APOLLO 8000

METERING TYPE (BELT)
SPREADER CONTROLLER

Calibration

RDS Part.No:	S/DC/500-10-316
Doc. Issue:	1c : 15/1/02
Software Issue:	PS516-000 rev.30

Electromagnetic Compatibility (EMC)

CE

This product complies with Council Directive 89/336/EEC when installed and used in accordance with the relevant instructions.

IMPORTANT, READ THIS BEFORE USING THE APOLLO

The *Apollo* installation is a part of the Precision Farming System ("the System"). It is very important that you follow the described calibration procedures before operating the *Apollo* instrument. Calibration and operation of the *Apollo* must be in accordance with these instructions. Use of the System is subject to the following disclaimer;

1. So far as is legally permissible RDS Technology ("RDS"), or its distributors, shall not be liable, whatever the cause, for any increased costs, loss of profits, business, contracts, income, or anticipate savings or for any special, indirect or inconsequential damage whatsover (death or personal injury excluded).

2. The capabilities and functions of the Precision Farming System ("the System") are limited as set out in the specification of the System, details of which are contained in the Help files and product literature and which must be read before using the System.

3. Without prejudice to the generality of the above it is hereby acknowledged that the System is not designed nor intended to a) originate variable treatment plans or b) achieve or avoid any application rate outside application parameters, which in both cases shall be the responsibility of the operator.

4. The standard terms and conditions of RDS (except clause 7), a copy of which is available on request, apply to the supply and operation of this System.

Service and Technical Support

PLEASE CONTACT YOUR NEAREST DISTRIBUTOR

If unknown then fax: 44 (0) 1453 733311 for further information.

Our policy is one of continuous improvement and the information in this document is subject to change without notice.
Check that the software reference matches that displayed by the instrument.

\UK316-1c.DTP

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1 Overview

This manual covers the calibration of the Pro-Series 8000 for metering type spreaders.

The instrument must be calibrated before commencing normal operation. Many settings are made only on initial installation e.g. from the 'SENSOR CONFIGURATION' screen. Other calibration settings may need to be altered on a regular basis (e.g. according to the product being spread).

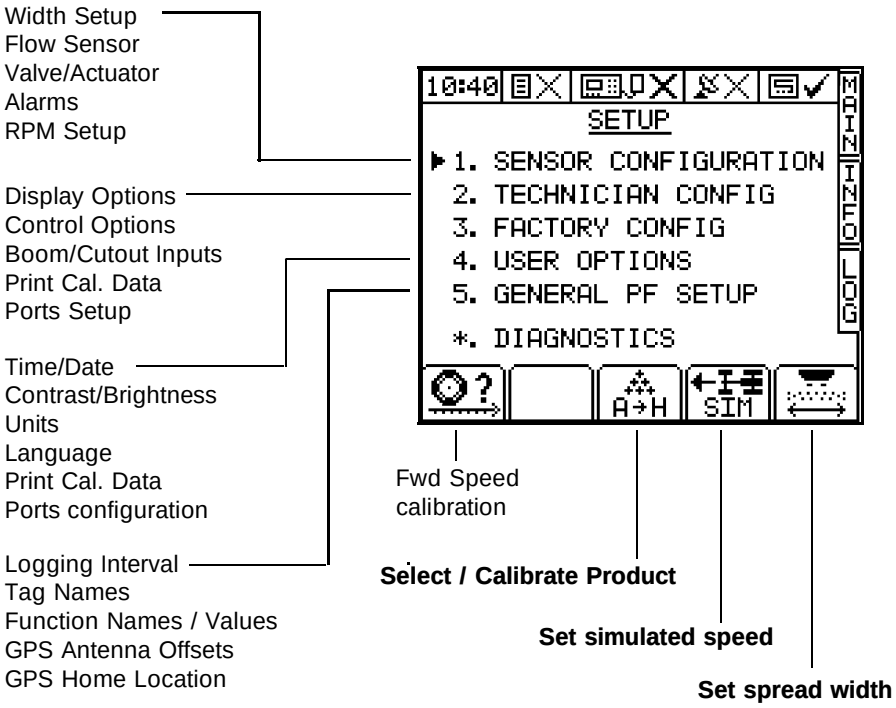
1.1 Selecting the Control Software

With the purchase of an optional "software module" which comes in the form of an electronic chip loaded into the back of the instrument, the Pro-Series can be instantly switched to perform another function e.g. from a Spreader Controller to a Data Logger for route navigation and soil mapping tasks. This is done from "**Instrument Select**" in the "USER OPTIONS" menu.

1.2 The "Setup" Screen page

Press the key to select the SETUP menu (fig. 1).

Figure 1
The information displayed on the SETUP screen



Calibration on installation

Work through the 'SENSOR CONFIGURATION' menu first. Most of these settings need be done only once on installation.

Calibration in normal use

Calibration settings that need to be accessed more frequently are highlighted in bold type on figure 1. These settings include;

Product calibration
Tank and Product selection

1.3 Control Channels and 'Tanks'

There are two main types of metering mechanism,

(i) Belt drive via a hydraulic motor (e.g. Bredal)
(ii) Metering shaft via a hydraulic or electric motor (e.g. Kuhn Pnuematic)

The Apollo 8000 is an extremely versatile control system with 4 separate control channels. To enable spreading more than one product at the same time, the instrument can simultaneously control up to three metering systems each comprising a motor/proportional hydraulic valve and flow rate sensor (rotary encoder), albeit through a single distribution system (i.e. wiring loom and junction box). The fourth channel cannot be used for driving a motor/valve.

A 'tank' is the default description for each channel (you can programme your own description accordingly).

Single belt operation

By default, only 'tank 1' (channel 1) is enabled, for controlling a belt spreader with a single belt.

Multiple belt operation

Some belt spreaders have more than one metering system/hopper for simultaneously spreading more than one type of product, or for spreading independently to the left and right.

Additional 'tanks' are enabled from the 'Machine Options' screen in the calibration menu. The MAIN menu key is then used to cycle between the separate "tank" display screens and also a screen displaying application rates for all 'tanks'.

NOTE: This manual predominantly covers single belt operation.

The 

symbol indicates additional information specifically pertaining to multi-tank operation.

1.4 Data Entry

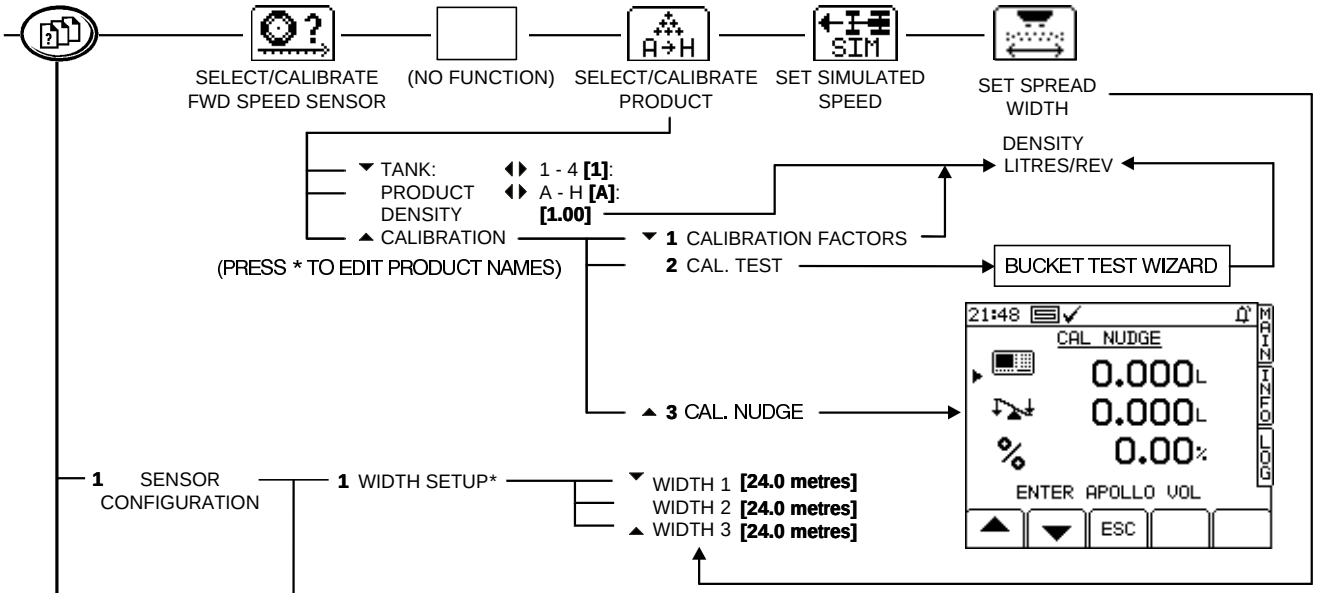
Alpha-numeric values are entered via the right-hand keypad. You must press the key from 2 to 5 times to select the required letter. (Some keys also have additional special characters not shown on the key legend).

