or Tachometer.
Inputs	View what the inputs are setup as.
Front Screen	Order the display lines on the front screen
Other Settings	Change implement width and units (cm,m, ft, yd, in, km, mi), alarm notification settings, simulate speed & language (English, French, German, Bulgarian).
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, current draw and input diagnostics when activated.
Factory Reset	Returns the Jackal to factory default.

AREA & SPEED METER SETUP (WIZARD) – INPUT 2

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

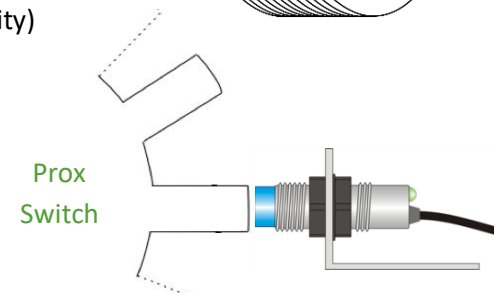


Sensors Required

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

Available Connections

REFER TO PAGE 4

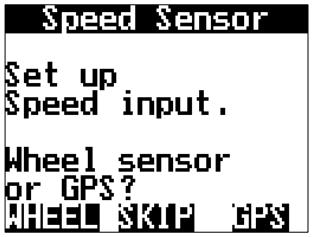


SETUP

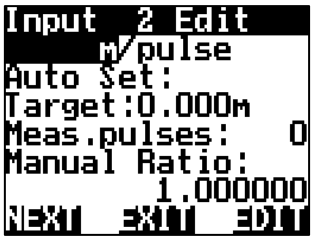
From the front screen press **SETUP**

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

Press **NEXT**



Select **WHEEL**



Leave the calibration method as m/pulse

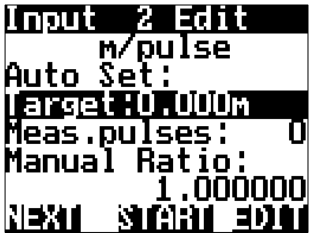
Choose your calibration method

Auto Set > PAGE 10

Manual Ratio > PAGE 11

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
4. Peg the corresponding point i.e. at the 20m mark



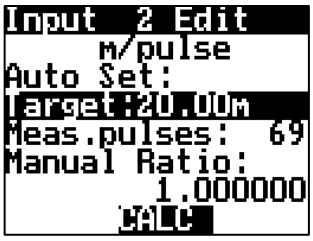
Press the down arrow to Select **TARGET**

Select **EDIT**

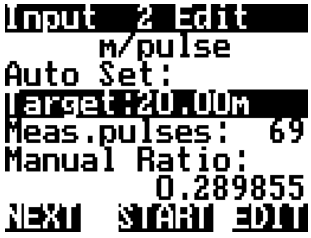
Using the NAV buttons enter your measured distance. i.e. 20.0000
Press **EXIT** when done.

Press **START** and move forward slowly.

This will allow pulses to register.

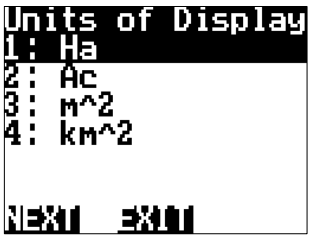


When you arrive at the center mark point of tyre to peg press **STOP**



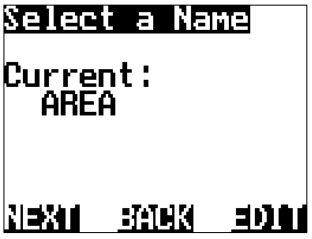
Press **CALC.** This will divide the distance travelled by the number of pules registered. **MANUAL RATIO** will now be updated.

Press **NEXT**



Using the NAV buttons select how you would like the area to be displayed on the front screen.

