

GuideTRAX

User Manual

Addendum

Software Version: 3.3

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GuideTRAX User Manual Addendum

Written for GuideTRAX Version 3.3

Publication Date, March 2008

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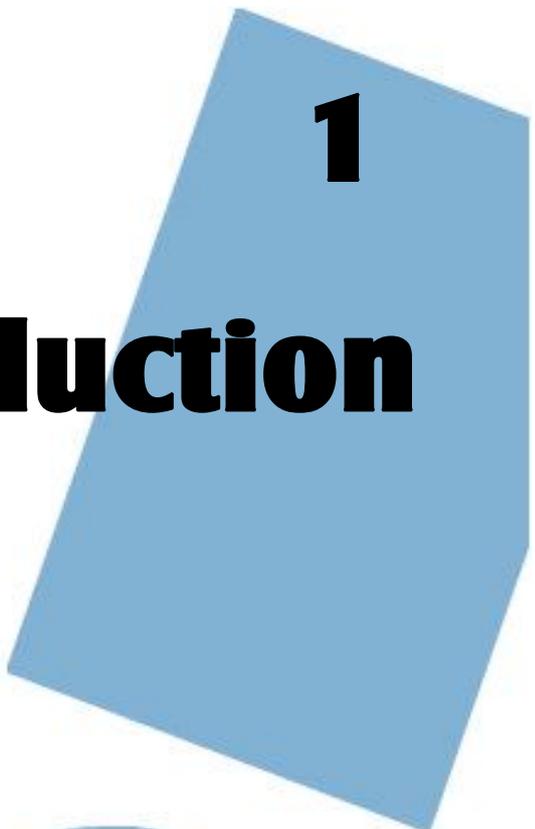
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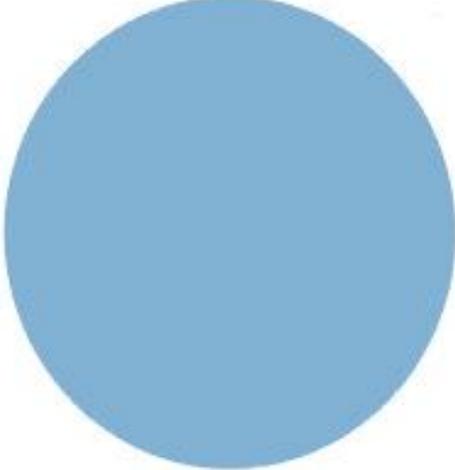
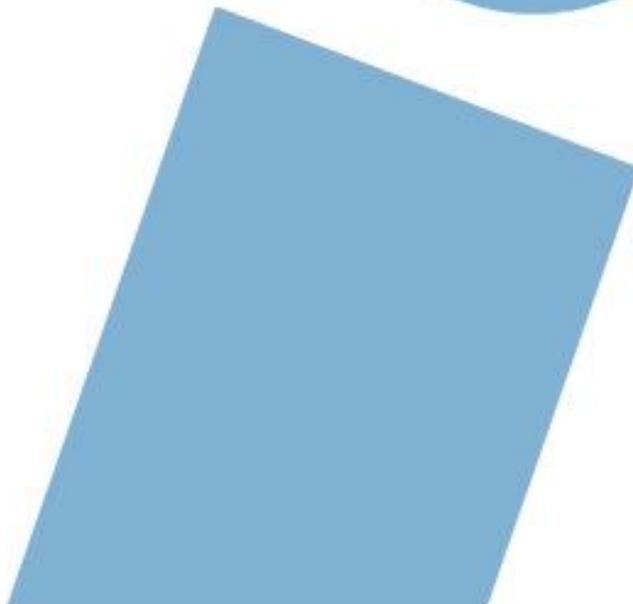
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Introduction

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RINEX design and manufacture GPS guidance systems which consist of both physical hardware components (the computer) and the relevant software.

This manual is designed as an addendum to the GuideTRAX user manual supplied with the GA8500. It should be read in conjunction with the supplied GuideTRAX user manual and the subtle differences between the products will be described in this manual.

1.1 This Manual

This manual is designed for use of the GuideTRAX software operating on the GA8500 guidance system (hardware).

The RINEX Saturn H series hardware has now been superseded by the GA8500 as has GuideTRAX V3.2 with the updated software, GuideTRAX V3.3.

The supplied GuideTRAX V3.2 user manual was explicitly designed and written for use of the GuideTRAX V3.2 software operating on the Saturn H series hardware. Whereas the new GuideTRAX V3.3 software has been developed for use on the new GA8500 hardware, however the operation of the software is largely the same.

Accordingly this manual describes applicable differences for both the hardware and software changes for the products described above.

1.1.1 Applicable Products

This manual covers all three user manuals as listed below. Depending upon the optional items ordered and supplied with the GA8500, will dictate which user manual is supplied with the GA8500.

Part No	Title	Revision
1-1257	GuideTRAX V3.2 (HL) User Manual	A
1-1258	GuideTRAX V3.2 (HT) User Manual	A
1-1259	GuideTRAX V3.2 (HR) User Manual	A

The specific models in the H series, HL / HT /HR have been superseded by the new GA8500, and its optional items as summarised below.

H series	GA8500	GA8500 option
HL	Standard model	None
HT	Standard model	BDR – Basic Data Recording
HR	Standard model	ADR – Advanced Data Recording

A major difference to the new GA8500 model is that any optional items, including AutoSPRAY and AutoSTEER can now be ordered for the GA8500 standard model.