The key will either toggle between lower and upper case characters or when preceeding a numerical entry, will set a MINUS value.

The key will toggle between 0 and a SPACE.

The key will BACKSPACE the screen cursor if you need to re-enter a character.

The key is the RETURN key and is normally pressed to confirm the data entry into memory.



1 SENSOR CONFIGURATION

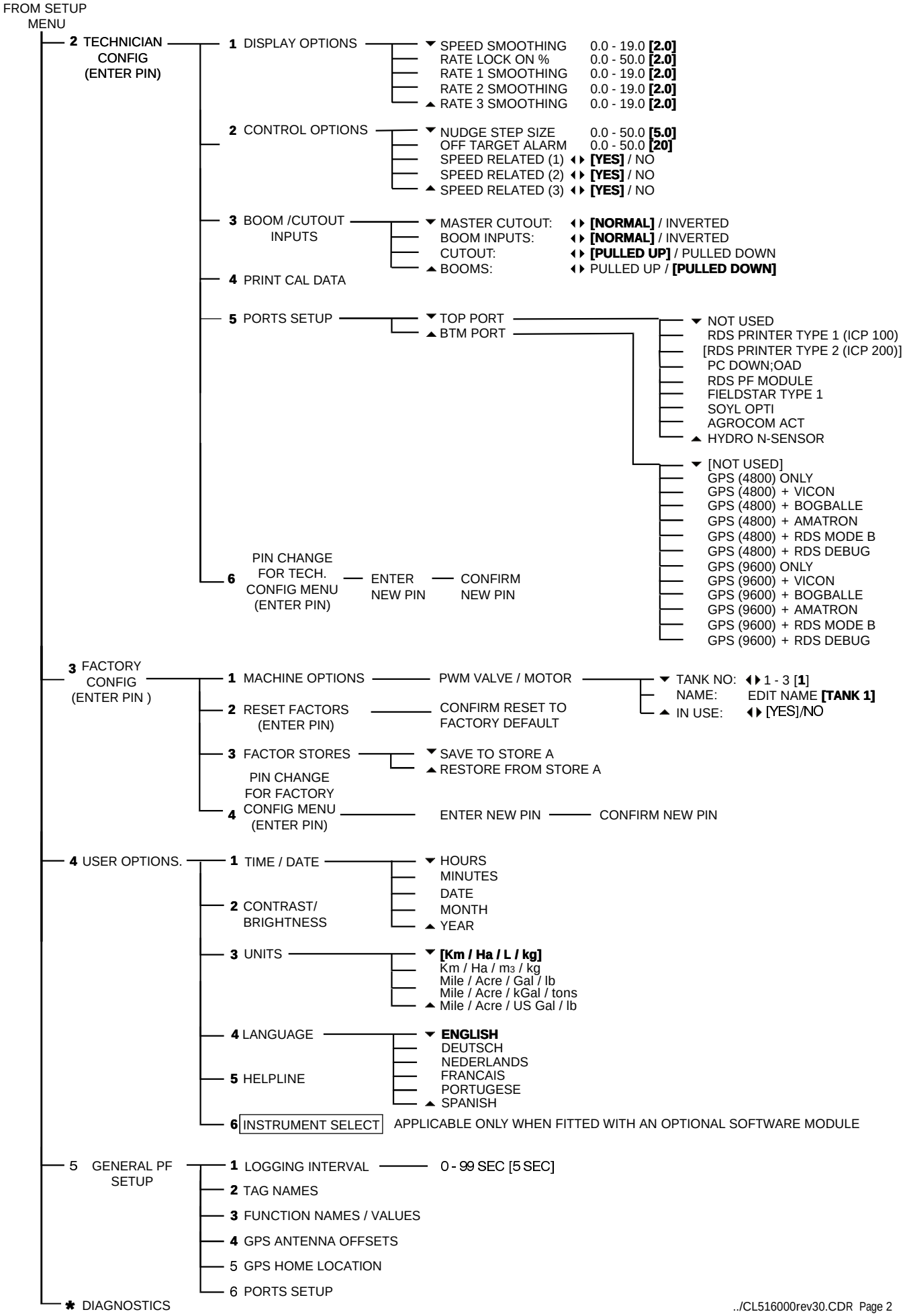
- **1** WIDTH SETUP*
  - WIDTH 1 **[24.0 metres]**
  - WIDTH 2 **[24.0 metres]**
  - WIDTH 3 **[24.0 metres]**
- **2** FLOW SENSOR
  - CHANNEL: 1 - 4 **[1]**
  - CAL FACTOR: 0 - 999 **[600]**
  - SENSED WIDTH: 0 - 99.9 **[24.0]**
- 3 LOAD SENSOR (not applicable)
  - CHANNEL 1 - 4 **[1]**
  - FUNCTION: **[NOT USED]** / WEIGHING
  - LOAD ZERO: 0.0 - 9999.0 [0.00000]
  - LOAD GAIN: 0.0 - 9999.0 **[0.00000]**
  - CALIBRATION ROUTINE:
  - CURRENT RESULT: **[0.00000]**
  - ANGLE SENSOR CAL:
    - L/R ZERO 0-9999.0 **[2.50000]**
    - L/R SLOPE 0-9999.0 **[25.0000]**
    - F/B ZERO 0-9999.0 **[2.50000]**
    - F/B SLOPE 0-9999.0 **[25.0000]**
- **4** VALVE/ACTUATOR
  - CHANNEL: **[1.0]** / 2.0 /3.0
  - RESPONSE: 0.0 - 9999 **[5.0]**
  - FACTOR I: 0.0 - 9999 **[0.0]**
  - FACTOR Z: 0.0 - 50.0 **[5.0]**
  - MAX DUTY: 0.0 - 9999 **[100]**
  - MIN DUTY: 0.0 - 99.9 **[0.0]**
  - STARTUP DELAY: 0.0 - 99.5**[2.0]**
  - VALVE TYPE: [NORMAL PWM] / INVERTED PWM
  - DEADBAND: 0.0 - 99.9 **[1.0]**
  - PWM FREQUENCY: 0.0 - 2000 **[100.0]**
- **5** ALARMS SETUP
  - TANK LEVEL SENSOR 1: [OFF] / ON
  - TANK LEVEL SENSOR 2: [OFF] / ON
  - TANK LEVEL SENSOR 3: [OFF] / ON
- **6** RPM SETUP
  - CAL FACTOR: PULSES PER REV **[1.0]**
  - LOW ALARM: RPM **[0.0]**
  - HIGH ALARM: RPM **[0.0]**

(MENU CONTINUED OVERLEAF)

NOTE: DEFAULT SETTINGS IN BRACKETS **[ ]**

APOLLO 8000
CALIBRATION MENU
(BELT SPREADERS)
SOFTWARE VERSION PS516-000 rev. 30

Calibration Menu - (Belt Spreaders)



2 Motor/Valve Configuration

This section applies to a spreader where there is some type of metering mechanism metering the product onto spinning discs or into a pneumatic distribution system.. There are two main types;

(i) Moving belt driven by a hydraulic motor (e.g. Bredal).