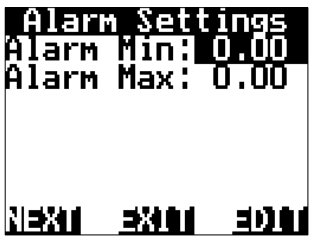
Press **NEXT**



Press **EDIT** to change the input name or

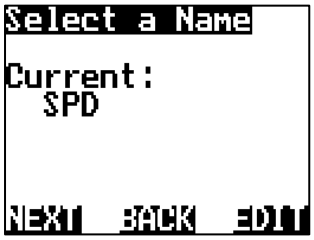
Press **NEXT** to continue

Select **km/h** or **mph** to display the speed on the front screen.



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

Press **NEXT**

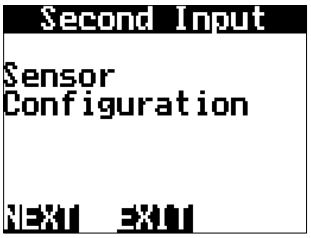


Press **EDIT** to change the input name or

Press **NEXT** to continue

Press the **UP arrow** to highlight the width.
Press **EDIT** & use the NAV buttons to change the implement width. E.g. **12m.**
Pressing **EDIT** will change the Unit of Measure

Press **NEXT.**

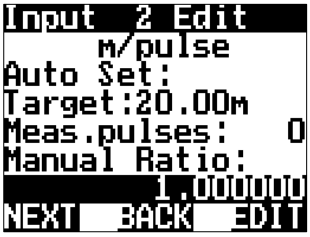


Press **EXIT & NEXT** to finalise the setup of the Speed & Area Wizard.

<u>If you have a 2nd sensor connected to Input 1 press NEXT to continue the wizard.</u>

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

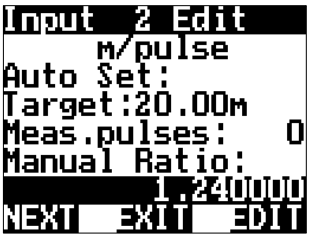
1. Ensure that the sensor and pickup are end-end before continuing
2. Mark bottom centre of tyre on which the sensor is fitted and mark ground in corresponding position
3. Drive ONE full rotation of the wheel, returning the mark point on tyre to bottom centre
4. Measure between the two points.
    -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



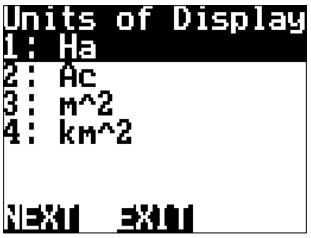
Select **MANUAL RATIO 1.0**

Select **EDIT**

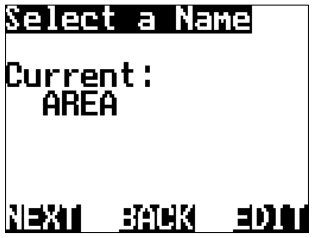
Using the NAV buttons enter your measured distance. i.e. 1.240000
Press **EXIT** when done.



Press **NEXT**



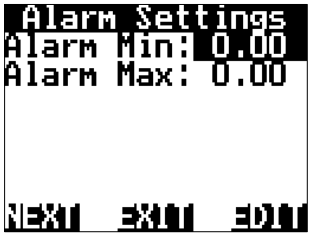
Using the NAV buttons select how you would like the area to be displayed on the front screen. Press **NEXT**



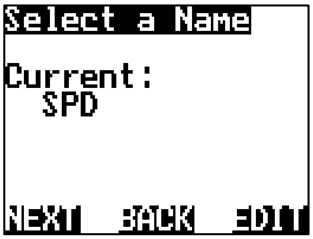
Press **EDIT** to change the input name or

Press **NEXT** to continue

Select **km/h** or **mph** to display the speed on the front screen.



