Quick Reference Guide

Envizio Pro™ & Envizio Pro II™

Overview

The Envizio Pro and Envizio Pro II are all-in-one field computers capable of providing product control for up to four products (with required activation key), supplying GPS information to other in-cab devices, and providing on-screen guidance during field applications. All of these features may be controlled at the same time with an easy to use touch screen.

Several optional systems are available to enhance field operation or data management.

Refer to the *Envizio Pro and Envizio Pro II Installation and Operation Manual* or contact a local Raven dealer for more information or a complete list of optional features or components available for use with the field computer.

Startup

To power up the Envizio Pro or Envizio Pro II, press the power button located on the right side of the field computer.

USB Port

Do's and Don'ts

Do have the serial number and firmware revision available when calling for technical assistance. It is best if the user is in the machine and in front of the field computer when calling for support.

Do review the manual in its entirety before operating the field computer.

Don't turn the field computer off without properly closing any open jobs and powering down the computer. If the field computer loses power during a job, information within the job files may be lost and the associated files may become corrupt.

Don't use sharp objects or harsh chemicals on the field computer touch screen as they may damage the display.

Home Screen 🏠

Touch 🏠 anywhere it appears to return to the **Home** screen.

Touch the:

Start Job icon to begin a new job or resume an existing job.

Tools icon to access the **Tools Menu**. The **Tools Menu** contains the settings and calibrations for the field computer and control system.

Shutdown icon to power down the field computer. The Shutdown icon only appears when a job is not in progress. Be sure to shutdown the console before switching the computer off.

End Job icon to close a job in progress. The End job icon only appears if a job is in progress and replaces the Shutdown icon on the Home screen.

Info icon in the upper, right corner of the display to view the current software and firmware versions of the field computer. If the field computer is connected to a CANbus system, additional system information is available by selecting the 🔲 on the 'About Envizio Pro' screen.

GPS Status Indicator

The status of GPS reception and the currently selected correction source is displayed in the upper, left corner of the **Home** screen. When the following icon appears:

DGPS is O.K.

The field computer has encountered a DGPS warning condition.

No DGPS position is available.

Touch the **GPS Status** indicator on the **Home** screen to display the **GPS Health** screen. For more information regarding the GPS Status and Status Indicator icons, refer to the *Envizio Pro and Envizio Pro II Installation and Operation Manual*.

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Wireless Communications Status

The current status of wireless communication is displayed along the top of the Home screen display. This icon will appear:

 Gray if no wireless communications device is connected to the field computer.

 Green if communication is okay.

 Yellow if an error condition has been encountered.
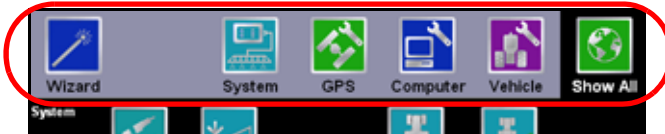
 Red if wireless communication is not available.

Touch the shield icon to display the Wireless Status screen. For more information regarding the Wireless Status and Status Indicator icons, refer to the *Envizio Pro and Envizio Pro II Installation and Operation Manual*.

Tools Menu ✖

The following sections offer an overview of the **Tools Menu** and some of the features available within the **System**, **GPS**, **Computer**, **Vehicle**, and **Setup Wizard** menus.

Quick Access Bar

While working in the **Tools Menu**, the **Quick Access Bar** remains at the top of the screen and allows access to the **Setup Wizard**, **System**, **GPS**, **Computer**, and **Vehicle** menus.

Touch the **Show All** icon to view all available menus within the **Tools Menu**.

Setup Wizard Menu

Touch the **Setup Wizard Menu** icon in the **Quick Access Bar** to display the available Setup Wizards. The Setup Wizards may be used to step through calibration of the field computer for a new machine or implement similar to the Initial Setup Wizard.

For more information or help completing the Setup Wizards, see the *Envizio Pro and Envizio Pro II Installation and Operation Manual*.

System 🖳

Access the **System** menu to set up the product control system, or configure the optional AccuBoom, AutoBoom or SmarTrax systems. The System menu also contains the setup screens for the optional TM-1 Tilt Module and the on-screen or external light bar.

To Retry the CANbus Connection:

If the field computer does not recognize CAN nodes when the computer is first powered up, the CANbus connection may need to be restarted.