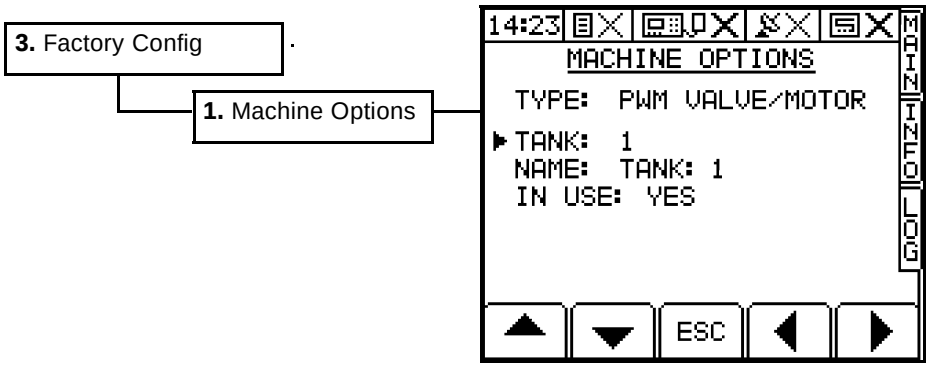
(ii) Meter shaft with hydraulic or electric motor (e.g. Kuhn Pneumatic)

2.1 Machine Options (enter PIN)

Default PIN = 1234

Go to the "MACHINE OPTIONS" screen (figure 2) to change the 'tank' settings.

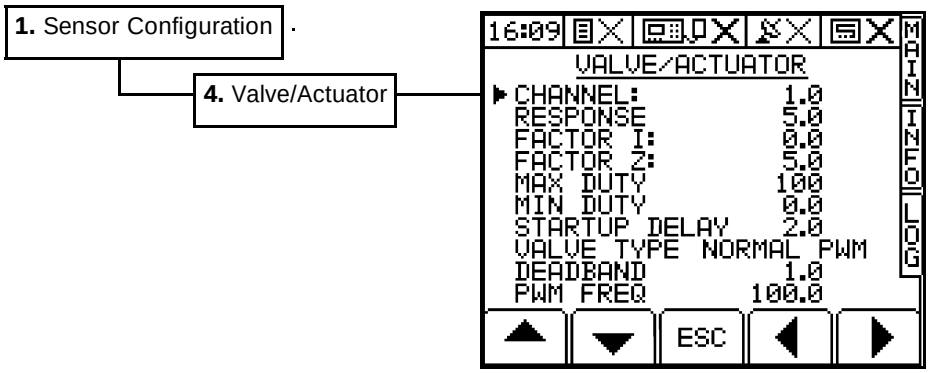
Figure 2
The MACHINE OPTIONS screen



By default only channel 1 is enabled for a single motor/valve setup. To enable additional channels, select "tank" 2 or 3 using the arrow keys, move the cursor to the line "IN USE" and select "YES".

2.2 PWM Valve / Motor Setup

Figure 3
The VALVE/ACTUATOR setup screen



2.2.1 Response

The System Response function sets the frequency at which the system adjusts the motor/proportional control valve when reacting to a change in forward speed. A lower setting results in a slower response, and increases the time taken for the application rate to match the target rate. A higher setting results in a faster response. If the application rate is unstable and varies about the target rate, then the response setting may be too high.

Default: 5.0 Range: 0.1 - 9999

2.2.2 "I" Factor

Default = 0.0

Don't change it unless advised!

2.2.3 "Z" Factor (or "Z Boost")

To assist getting "up to rate" as quickly as possible after switching the spreader on you can set a "zero boost" figure. The system will immediately regulate to the % duty cycle set. It shouldn't need to be changed.

Default: 5%

2.2.4 Maximum/Minimum Duty

This sets the maximum and minimum PWM output to the valve/motor. Proportional valves don't respond over the full PWM range from 1 -100%. Typically they will operate from 20% to 70%. To ascertain the minimum and maximum PWM, proceed as follows:-

Set Minimum Duty. In manual control mode starting from zero rate, slowly increase the rate using the up arrow rate key until the belt *just starts to move.* Go to the diagnostics screen in the SETUP menu, select the appropriate control channel 1, 2 or 3 and note the PWM %. Programme this figure on the VALVE/ACTUATOR screen.

Set Maximum Duty. Slowly increase the rate using the up arrow rate key. The rate figure will reach a maximum beyond which pressing the rate key will have no effect. The valve/motor is now running flat out. Note the PWM % reading on the diagnostics screen as before, and programme this figure (or slightly less) on the VALVE/ACTUATOR screen.

Default: 100% max : 0% min

2.2.5 Startup Delay

This should not need any adjustment for PWM valve/motor operation.

2.2.6 Valve type

Default = "NORMAL PWM".

If, when you press the UP manual rate adjustment key on the MAIN screen, the belt slows down, then set Valve Type to "INVERTED PWM".

2.2.7 Deadband

The Deadband function sets the range over which the application rate will vary about the target rate before the valve/motor will respond. A lower value will make the valve/motor adjust more frequently and vice versa.

Default:: 0.01 Range:0 - 9999

2.2.8 PWM Frequency

Default = 100 Hz

The Vickers valve and the Danfoss PVG valve with the RDS interface module work on 100 Hz. If you are fitting any other type of valve and are not sure what the PWM frequency should be, please contact RDS for assistance.

2.3 "Flow" Sensor Setup

2.3.1 Flow Sensor Cal. Factor

The "flow" sensor is a rotary encoder mounted at a suitable point on the metering drive. The flow sensor factor is the number of pulses per rev of the encoder.

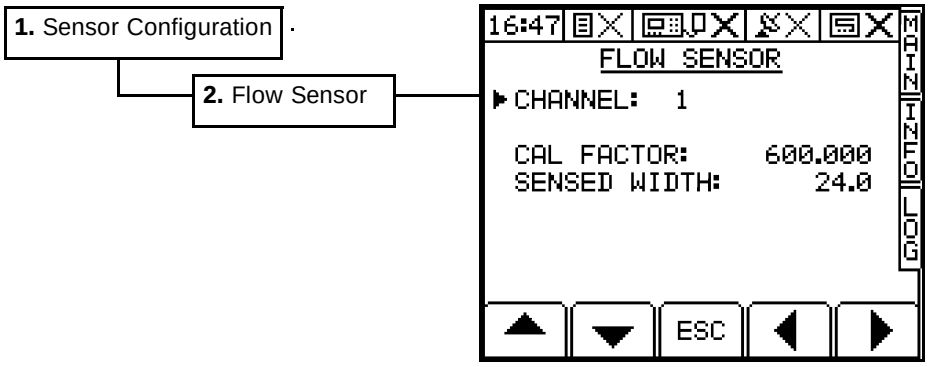


Figure 4
Setting the Shaft Encoder factor (pulses per rev)

The Revtel™ type encoder normally fitted gives 60 pulses per rev, therefore set the cal. factor to "60". In some cases where the shaft speed to be measured is very slow, an encoder giving 360 pulses per rev may be fitted. In this case set the cal. factor to "360".