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

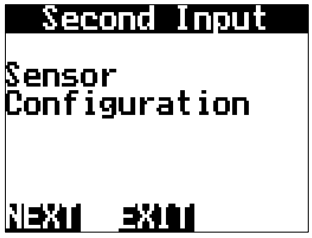


Press **EDIT** to change the input name or

Press **NEXT** to continue

Press the **UP arrow** to highlight the width.
Press **EDIT** & use the NAV buttons to change the implement width. E.g. **12m.**
Pressing **EDIT** will change the Unit of Measure

Press **NEXT.**



Press **EXIT & NEXT** to finalise the setup of the Speed & Area Wizard.

If you have a 2nd sensor connected to Input 1 press NEXT to continue the wizard.

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

AREA & SPEED METER USING GPS SETUP (WIZARD)

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

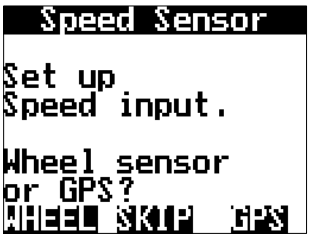
Available Connections - REFER TO PAGE 5

SETUP

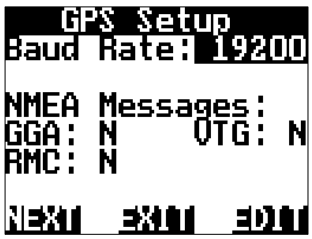
From the front screen press **SETUP**

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

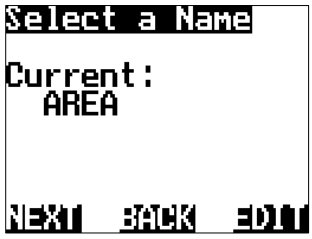
Press **NEXT**



Select **GPS**



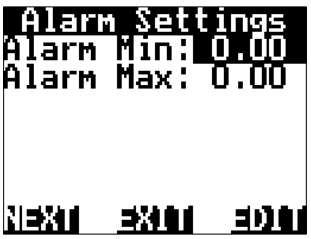
Press the **EDIT** button to change the baud rate, when the correct baud rate is selected the corresponding NMEA message will be acknowledged with a Y. Press **NEXT**



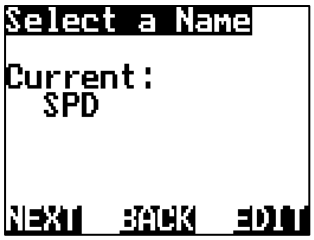
Press **EDIT** to change the input name or

Press **NEXT** to continue

Select **km/h** or **mph** to display the speed on the front screen.

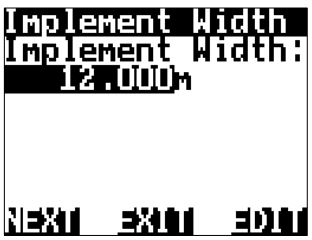


You have the option to set Alarm Min/Max points if required. Using the NAV buttons select and **EDIT** as required. Press **NEXT**

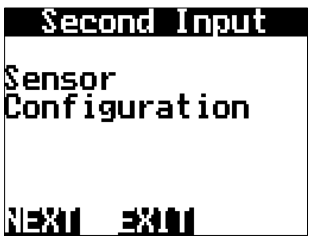


Press **EDIT** to change the input name or

Press **NEXT** to continue



Press the **UP arrow** to highlight the width. Press **EDIT** & use the NAV buttons to change the implement width. E.g. **12m.** Pressing **EDIT** will change the Unit of Measure. Press **NEXT.**



Press **EXIT & NEXT** to finalise the setup of the Speed & Area Wizard.

If you have a 2nd sensor connected to Input 1 press NEXT to continue the wizard.

THIS ENDS THE SETUP FOR SPEED/AREA METER USING GPS INPUT

TACHOMETER - RPM METER SETUP (WIZARD) – INPUT 1

The Jackal can display an rpm (Revolutions per minute) which is useful for monitoring fans or shafts.