1.1.2 The GA8500

The GA8500, see Figure 1-1, represents the culmination of years of development from RINEX to supply a single body computer system suitable for vehicle guidance and data management in the agricultural sector. The GA8500 incorporates the latest in industrial electronics with miniaturised hardware components, which enables the single body construction of the GA8500.

The new streamlined hardware system minimises the cable clutter and makes the system easier to install, relocate between vehicles and service. The GA8500 has a single interface cable which exists the console at the rear of the screen to the AS300 Hub, for all peripheral connections.

Furthermore the GA8500 incorporates the latest in low power management design which enables the system to operate without cooling fans or large heat sinks. In addition to this the GA8500 has an intelligent power system which can sense ignition status and abnormal input power to protect the computer from fluctuations in vehicle power supply systems.

The operation of the GA8500 and its features are described in Section 2.



Figure 1-1 The GA8500

1.1.3 GuideTRAX V3

GuideTRAX V3 is the software component which provides the guidance and data management tools in an easy to use interface. GuideTRAX V3 is a modular system that can accommodate and grow with different user requirements. GuideTRAX V3 can be expanded with features, such as data recording, AutoSPRAY or AutoSTEER as required by individual farming operations.

GuideTRAX V3.3 has been designed specifically to operate on the GA8500, however it retained the same “look and feel” as the previous version. This allows existing users to start working as quickly as possible with the new products.

This manual describe the necessary changes between the existing user manual supplied with the GA8500 and the current version of GuideTRAX V3.3.

1.2 User Manual Amendments

There are specific sections of the supplied GuideTRAX user manuals which are not applicable to the GA8500.

Wherever the HL, HT or HR manual makes reference to Saturn H series, it should now be in reference to the GA8500 product. Furthermore wherever the manual references to HL, HT or HR model, this should reference the GA8500 standard model plus any applicable optional items. In addition to this when GuideTRAX V3 or V3.2 is stated this should now be in reference to GuideTRAX V3.3.

There are advisory notes for specific sections of all H series user manuals (HL / HT / HR) as follows.

- Section 1.2 The Saturn Series is obsolete and the user is referred to the GA8500 as described in this addendum, see Section 2.
- Section 1.3 The current release of GuideTRAX V3 is now V3.3. The H models in this section have been superseded. The user is referred to specific amendments in Section 3 as described in this addendum.
- Section 2.1 The section on starting the H system is obsolete and the user should see section 2.4.
- Section 2.2 The section on start up screen is obsolete and the user should see Section 3.12.4.
- Section 2.11 The section on recording a treatment is superseded. The RINEX toggle switch is obsolete and the user should see Section 3.1.

1.2.1 GuideTRAX V3.2 HL User Manual

Specific Sections of the HL user manual that should be noted are as follows.

- Section 6.3.4 The information on the external lightbar is obsolete, as the product has been superseded and the GA8500 will not support the external lightbar.

- Section 6.5 The section on activating the Treatment Recoding should be read in conjunction with Section 3.2 of this addendum.
- Section 6.6 The section on using the RINEX button box should be read in conjunction with Section 2.2 and Section 3.3.
- Section 6.7 The section on using the RINEX foot switch should be read in conjunction with Section 2.2 and Section 3.3.
- Section 8.1 The section on opening the Launcher is obsolete and the user is should Section 3.4.1.
- Section 8.2.4 The GA8500 does not support either the original JD StarFire™ configuration software, of the Terminal software.
- Section 8.2.5 The GA8500 does not PCAN view software and the HBOX test has been upgrade to System Test.
- Section 8.2.5.1 The GA8500 does not use the Datalux or RNX screen controllers.
- Appendix 2 The GA8500 specifications are supplied in Appendix 1 of this Addendum.

1.2.2 GuideTRAX V3.2 HT User Manual

Specific Sections of the HT user manual that should be noted are as follows.

- Section 6.3.4 The information on the external lightbar is obsolete, as the product has been superseded and the GA8500 will not support the external lightbar.
- Section 6.5 The section on activating the Treatment Recording should be read in conjunction with Section 3.2 of this manual.
- Section 6.6 The section on using the RINEX button box should be read in conjunction with Section 2.2 and Section 3.3. of this manual.
- Section 6.7 The section on using the RINEX foot switch should be read in conjunction with Section 2.2 and Section 3.3.