If it is possible on your particular machine to change the speed ratio between the shaft onto which the encoder is fitted and the belt drive shaft (e.g. according to the application rate you require), then you must do a product calibration after changing the ratio.

2.3.2 Sensed Width

The sensed width is the full spread width.

3 Product Calibration

Before spreading a product for the first time you need to establish an initial calibration factor for that product . What you must establish is the volume of product dispensed per revolution of the metering shaft encoder.

Default: 1 litre/rev

3.1 Bucket Test

1 Set the gate opening as per the manufacturers chart to suit the type of product and nominal spread rate. Set up the spreader as you normally would for a bucket test.

2. From the SETUP screen, press  to select the PRODUCT SELECTION screen. Set the appropriate tank and product using the arrow keys.

3. Set the product density.

4. From the MAIN screen, set the desired target rate.

5. Check the spread width is set correctly.

6. Go back to the PRODUCT SELECTION screen, select "PRODUCT CALIBRATION", then press ENTER. Select "2 CAL TEST" .

7. Enter the calibration area (default = 1ha). It is not critical that you set this, because you can stop the cal test at any point when you have collected sufficient product, without the calculation being affected.

8. Enter the simulation speed (default = 8km/h) - the forward speed at which you will be spreading in the field.

9. Switch the spreader on to start the test. The CAL TEST screen displays the accumulated cal. area, no. of encoder pulses and the encoder revs. Switch off the spreader when you have collected a sufficient quantity of product, and weigh it.

10. Enter the weight collected. The new cal factor is automatically calculated and displayed. Press the "YES" key to accept.

11. If you subsequently find a discrepancy between the actual amount spread and the instrument reading, you can "nudge" the cal factor from the CAL NUDGE screen. This is described in the operation manual under "Daily Calibration".

NOTE: If you change the gate opening, you must re-calibrate.

If it is possible on your particular machine to change the speed ratio between the shaft onto which the encoder is fitted and the belt drive shaft (e.g. according to the application rate you require), then you must do a product calibration after changing the ratio.

3.2 View Calibration Factors

After the bucket test the instrument defaults to the PRODUCT CALIBRATION screen. Select "1. CALIBRATION FACTORS" to view the cal. factor and density set for the selected product.

4 General Configuration

The remainder of the Sensor Configuration menu is common to all spreaders.

4.1 Forward Speed Sensor

The Speed Sensor Factor ("SSF")is the distance travelled forward in the time between two pulses from the forward speed sensor. This could be calculated based on the nominal tyre diameter or rolling distance and then entered manually, however this does not take into account wheel slip, compaction, or tyre deformation under practical operating conditions. The best method is to do an "Auto Cal".

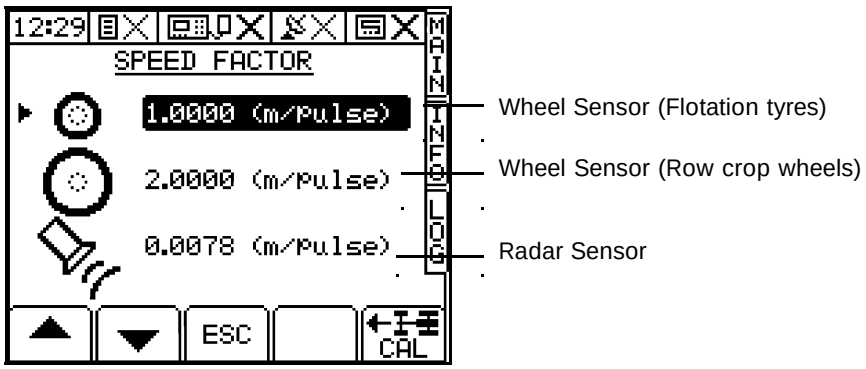
4.1.1 Select Wheel Size (Wheel sensor fitted) / Radar Sensor

If the vehicle has a standard wheel sensor and magnets installed, you can programme the instrument with two speed sensor factors for flotation tyres and for row crop wheels. Remember to select the appropriate factor after changing wheels.

1 Press to select the "SPEED FACTOR" screen (fig. 4).

2 Move the arrow cursor to select the factor appropriate for flotation tyre or row crop wheel size (or radar sensor if fitted), and press to confirm.

Figure 4
Selecting the wheel size /Radar Sensor



4.1.2 "Auto Cal"

The "Auto Cal" procedure is the same for a wheel sensor or a Radar Sensor.

Mark a set distance of 100 metres (or 100 yards depending on the units set on the instrument) by suitable means. The surface should be representative of the average field conditions (i.e. not a paved surface). Position the vehicle with the first marker level with a suitable reference point on the vehicle.

With the appropriate setting highlighted on the "SPEED FACTOR" page, press ENTER, then select **"Auto Cal**'. Press and then follow the screen instructions.

Stop the vehicle when the second marker lies up with the pre-determined reference point on the vehicle and press to end the "Auto Cal" procedure. The Speed Sensor Factor is automatically re-calculated and stored in memory.

NOTE: *If you overrun the marker, do not simply reverse - repeat the "Auto Cal" procedure from the beginning.*

4.1.3 Manual Calibration

If a two-magnet wheel sensor is fitted, drive in field conditions for exactly **10** turns of the sensed wheel.

If a propshaft sensor is fitted, drive in field conditions for exactly **20** turns of the propshaft.

In either case calculate the factor = $\frac{\text{Distance travelled}}{10}$ and enter the value as follows;

With the appropriate sensor highlighted on the "SPEED FACTOR" page, press ↵

Key-in the new factor and press ↵ to confirm the change.

If a an RDS Radar sensor is fitted *(at the correct angle of 37±1°),*

1 Accept the default factor of **0.0078** metres/pulse.

2 Set the implement full width to 100m.

1. Sensor Configuration
  1. Width Setup

3 Select the "INFO" screen to display area accumulation and drive over a 100 metre measured distance. This must be a rolling 100 metres, not a start-stop 100 metres.

If the TGSS factor is correct, the AREA display will show 1.000 hectares. If not then adjust the factor based on the following calculation,

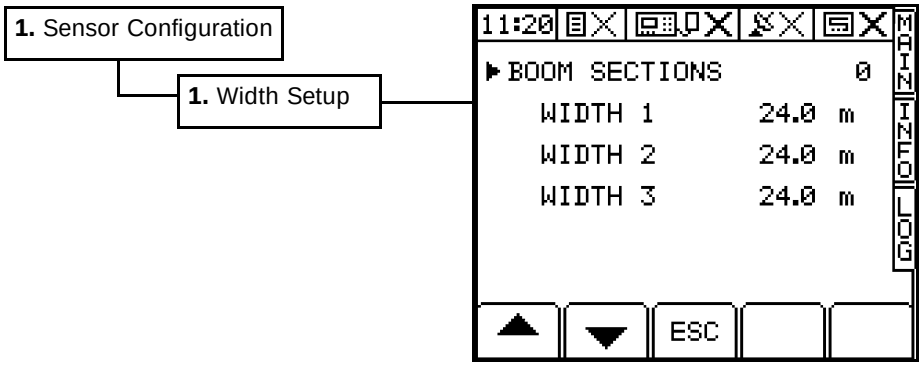
New factor = existing factor x displayed area (ha)

4 Go back to the "SPEED FACTOR" screen and enter the new factor (see above). Don't forget to reset the implement width to normal.

4.2 Width Setup

From the SETUP screen, press  to select the "Width Setup" screen or:-

Figure 5
Setting the spread width



4.3 Alarms Setup

Switches the hopper level sensor(s) on or off.