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

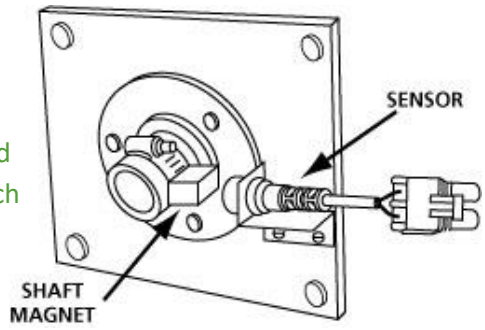
Sensors Required

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

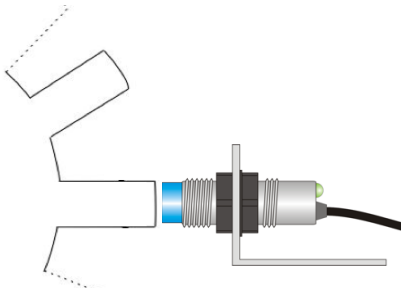
Available Connections

REFER TO PAGE 4

Reed Switch



Prox Switch

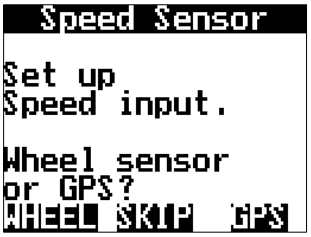


SETUP

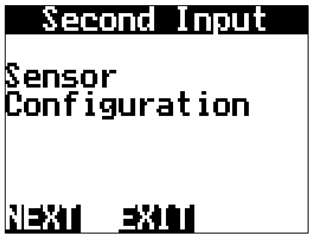
From the front screen press **SETUP**

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

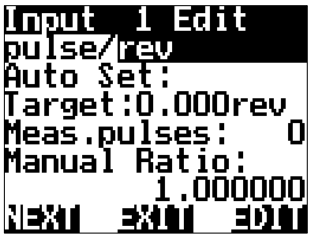
Press **NEXT**



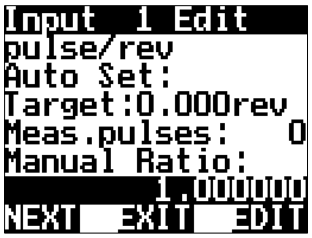
Select **SKIP**



Select **NEXT**



Leave the default value of **pulse/rev**

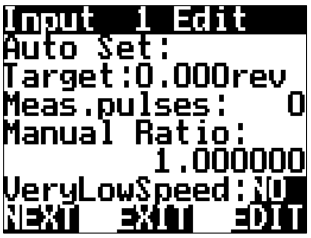


Select MANUAL RATIO

Select EDIT

The manual ratio is the number of magnets (reed or coil sensor) or bolt heads/teeth (for proximity).

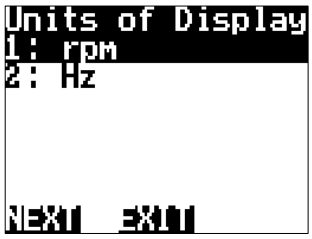
or Press **NEXT**



FOR LOW RPM (1rpm-20rpm)

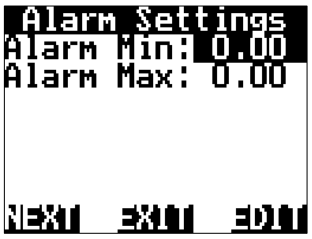
Press the **DOWN** button and change **VeryLowSpeed** from **NO** to **YES** by pressing **EDIT**

Press **NEXT** when done

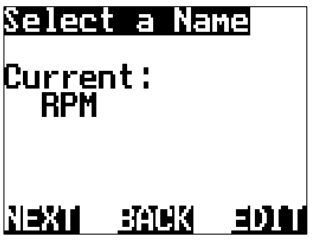


Leave the default value of RPM.