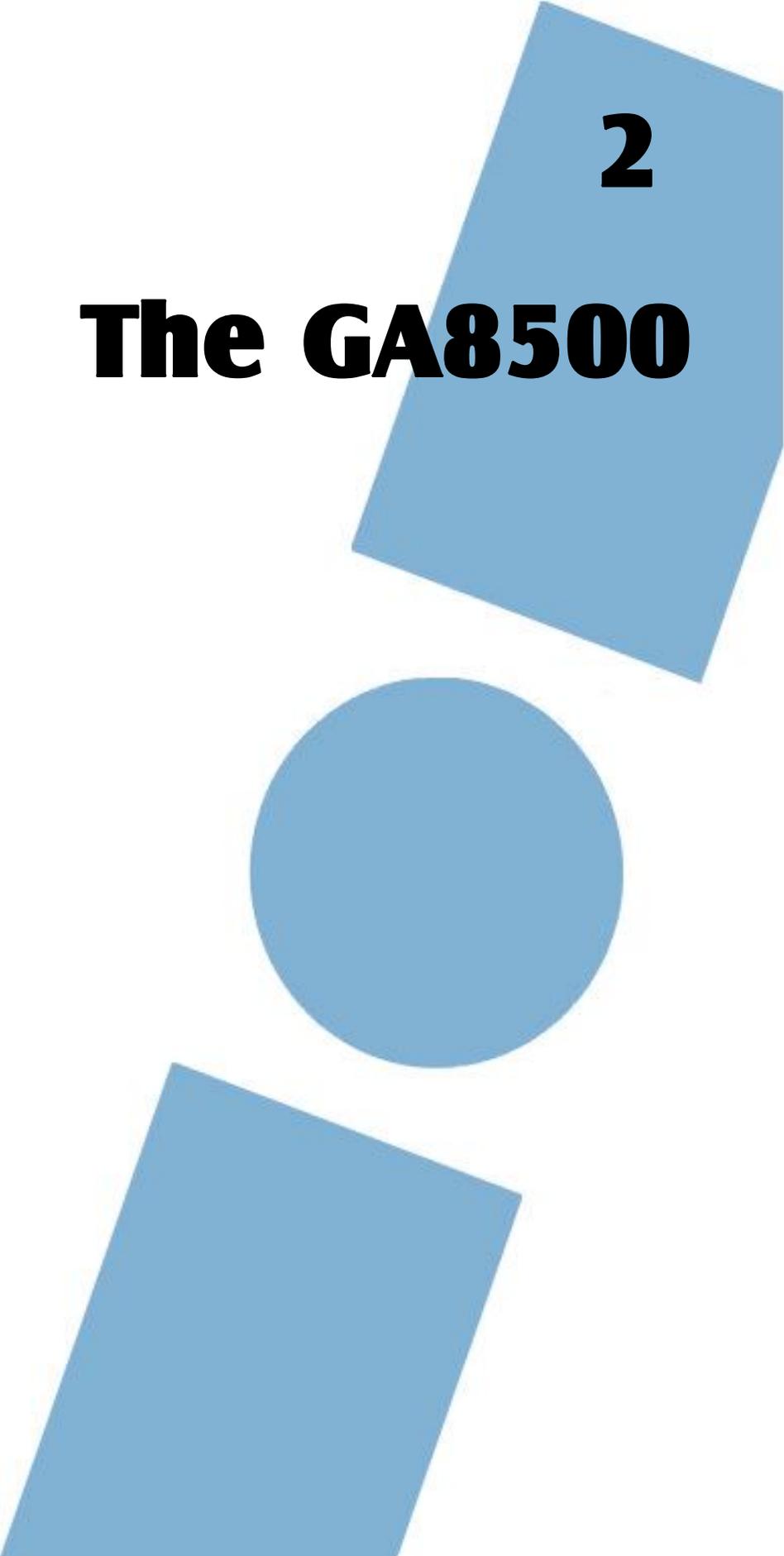
- Section 8.1 The AutoSPRAY overview shown in Figure 8-2 has been superseded.
- Section 9 The GA8500 does not support the Beeline Arro product.
- Section 10.2.1 The GA8500 utilises the USB port on the left hand side of the screen for connection of the FieldNET radios.
- Section 11.1 The section on opening the Launcher is obsolete and the user is should Section 3.4.1.
- Section 11.2.4 The GA8500 does not support either the original JD StarFire™ configuration software, of the Terminal software.
- Section 11.2.5 The GA8500 does not PCAN view software and the HBOX test has been upgrade to System Test.
- Appendix 2 The GA8500 specifications are supplied in Appendix 1 of this Addendum.

1.2.3 GuideTRAX V3.2 HR User Manual

Specific Sections of the HR user manual that should be noted are as follows.

- Section 6.3.4 The information on the external lightbar is obsolete, as the product has been superseded and the GA8500 will not support the external lightbar.
- Section 6.6 The section on activating the Treatment Recoding should be read in conjunction with Section 3.2 of this manual.
- Section 6.7 The section on using the RINEX button box should be read in conjunction with Section 2.2 and Section 3.3. of this manual.
- Section 6.8 The section on using the RINEX foot switch should be read in conjunction with Section 2.2 and Section 3.3.
- Section 10 The GA8500 does not support the Beeline Arro product.

- Section 11.2.1 The GA8500 utilises the USB port on the left hand side of the screen for connection of the FieldNET radios.
- Section 12.1 The section on opening the Launcher is obsolete and the user is should Section 3.4.1.
- Section 12.2.4 The GA8500 does not support either the original JD StarFire™ configuration software, of the Terminal software.
- Section 12.2.5 The GA8500 does not PCAN view software and the HBOX test has been upgrade to System Test.
- Section 12.2.6 The GA8500 does not use the Datalux or RNX screen controllers.
- Appendix 2 The GA8500 specifications are supplied in Appendix 1 of this Addendum.



2

The GA8500

The new GA8500 is based on a full colour 22cm touch screen from RINEX. The screen is daylight viewable and touch sensitive which provides a fully graphical user interface which is easy to operate in a moving vehicle. To operate any function on the system it is a simple case of touching the screen on the appropriate button.

The GA8500 should be securely attached to the vehicle in accordance with the installation manual. The GA8500 has a rear mounted RAM[®] ball and numerous mounting brackets are available from RINEX.