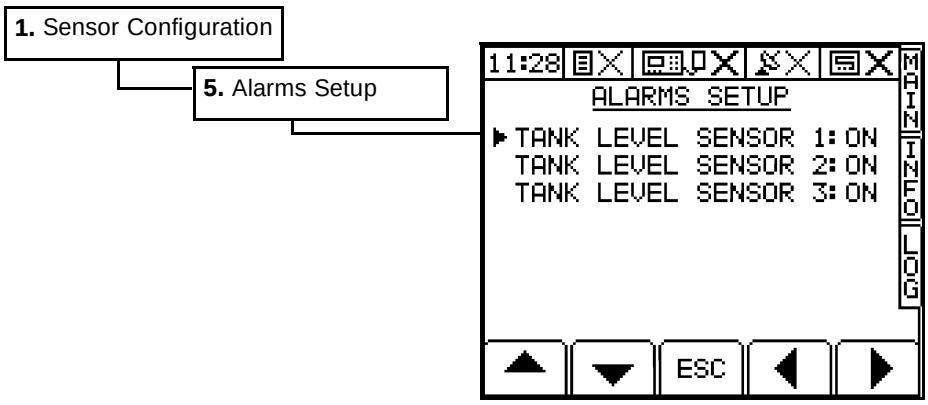


Figure 6
Hopper Level Alarms Setup

4.4 Calibrating an RPM Sensor

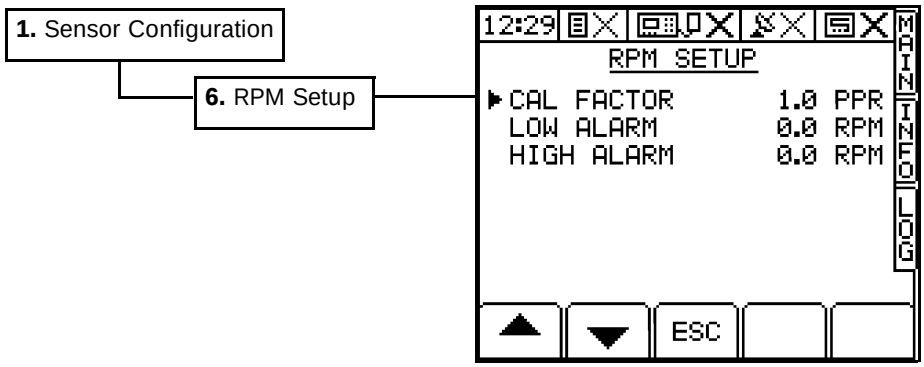


Figure 7
RPM Sensor Setup

The following calibration procedure applies regardless of the speed output being sensed e.g. Engine RPM, PTO Speed, Shaft Speed, Fan Speed etc, depending on the particular installation.

In all cases, run the sensed component at a known speed. If necessary measure this speed using a hand-held tachometer. Note the speed displayed on the "INFO" screen.

The correct Cal. factor = Initial Factor x $\frac{\text{Displayed Speed}}{\text{Actual Speed}}$

Go back to the "RPM SETUP" screen, key-in the new Cal. Factor and press ↵.

Default: 1 pulse per rev (PPR)

4.4.1 LOW / HIGH RPM ALARM

From the RPM SETUP screen, you can also set a minimum and maximum RPM at which an alarm is triggered. Set as necessary.

Default = 0 (Alarms Off)

5 Technician Configuration Menu

The operator is unlikely to need access in normal use. Access to this menu can be restricted by changing the PIN number from within the menu.

Enter the default PIN number 1234 to access the menu.

5.1 Display Options

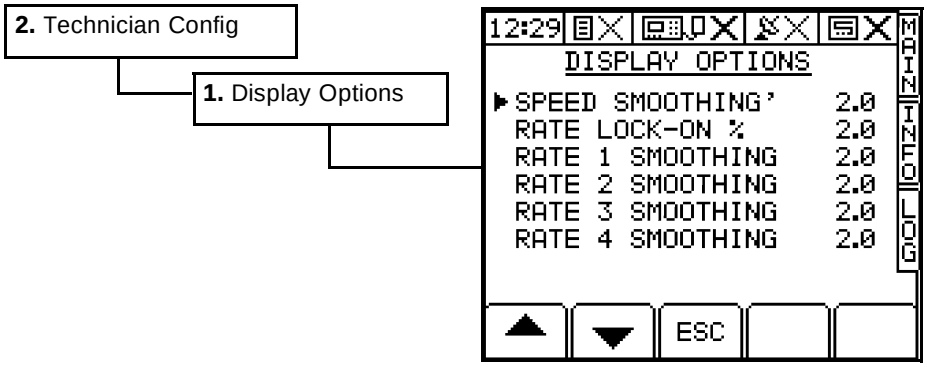


Figure 8
"Display Options" page

5.1.1 Speed Smoothing Factor

The Forward Speed display is electronically damped. If the readouts are constantly changing by small increments, you can increase the damping time to give a steadier readout.

Adjustable from 0 to 19 seconds. *Default = 2 seconds*

5.1.2 Rate Lock-On

"RATE LOCK-ON" sets the % by which the application rate fluctuates either side of a nominal application rate *before* the instrument display changes.

For example, if your actual application rate fluctuates in normal operation from 97 to 103 kg/ha for a target application rate of 100 kg/ha, you may decide that it is acceptable for the instrument to display a steady readout of 100 kg/ha between those limits i.e. ±3%. In this case the rate lock-on figure should be set to 3.0.

Adjustable from 0 to 50% Default = 2%

5.1.3 Rate Smoothing

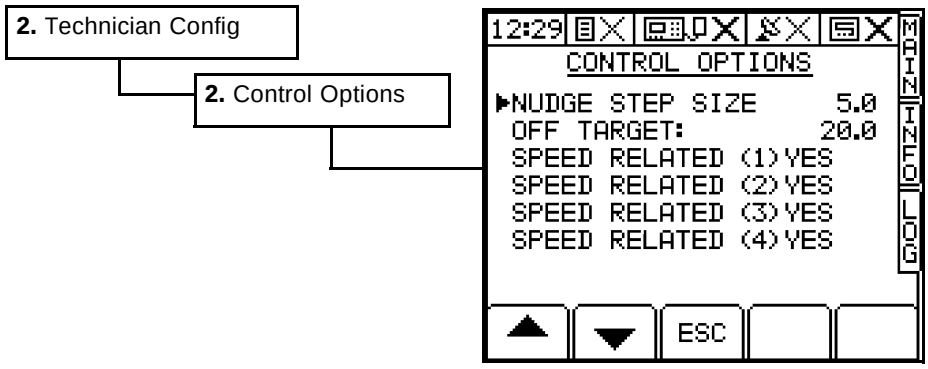
The Application rate display is electronically damped. If the readouts are constantly changing by small increments, you can increase the damping time to give a steadier readout.

If you have more than one "tank" in use, then you can set rate smoothing for each tank.

Adjustable from 0 to 19 seconds. *Default = 2 seconds*

5.2 Control Options

Figure 9
"Control Options" page



5.2.1 Nudge Step Size

The Nudge Step Size sets the % increase / decrease made when you adjust from the target rate in AUTO mode.

Adjustable from 0 to 50% Default = 5%

5.2.2 Off Target Alarm

This sets the threshold at which the instrument will alarm "UNDER APPLICATION" or "OVER APPLICATION" when spraying in automatic control mode. It is set as a percentage either side of the current target rate.