Select **NEXT**



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



Press EDIT to change the input name or

Press NEXT to continue

Press NEXT to finalise the Wizard

THIS ENDS THE WIZARD SETUP FOR A TACHOMETER

TRIPS

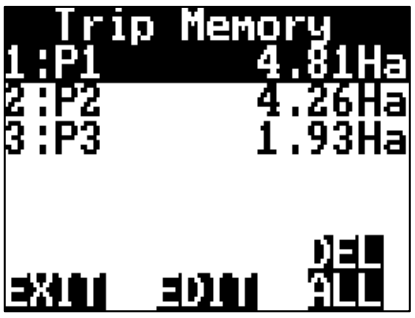
The Trips page allows accumulating values to be saved and recalled at a later time.

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

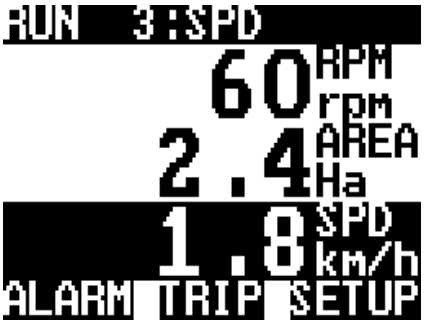
ALARMS

Alarms are set on a per input basis. High/Low Alarm points can be set for speed, hectares and RPM. Alarms will be displayed visually and made audible.

To **EDIT** your alarms re-run the wizard by pressing **SETUP** from the front screen.

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

When an alarm has been tripped, the front screen will display the line number and name of the triggered function.



Example 1. In this example, an alarm is tripped when the speed goes under 2km/h. The input number and function name are displayed on the top right and will continue to flash along with the function line.

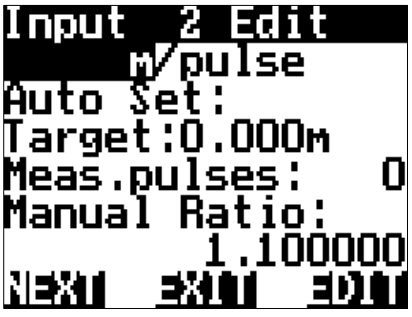
Example 2. This Jackal has been setup to alarm whenever the RPM reaches above 120rpm. In this example, the rpm has gone above the max value to 132rpm and will notify the user until the rpm goes below this value.

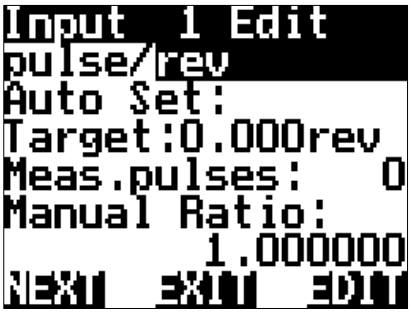
INPUTS

Inputs are the calibration factors used to display the values correctly on the front screen.

To **EDIT** your inputs re-run the wizard by pressing **SETUP** from the front screen.

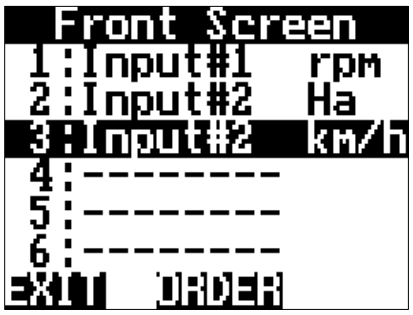
Your existing settings will not be lost during the wizard re-run.

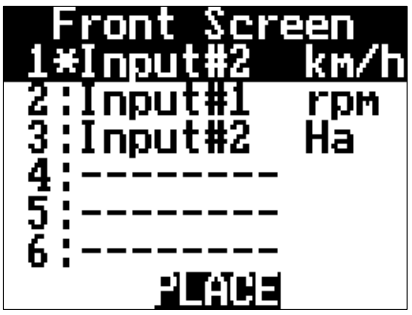


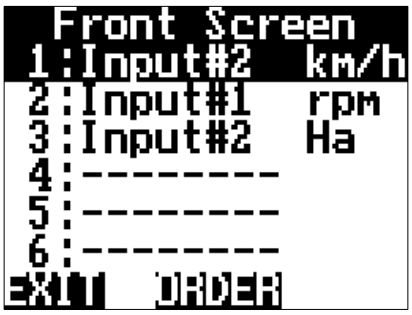


FRONT SCREEN

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.