1. From the **Home** screen, touch ℹ️ ➡️ 🔲 ➡️ 🔲

2. When prompted, touch the ✅ to confirm and retry CANbus communication.

If CANbus communication is not re-established, refer to the *Envizio Pro and Envizio Pro II Installation and Operation Manual* for troubleshooting information and assistance.

Vehicle 🚜

Access the **Vehicle** menu to set up or modify vehicle profiles for each machine or implement with which the field computer will be used. Profiles allow the operator to set up GPS antenna heights and offsets as well as the swath width and section setup for each implement and transfer those settings to a home or office PC, another Envizio Pro or Envizio Pro II, or reload the Profile at a later date.

To Edit Profiles:

1. From the **Home** screen, touch:

Tools Menu 🔧 ➡️ **Vehicle Menu** 🚜 ➡️ **Profiles** 🗂️

2. The **Profile Manager** screen displays with the currently loaded profile highlighted in the list of profiles stored on the field computer.

To Create a New Profile:

Touch the ▢ icon and use the on-screen keyboard to enter the desired profile name.

To Save a Profile:

Touch the desired profile name in the list and select the **Save Profile** button. The current settings will be saved to the highlighted profile.

To Load a Profile:

Touch the desired profile name in the list and select the **Load Profile** button.

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Computer

The **Computer** menu sets display and feature settings of the field computer. Access the Computer menu to change the display brightness, lightbar sensitivity, language, and units, as well as activate features or update the field computer software.

File Maintenance

The File Maintenance feature allows the operator to transfer files to and from the field computer. Files such as saved field boundaries or guidance paths, coverage maps for completed jobs, and prescription maps may be transferred using the following procedure.

To Perform File Maintenance:

1. From the **Home** screen, select:

Tools Menu ![icon] ➡ **Computer Menu** ![icon] ➡ **File Maintenance** ![icon]

Note: If the USB flash drive has not been previously used with the field computer, touch the ![icon] icon to set up the required file structure on the connected drive.

2. Select the type of files on which to perform file maintenance.

3. Select the following icons to transfer files to the console or a connected USB flash drive.

From Console ![icon]   To Console ![icon]

For example, select **Job Files** and **From Console** to display the Job Files screen shown to the right.

4. Select a file name from the list and touch the icon along the bottom of the screen. The field computer will perform one of the following actions to the selected file or file type.

Transfer to USB   Delete
![icons]
All   Selected   All   Selected

Export Slingshot™ Data Package to USB
![icons]
All   Selected

File Types

For example, touch the ![icon] to transfer all files of the selected file type to the connected flash drive or select a file name from the list and touch ![icon] to transfer the selected file to the flash drive.

Updates

Updates for field computer software are available at the Raven Applied Technology Division web site:

www.ravenprecision.com

To Apply the Latest Software Update:

1. Visit the Raven web site and download the latest software update.
2. Unzip or extract the downloaded software to the root directory (i.e. "F:\" where F is the drive letter of the flash drive) of the flash drive used with the field computer.
3. With the computer powered on, insert the flash drive into a USB port on the field computer.
4. From the **Home** screen, select:

Tools Menu ➡ **Computer Menu** ➡ **Updates**

5. Select the update to apply and touch the icon.
6. Once the update is complete, restart the field computer to finish the update procedure.

GPS

Use the **GPS** menu to adjust the internal GPS receiver or to enable the field computer to receive DGPS from an external receiver. The GPS menu also contains screens to review the status of GPS reception, set message outputs (for the internal DGPS receiver only), enable GPS reverse sensing or select the differential satellite PRN (Pseudo-Random Noise).

To Setup GPS Message Outputs:

1. From the **Home** screen, touch:

Tools Menu ➡ **GPS Menu** ➡ **Output**

The **GPS Output** screen will display the available output messages, the current output frequency of each message and the available baud rate settings for the internal GPS receiver.

2. Use the slider bar next to the desired output messages to set the output frequency, in hertz, for each message.
3. Select the desired baud rate for the output messages from the list on the right side of the screen.

Start a Job ▶

1. To begin a job, touch the ▶ icon on the Home screen.

   The **Start Job - Verify Settings** screen will be displayed.

   By default, the field computer creates a new job when the **Start Job - Verify Settings** screen is

   displayed. Touch the ✖ at any

   time to cancel the job setup process.

2. The 📧 icon displays the current direction of travel detected by the field computer. If this indicator displays the direction of travel incorrectly, touch the icon to manually toggle the course direction for the current or last direction of travel.