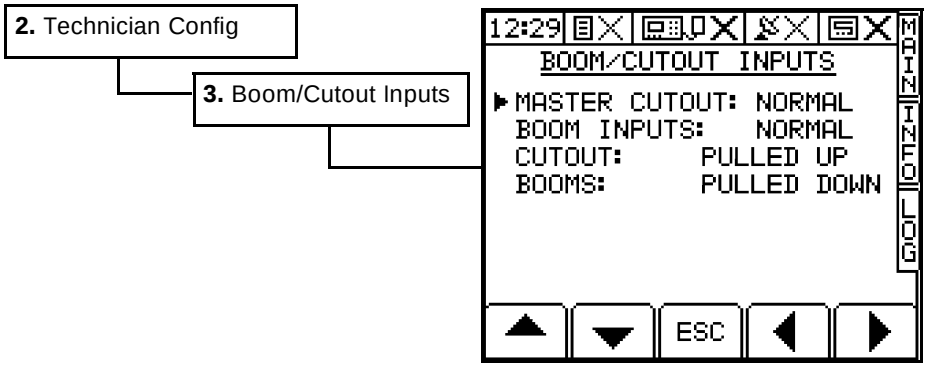
Adjustable from 0 to 50% Default = 20%

5.2.3 SPEED RELATED: Options

Default = "**YES**" - This enables the flow rate to be automatically adjusted according to the forward speed, to match the target application rate (kg/ha) in AUTO mode.

5.3 Boom Cutouts / Inputs

Figure 10
"Boom/Cutouts Inputs" page



NOTE: This screen is common to sprayers, hence reference to "boom" inputs. For the second line "boom inputs", read "channel inputs", and for "booms" read "channels".

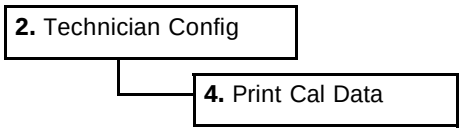
Configure the Master Cutout Input / "Boom" Inputs (i.e Channel Cutout Inputs) as required, using the up/down and left/right arrow keys;

"NORMAL / PULLED UP"	- the input goes to 0V when switched OFF
"NORMAL / PULLED DOWN"	- the input goes to +V when switched ON (default)
"INVERTED / PULLED UP"	- the input goes to 0V when switched ON
"INVERTED / PULLED DOWN"	- the input goes to +V when switched OFF

Default settings are: Master Cutout : Normal / Pulled Up

Boom (Channel) Cutout: Normal / Pulled Down

5.4 Print Calibration Data



It is always a good idea to keep a record of calibration data either in the back of the manual, or as a printout. Connect the printer to the upper serial port. Ensure first that the port has been configured for a printer (section 5.5.1).

Selecting the "PRINT CAL DATA" menu function immediately sends the data to the serial port. The message "**Printer Busy**" is displayed while data transfer is occurring.

If the bar on the screen stops filling up part way, the instrument cannot communicate with the printer. Check the connections.

5.5 Ports Setup - Top Port

5.5.1 Enabling Printer Output

Set the top port to "RDS PRINTER ICP 100" or "RDS PRINTER ICP 200". The data protocol is:

	ICP 100	ICP 200
Baud rate:	4800	4800
Data Bits:	7	8
Stop Bits:	2	1
Parity:	None	None
Handshake:	Hardware	Hardware

These settings cannot be changed. If you are connecting a different printer, it must be conform to either of these protocols.

5.5.2 Connecting an RDS Data Module

Set the top port to "RDS PF MODULE".

5.5.3 Receiving Variable Rate Treatment instructions from other control systems

The *Pro-Series 8000* can act on variable-rate treatment instructions received from from another controller. Presently it can receive instructions from FIELDSTAR (TYPE 1), SOYL OPTI, AGROCOM ACT and HYDRO-N SENSOR instruments.

Set the top port as appropriate.

5.5.4 Direct Transfer of Field Data to a PC

If you are connecting a PC using an RDS Download Lead in order to transfer ordinary field data and job memos, set the top port to "PC DOWNLOAD".

5.6 Ports Setup - Bottom Port

5.6.1 Enabling GPS Input

If the *Pro-Series 8000* is installed with an RDS control system, then set the bottom port to either "GPS (4800) ONLY" or "GPS (9600) ONLY" , according to the baud rate that your GPS receiver has been configured.

5.6.2 Sending Variable Rate Treatment instructions to other control systems

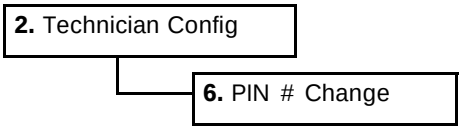
The *Pro-Series 8000* can also output variable-rate instructions to other control systems other than an RDS control system. Currently it can send instructions to Vicon, Bogballe and Amatron systems.

Set the bottom port to the appropriate baud rate/control system option from the menu:

GPS (4800) + VICON
GPS (9600) + VICON
GPS (4800) + BOGBALLE
GPS (9600) + BOGBALLE
GPS (4800) + AMATRON
GPS (9600) + AMATRON

NOTE: Ignore "RDS MODE B" and "RDS DEBUG" options.

5.7 Change PIN for Technician Menu

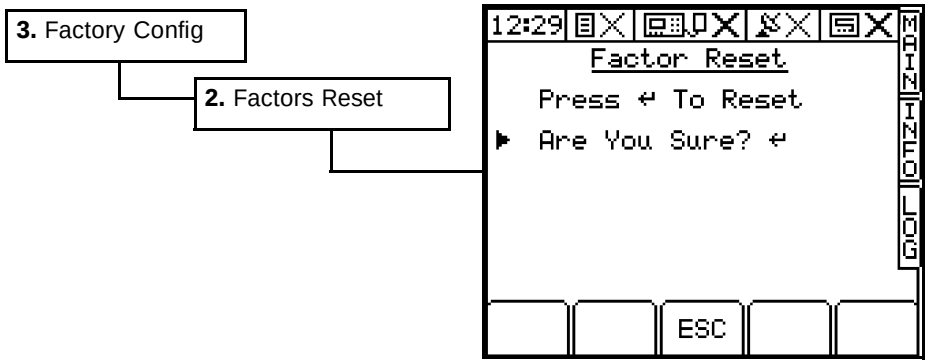


You can re-programme your own PIN for this menu. Just follow the screen instructions.

If you forget your personalised PIN, you will need to contact RDS for instructions.

6.1 Total Software Reset

Figure 11
Resetting the calibration factors to the factory default values



A "FACTOR RESET" should be considered in two instances. Firstly, if the instrument is to be transferred to a different spreader, it may be easier to re-calibrate the instrument from the factory default settings in a systematic way. Secondly, if you are encountering problems with the instrument during operation but cannot successfully resolve them, a total software reset may help in the troubleshooting procedure.

Follow the screen prompts to reset the instrument to the factory default settings.

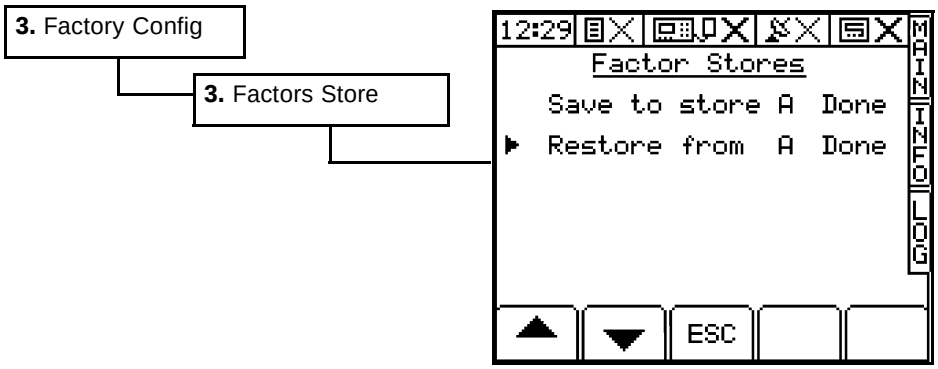
NOTE: **All customised factors and other data will be lost. It is recommended you keep a record of the existing calibration data.**

6.2 Backing Up and Restoring Calibration Data

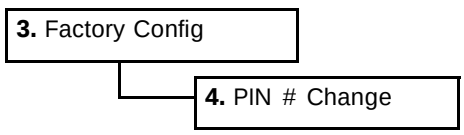
For extra security, calibration data can be manually saved to a separate memory area called "STORE A". This data will NOT be overwritten each time the instrument is switched off, but it WILL be cleared after a Total Software Reset ("RESET FACTORS").