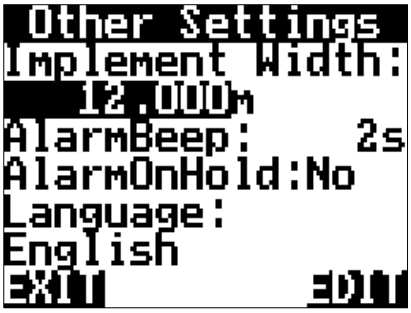




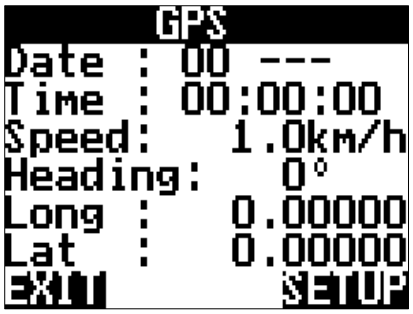
OTHER SETTINGS (IMPLEMENT WIDTH)

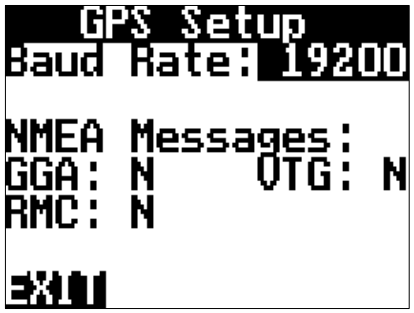
The other settings allows you to edit the following options:

- **Implement Width** **EDIT** your implement width here to update your working hectares.
- **AlarmBeep** **EDIT** this value to change the number of seconds between each audible alarm.
- **AlarmOnHold** **EDIT** this value to change if the alarm is activate or not when the Jackal is on hold.
- **Language** **EDIT** this value to change the Jackal's language.



GPS/SERIAL





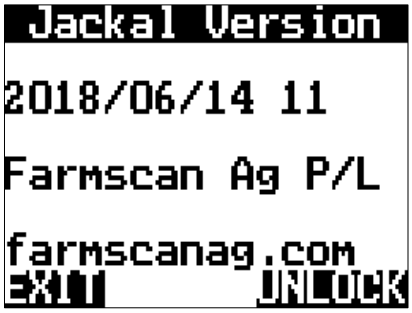
The GPS/Serial menu allows you to confirm that the GPS connected to the Jackal is function correctly.

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

To **EDIT** GPS settings re-run the wizard by pressing **SETUP** from the front screen.

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

ABOUT JACKAL

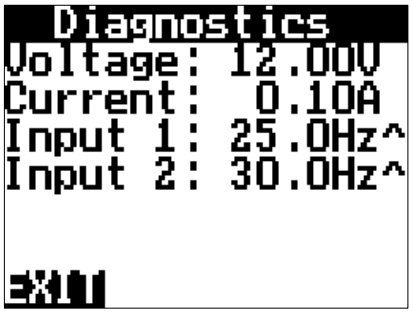


Displays the Firmware version that's installed on the Jackal.

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

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

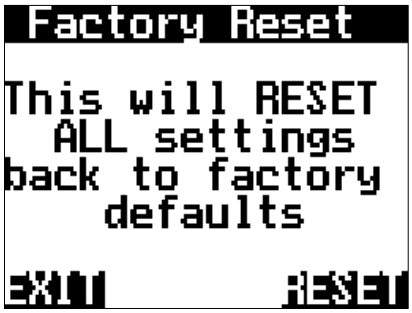
DIAGNOSTICS



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.

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.

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