This section describes the correct method for powering the GA8500 On and Off and the various parts of the system. The GA8500 will connect with a number of peripheral components and identification of the connection ports is critical for correct operation of the GA8500. Understanding the terminology of the various parts of the system is important as the manual refers to these parts when describing the functions of the GA8500.

2.1 The GA8500 Components

The GA8500 consists of two main components, the touch screen, or console as it is sometimes referred to, and the AS300 Hub, or junction connector. These components are shown in Figure 2-1.



Figure 2-1 The GA8500 and AS300

The GA8500 system specifications are shown in Appendix 1.

The GA8500 features a row of buttons along the top panel of the console, which are described in Section Top Panel Buttons 2.2.

A USB port is located on the left hand side of the touch screen. The USB port is used for transfer of data and uploading of new software.

The AS300 Hub is used for connecting all other devices and the 12Vdc input power. This is described in Section 2.3

2.2 Top Panel Buttons

The GA8500 features a row of buttons along the top of the console. There is a total of seven buttons of which three are preconfigured for specific operations.

The power control button enables the unit to be switched On and Off under normal operating conditions. The screen control buttons enable the screen brightness to be varied for optimal display performance.

The location of the top panel buttons are shown in Figure 2-2 below.



Figure 2-2: The GA8500 Top Panel Buttons

The remaining four buttons, see Figure 2-3, can be configured for commonly used functions. They can be programmed to perform user-defined functions, such as zooming in and out on the screen map, and activating guidance functions. See Section 3.3 for further details.

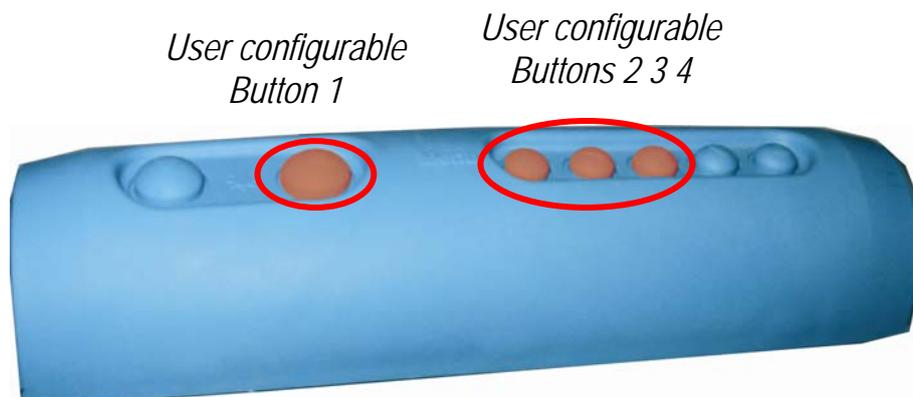


Figure 2-3: The GA8500 User Configurable Buttons

2.3 The AS300 Hub

The AS300 Hub is used for connecting all peripheral components to the GA8500 system. The AS300 Hub is also used to supply DC power to the GA8500 console. The AS300 Hub is shown in Figure 2-4.



Figure 2-4 The AS300 Hub

The AS300 Hub specifications are provided in Appendix 1.

GPS receivers should be connected to Port B of the AS300 Hub, should the GPS receiver be configured for CANbus operations it will be necessary to connect the receiver to the CANbus port and not Port B.

Peripheral spray rate controllers and the RINEX GPSteer controller should be connected to Port A.

It should be noted that CANbus devices are not all standard pinouts and users should seek confirmation that device they wish to connect with the AS300 Hub is compatible.

The Control Port is used for detecting status of peripheral switches (such as spreader On / Off switch) which will then activate the treatment recording on the GA8500, see Section 3.2 for further details.

The AMP 16pin plug on the AS300 Hub is for connection to AutoSPRAY cables. The AS300 Hub connector port is compatible with existing RINEX AutoSPRAY devices.

2.4 The GA8500 Power Management System

The GA8500 is designed to operate directly from a clean 12Vdc power supply, as supplied in standard agricultural machinery. The power supply system will operate in the range of 9 to 16V dc and provide a clean continuous 12Vdc for the internal processors.

Furthermore the GA8500 power management system has been designed to operate (start / stop) in an intuitive way for the user. By default the system will be started and stopped using the Power Control switch as shown in Figure 2-2. However the GA8500 can also sense (optional power cable required) when the vehicle is started and stopped, and cause the GA8500 to start and stop respectively.

While the power supply has been designed to operate in a wide range of voltages, the GA8500 should not be started while cranking the vehicle's engine as this will cause erratic voltages.

2.4.1 The GA8500 Power Control Switch

The GA8500 detects when DC power is connected to the systems and emits two short beeps. This will not start the system.

Press the Power Control button, as shown in Figure 2-2, to start the system and one long beep will be heard. Release the button and the GA8500 will start to operate. Several screens will be displayed during the start up process, these are described in Section 3.1

If the button is held down for a longer period, two shorter beeps will be heard. This indicates that the system will start up in Launcher mode, see Section 3.4 for further details. If Launcher mode is accidentally started, select the top option "Start GuideTRAX" to return to normal operation.

To turn the GA8500 Off, press **and hold** the top panel power button until one beep is heard. The system will display a shutdown progress screen while it is saving data and settings. At the completion of this process, power will be removed from the system.