If for example, any calibration data is unwittingly changed without keeping a record of previous settings or data is corrupted, you can restore the calibration data from "STORE A" at any time.

Figure 12
Save / Restore CAL Data



6.3 Change PIN for Factory Configuration Menu



You can re-programme your own PIN for this menu. Just follow the screen instructions. If you forget your personalised PIN, you will need to contact RDS for instructions.

7 User Options

7.1 Set Time and date

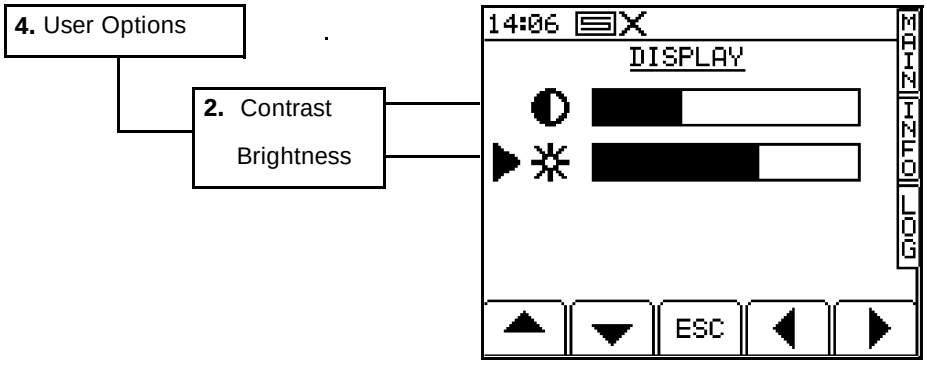
4. User Options

1. Time / Date

If you need to change the time or date setting, position the cursor against the relevant line, key-in the new value and press ↵ .

7.2 Adjust Screen Contrast and Brightness

Figure 13
Adjusting Contrast and Brightness



The screen may go darker at very high or very low temperatures. For example, on a very cold morning it may take a short period of time for the display to gain normal contrast as the instrument warms up. This is a normal characteristic of this type of display and does not mean the display is faulty.

If by accident the contrast setting is adjusted so that the screen graphics can no longer be viewed (i.e. completely light or dark), don't panic! - you can navigate directly to the "DISPLAY" screen by pressing and holding the ✱ key for at least 20 seconds. The instrument will bleep at 0.5 second intervals as long as the key is depressed.

You can then adjust the display using the arrow keys.

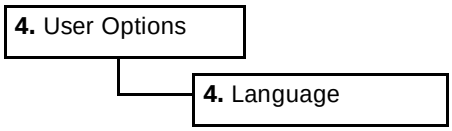
7.3 Set Units

4. User Options

3. Units

Select as appropriate.

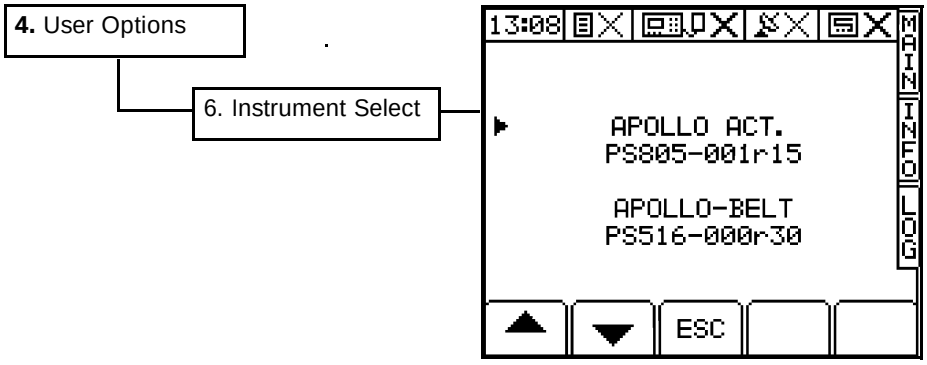
7.4 Select Language



Select the language using the up / down arrow keys and press ↵.

7.5 Select Control Software

Figure 14
Select Control Software



There are two lines displayed. If the head unit does not have a secondary software module fitted, both lines will be the same and switching between them has no effect.

If a software module is fitted, then simply select between the two software options displayed and press ↵ , The instrument will take several seconds to load the control software and then automatically re-start.

8 General PF Setup

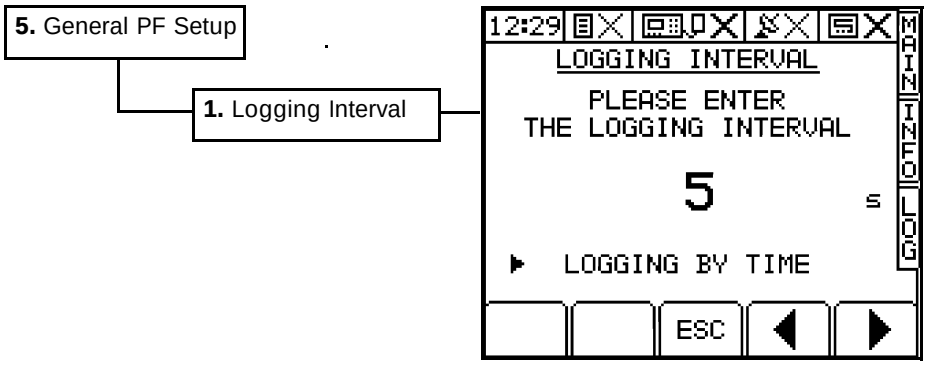
THE PS8000 must be setup to recognise the Data Module (section 5.5.1) and GPS Input (section 5.6.1).

The "GENERAL PF SETUP" menu is common to all PS8000 control software modules PS515-xxx (Sprayers), PS516-xxx (Belt Spreader), PS805-xxx (Disc Spreader) and PS517.xxx (Route / Soil Mapping), and PS302-xxx (Ceres 8000 Yield Monitor) so some settings may not apply in your current application.

For information on connecting and configuring RDS PF *hardware* e.g. the Data Card Module, Secondary Software Module, DGPS Receiver, cables etc, and data transfer to your PC, please refer to the "Precision Farming Supplement".

8.1 Set Logging Interval

Figure 15
Select Control Software



It is recommended that you use the default setting of 5 seconds. This should be adequate for variable-rate treatment and yield mapping.

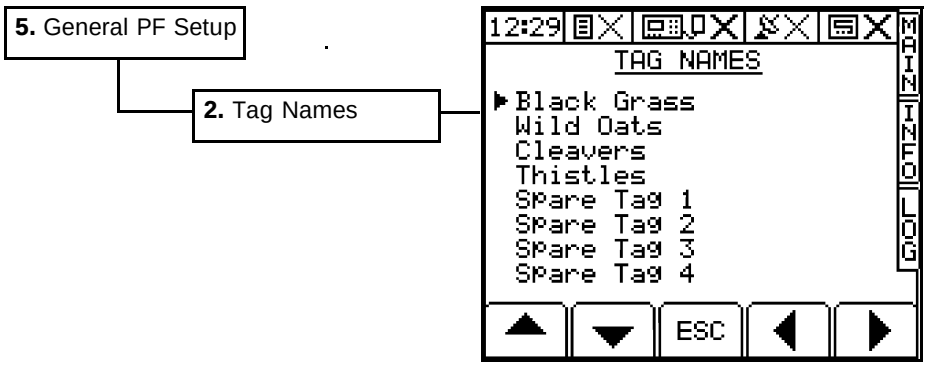
Decreasing the logging interval may affect the responsiveness of the control system and generate very large log files, therefore reducing the number of jobs that can be accommodated on the PCMCIA card. An exception is when you are boundary mapping (where less data is being generated), you can reduce the logging interval to get better definition of the field boundary.