2.4.2 The GA8500 Ignition Sense Switch

The GA8500 can be configured so that it will start and stop as the vehicle's engine is started and stopped. This is convenient for some

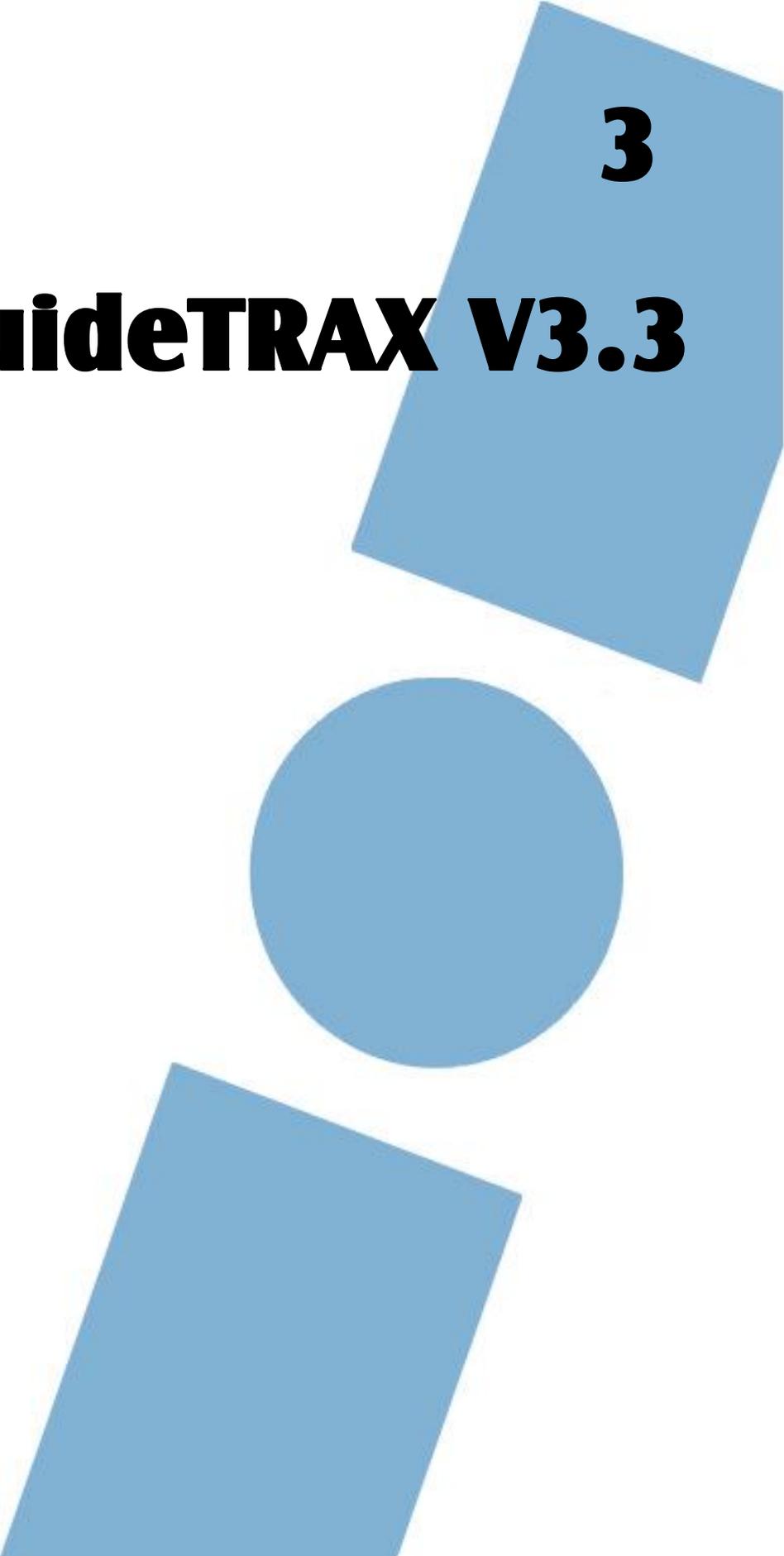
users so that the GA8500 can be used without any other switches being required.

The GA8500 must be installed with the optional power cable which contains an ignition sense wire. The system will start up and shut down with the vehicle, when the ignition key is turned. No further user intervention is required. The system will start and display messages as denoted above.

Similarly to shut the system down the GA8500 will commence the shut down process described above once the vehicle's engine has been switched Off.

Hints and Tips:

- ◆ *Do not turn the system off by removing power to the GA8500. Shutting down the system in this way may cause the loss of important system information.*
- ◆ *If the GA8500 does not respond to either the ignition switch or pressing the power button to shut down, the user may choose to force a shut down. Press and hold the power button for five seconds, after which time the system will sound three beeps. Release the power button and the system will turn off. Forcing a shut down should only be used as a last resort, as system data and settings may be lost as a result. If it necessary to regularly force a shutdown to turn the system off, it is recommend that the user contact RINEX to correct the source of the problem.*
- ◆ *It should be noted that the Power Control Switch will override the ignition switch.*



3

GuideTRAX V3.3

GuideTRAX V3.3 is the latest software from RINEX and is designed specifically to operate with the GA8500. It incorporates all major features of previous GuideTRAX software versions where RINEX has earned its reputation as the easiest software to operate. Specifically GuideTRAX V3.3 utilises the functionality of the GA8500 features to continue this status and provide a system for smart guidance, made simple.

This section describes the specific changes that have been made to the previous GuideTRAX V3.2. In essence the vast majority of the User Manuals in V3.2 are perfectly valid, and where necessary the changes are described in this section of the addendum.

3.1 The Start Up Screens

As the GA8500 is being powered up several screens will appear as it goes through the start up phase, the GuideTRAX V3 will be displayed as shown in Figure 3-1 confirming operation of the GA8500. Once the system is completely operational the main guidance screen will be displayed as shown in Figure 3-2.



Figure 3-1: The GA8500 Splash Screen

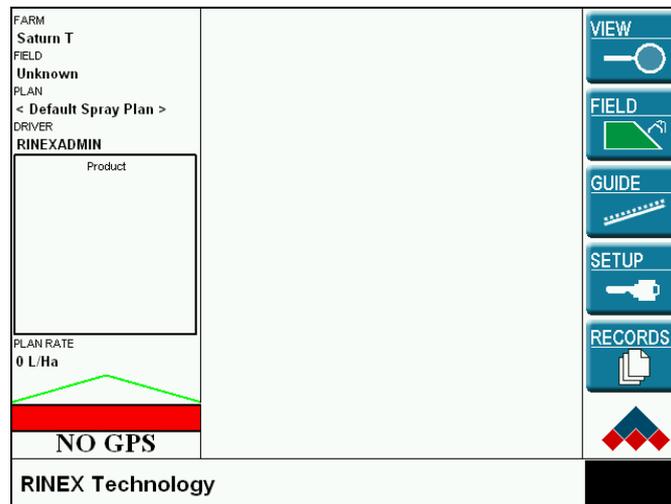


Figure 3-2: The Main Screen

3.2 Setting the Remote Master Switch

In order to record where a treatment, or application, is actually started and stopped GuideTRAX V3 can be configured in several formats for individual user requirements. This action is often referred to as the Master Switch, or if remotely connected to the GA8500, as the Remote Master Switch.

GuideTRAX V3 is compatible with numerous flow controllers and can detect when the flow controller Master Switch has been toggled. This then starts and stops the treatment recording within GuideTRAX V3.

Furthermore it is possible to sense when a 12Vdc switch has been toggled by observing the voltage applied at the switch. Detecting when the voltage has been set to 12Vdc will start the treatment recording within GuideTRAX. The AS300 Hub incorporates voltage sensing for a constant 12Vdc source, or a pulse 12Vdc switch to start and stop treatment recording.

A summary of the options for the use of a Master Switch is shown in Table 3-1.

INPUT REQUIRED	DESCRIPTION	MASTER SWITCH
User touches screen	Touch vehicle icon in map screen, or vehicle bonnet in Virtual Road screen on touch screen	Touch
12Vdc pulse from external device	Connect sense wire from switch to Control Port D. Ensure that Remote Input is be set to Rove / Record in Remote Buttons	Touch
12Vdc (constant) from external device	Connect sense wire from switch to Control Port C.	Sense
Master Switch on flow controller with AutoSPRAY	Connect relevant AutoSPRAY cable to AutoSPRAY port	Sense
Master Switch (dipole) on flow controller with AutoSPRAY	Connect relevant AutoSPRAY cable to AutoSPRAY port	Sense Dipole
Master Switch on flow controller (serial protocol)	Connect relevant RINEX data cable to Port A. Flow controller (serial interface protocol) must be compatible with RINEX systems, set correct Flow Controller in Flow Controller page	Flow Control
Master Switch on flow controller (CANbus protocol)	Connect relevant RINEX data cable to Port CANbus. Flow controller (CANBus interface protocol) must be compatible with RINEX systems, set correct Flow Controller in Flow Controller page	Flow Control

Table 3-1: Remote Master Switch Summary

Remote Master – 12V dc sense

To set the Master Switch in GuideTRAX V3 to use a 12Vdc sense line, as shown in Table 3-1 follow the steps below. The steps commence from the main screen as shown in Figure 3-2.

This example sets the Remote Master Switch for a 12Vdc switch on Control Port C. The instructions for installation of a toggle switch and connecting it to the AS300 Hub can be found in the GA8500 Installation Manual.

- 1) Touch **SETUP VEHICLE SETUP SWITCH SETUP**
- 2) Toggle Master Switch to **SENSE** as shown in Figure 3-3