Simply enter the interval value and press ↵ to confirm.

Although the option to select the logging interval by distance is available (using the left / right arrow keys), it no longer recommended you do so.

8.2 Edit Tag Names

Figure 16
Edit Tag Names



Applies to yield mapping only.

While dynamic logging is in progress the operator can switch on or off any of up to 8 'tags' which effectively place markers on subsequent yield maps to denote particular features such as weed patches etc. Each tag can be named (up to 20 characters) to denote its meaning on the yield map. The first 4 tag names are factory preset as:-

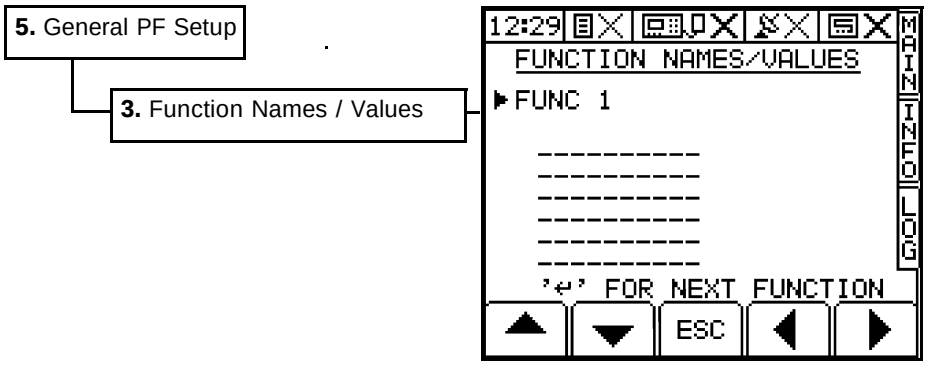
Black Grass
Wild Oats
Cleavers
Thistles

To change a name, first position the menu pointer against a 'Tag number' (fig. 16). Using the RIGHT ARROW key, move the screen cursor across to the tag name and enter the data (up to 20 alpha-numeric characters) via the alpha-numeric keypad.

Press ↵ to confirm the data entry then repeat the procedure as required for further tag names.

8.3 Edit Function Names and Values

Figure 17
Edit default Extended Function Names and values



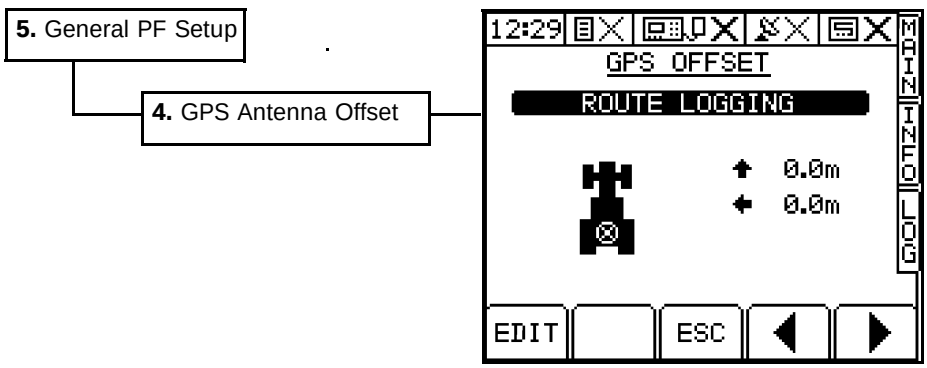
The default settings can be re-programmed for any of the extended data functions (default names = "FUNC 1" - "FUNC 12") e.g. Crop variety, Contractor information etc.

To change a name, first select the function number using the ↵ key (fig. 17). Using the RIGHT ARROW key, move the screen cursor across to the function name and enter the data (up to 20 alpha-numeric characters) via the alpha-numeric keypad.

To enter a value, move the cursor down to the first line and enter the data. You can enter up to 6 lines each of 10 characters.

8.4 Set GPS Antenna Offset

Figure 18
Set GPS Antenna Offset



The "Antenna Offset" allows you to compensate for the difference in position between the GPS antenna and the feature being logged, centre of the spray boom/cutter bar/coulter bar, or the centre point of a spreading pattern. For example you might need a 2 metre side offset for boundary mapping from a quad bike. If you are using a front or rear-mounted sprayer/spreader (or both in some cases), you can make front / rear offsets for up to 4 "tanks".

You can have six separate configurations for,

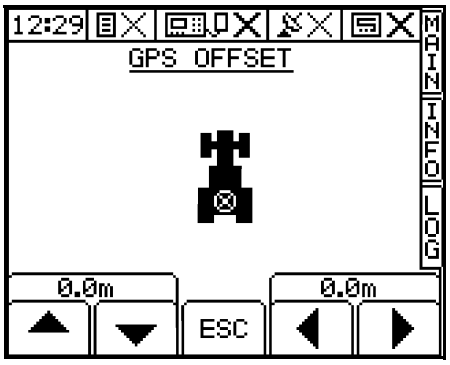
ROUTE LOGGING
SOIL SAMPLING
PLAN CHANNEL 1
PLAN CHANNEL 2
PLAN CHANNEL 3
PLAN CHANNEL 4

(Default for all configurations = no offset).

1 Select the configuration that you wish to edit and press the EDIT key (fig. 18).

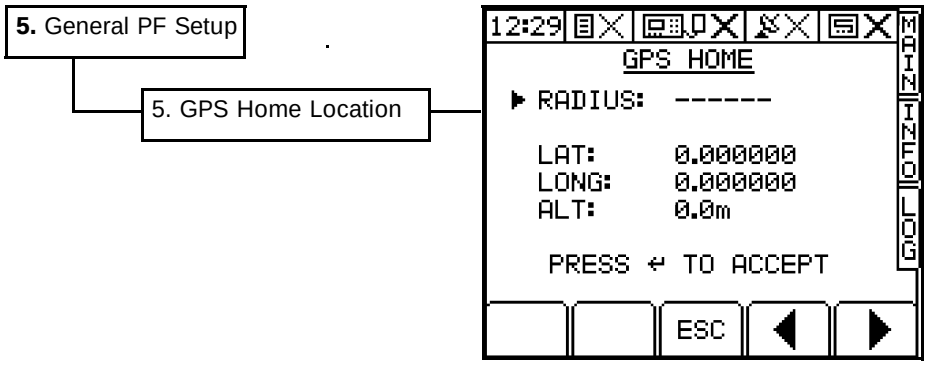
2 Use the arrow keys to offset the antenna position in 0.5 metre increments (fig. 19).

Figure 19
Offsetting the antenna position



8.5 GPS Home Location

Figure 20
Set GPS Antenna Offset



8.5.1 Setting the Home Location and Operating Radius

This page should display your current position from your GPS receiver. Press ↵ to store this position as the "home location" e.g. the farm.

Enter a radius value. Any position received outside the operating radius will be ignored and is assumed to be corrupt data.

8.5.2 Moving to another location

If you subsequently move outside the radius circling the home location, the instrument will automatically reset the "home location" to the current position ONLY IF it receives 10 consecutive, full differential GPS signals.

At any time, you can press the  key to manually set the home location to your current position.

Issue 1 :	25/9/01	For Software Issue PS516-000 rev.30 Previous manual was S/DC/500-10-236 issue 1 covering S/W Issue PS504-019.
Issue 1b:	10/10/01	Ref: pages 17, 18 - clarified section 5.3
Issue 1c:	16/1/02	Correction to section 2.2.4