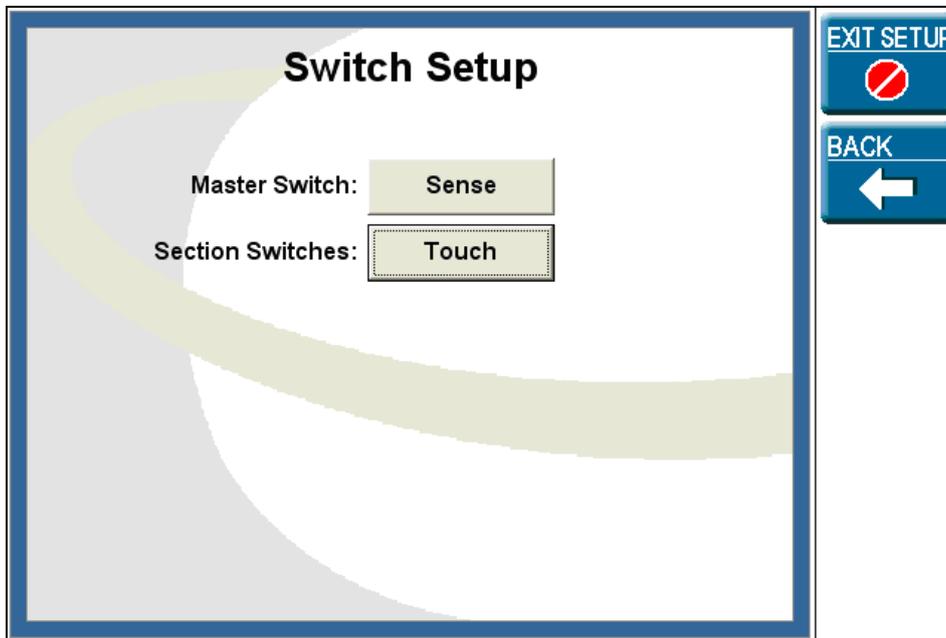


Figure 3-3: Switch Setup Window

- 3) Touch **EXIT SETUP** to return to the Main menu.

Remote Master – 12V dc dipole

To use dipole switch connected to the AutoSPRAY connector as shown in Table 3-1 follow the steps below. The steps commence from the main screen as shown in Figure 3-2.

This example sets the Remote Master Switch for a 12Vdc dipole switch on the AutoSPRAY connector.

- 1) Touch **SETUP VEHICLE SETUP SWITCH SETUP**
- 2) Touch **SWITCH SETUP**
- 3) Set Master Switch to **SENSE DIPOLE** as shown in Figure 3-4.

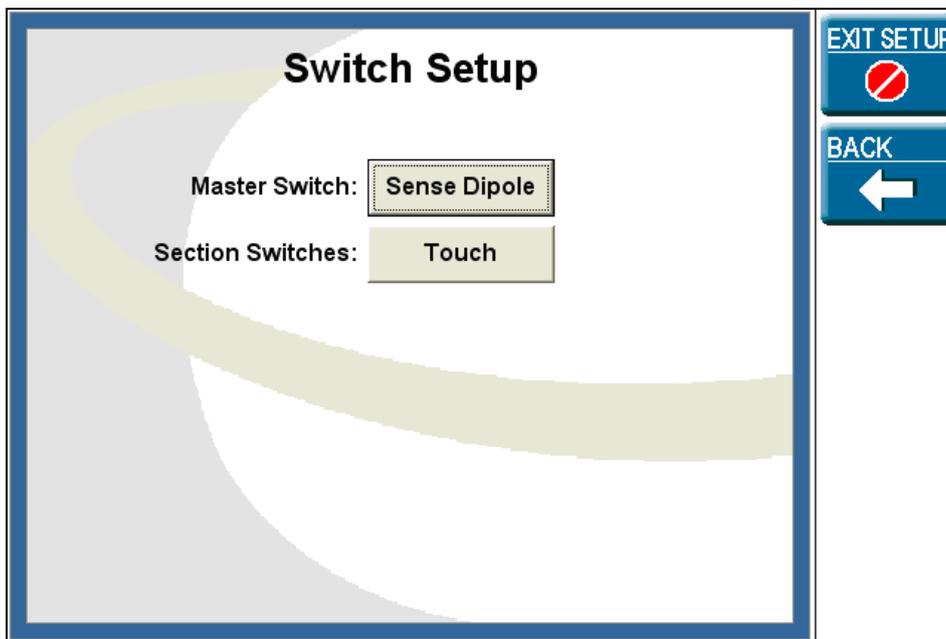


Figure 3-4: Switch Setup Window

- 4) Touch **EXIT SETUP** to return to the Main menu.

3.3 Setting the Remote Buttons

The GA8500 has four user configurable buttons which can be used as “Hot” keys or buttons for selected functions. The buttons, 1 to 4, are shown in Figure 2-3. The buttons can be programmed using the Remote Buttons function of the GuideTRAX V3 software.

In addition to this the AS300 Hub has one Remote Input line which is also user configurable, the same as the “Hot” keys.

Programming the Remote Buttons

The user-defined buttons can be programmed using the Remote Buttons function of the GuideTRAX V3 software.

Access: **SETUP MORE REMOTE BUTTONS**

The default settings for each button are shown in Figure 3-5.

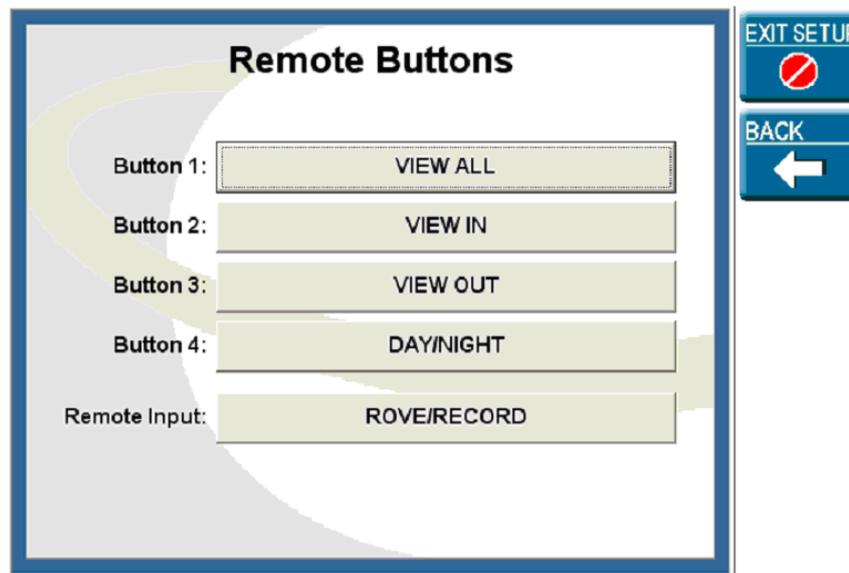


Figure 3-5 Buttons Setup Window

These settings can be changed for each button by touching on the value assigned to that button. The functions which may be assigned to the buttons are listed in Table 6-1 of the GuideTRAX V3.2 User Manual.

Remote Input

The Remote Input line is configured to the Control Port D of the AS300 Hub as shown in Figure 2-4. The Remote Input line requires a momentary 12Vdc, “pulse” signal to toggle the switch On and Off.

3.4 The Launcher

The Launcher comprises of several utilities to assist in the configuration of the GuideTRAX V3 software and the GA8500 system.

3.4.1 Opening the Launcher

The Launcher is not accessed directly from the GuideTRAX V3 software as it is not used on a regular basis. The Launcher must be started from the power Off position, then hold the Power Control button, shown in Figure 2-2, for approximately two seconds until two short beeps are heard. Releasing the Power Control button will then cause the GA8500 to start into the Launcher program. The main screen of the Launcher program is shown in Figure 3-6.

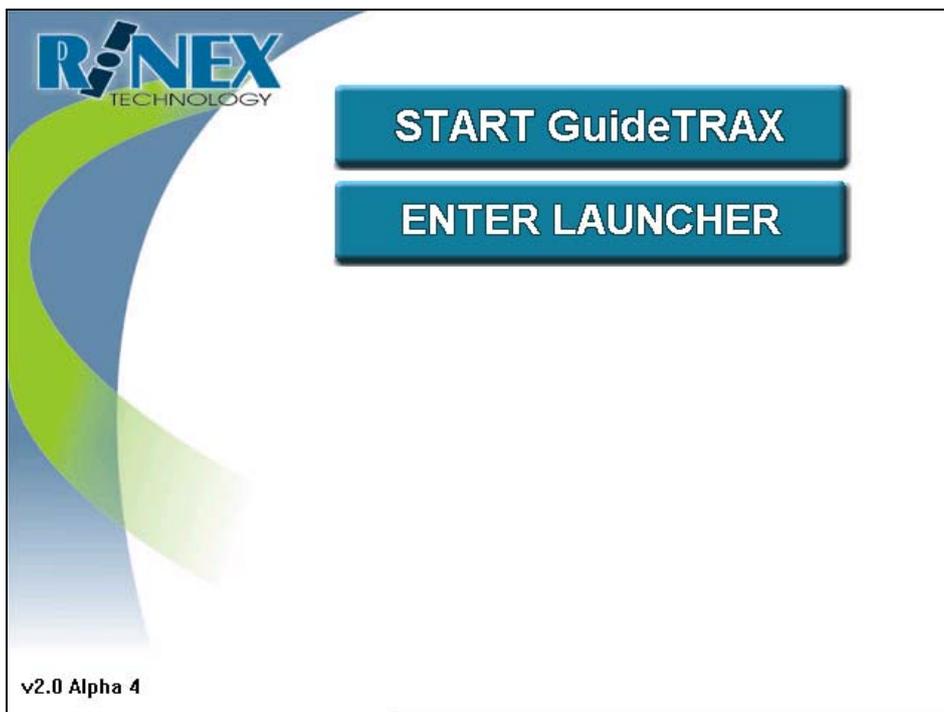


Figure 3-6: The Launcher Main Screen



Appendix

APPENDIX 1 GA8500 GUIDANCE SYSTEM

GA8500 console

Physical	→ Size → Weight → Cable	230 (w) x 215 (h) x 70 (d) mm 1920grams 200mm
Environmental	→ Operating Temperature → Storage temperature	0°C to +50°C -10°C to 60°C
Display	→ Graphical / daylight viewable → Size → Touch sensitive	450Nit 215mm diagonal Yes
Construction	→ Casing → Top panel grip	UV stabilised, automotive plastic Rubber moulded
User Buttons	→ Seven buttons	Top panel
Data Input / Output	→ USB x 1	male (v2.0 compatible)
Cable	→ AS300hub interface	0.2m

AS300 Hub

Physical	→ Size → Weight → Cable	180 (w) x 80 (h) x 60 (d) mm 1000grams 2800mm
Environmental	→ Operating Temperature → Storage temperature	0°C to +50°C -10°C to 60°C
Construction	→ Casing	UV stabilised, automotive plastic
Data Input / Output	→ Serial x 2 → CANbus x 1 → AutoSPRAY x 1	Plug type / D9 male Plug type / D9 male Plug type / AMP 16pin male
DC power	→ 9-16Vdc @ 30W	self resetting fuse
AutoSPRAY Control	→ Voltage communications → Digital communications	13 sections max 2A per section (8A max) 30 sections max
Control Line	→ 12Vdc detection x 2	constant and pulse
Cable	→ GA8500 interface	2.8m

Notes:

All specifications are subject to change without notice