3. Touch **Job** button and select the **Create New** 📄 icon along the top of the screen to rename the new job file or select a previous job file from the list.

4. When finished, touch the ✔ icon to return to the **Start Job - Verify Settings** screen.

5. Touch the **Pattern** button to select one of the available Guidance patterns for the job:

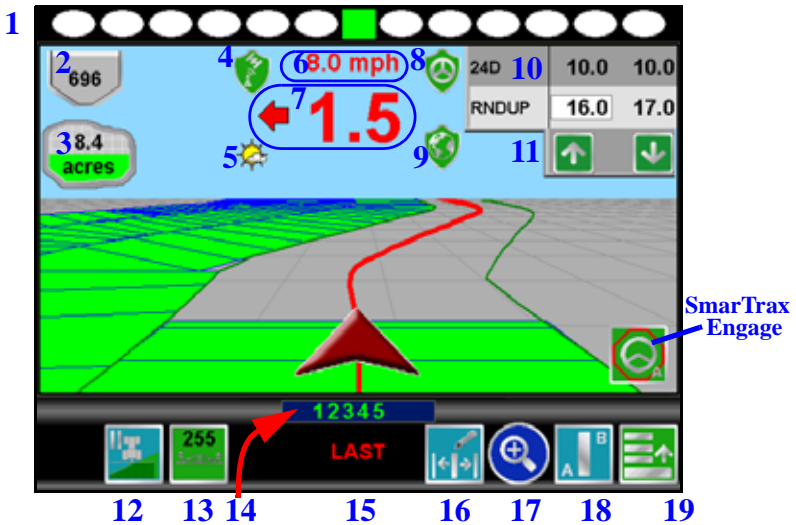   Enhanced Last Pass   Straight (A-B) Line   Fixed Contour   Pivot

6. If the optional AccuBoom feature will be used, touch the **AccuBoom** button to enable the feature. To create or load a spray zone map, select the **'Use Zone Map'** option.

7. Touch the **Product** buttons to select the control mode and set the target application rate for the job.

   Note: If the CAN Switch Box is installed, the product control mode must be set using the Product Control switches on the switch box. The field computer will display the current selection for each product.

   If an optional variable rate key has been activated, a prescription map may be selected by touching the ⚠ symbol on the product button.

8. When finished setting up features and options for the job, touch the ✔ icon on the **Start Job - Verify Settings** screen to accept the displayed settings.

9. If the optional AutoBoom system is detected on the CANbus, the AutoBoom Setup screen will be displayed. See the **AutoBoom** section in this guide or the *AutoBoom Calibration and Operation* manual for more information.

10. Touch the ✔ icon to display the **Guidance** screen.

Guidance Screen

The **Guidance** screen is the main screen viewed during product application.

1. The **On-Screen Light Bar** is displayed along the top of the **Guidance** screen. Settings for the light bar may be found by selecting:

Tools Menu ➡ **Computer Menu** ➡ **Display**

2. The **Tank** or **Bin Indicator** displays the calculated volume of product remaining in the tank or bin. Touch this indicator to display the **Tank** or **Bin Volume Configuration** screen.

3. The **Area Covered** displays a tally of the total area covered by active sections (sections toggled on) within the current job.

4. The **GPS Status** status indicator displays the status of GPS reception and the currently selected correction source on the Guidance screen. See the "GPS Status Indicator" section on page 2 for more information.

5. Touch the **Display Mode** icon to toggle the day or night modes for the guidance screen display.

6. This area displays the **Speed** or **Course Over Ground (COG)**. Touch this area to toggle the information displayed.

7. The **Distance to Swath** display shows the distance and direction to the displayed Guidance path.

8. The **SmarTrax Status** is displayed if an optional SmarTrax or SmartSteer system is connected to the field computer. This indicator appears green if the system is engaged or red if the system is disengaged.

If the CAN SmarTrax or SmartSteer node is installed, the SmarTrax engage/disengage icons will be displayed in the lower, right corner of the guidance display. Refer to the SmarTrax and SmartSteer Installation and Operation Manual for more information.

9. The current status of **Wireless Communication** is displayed on the guidance screen. See the "Wireless Communications Status" section on page 3 for more information.

10. The **Product Rate Display** shows target and actual application rates as well as indicates the selected product.

Touch the name of a product to toggle the selected product or touch in the rates area to access the **In Job Product Configuration** screen. Additional display options may be activated on the **In Job Product Configuration** screen.

11. Touch the **Rate Bump** buttons to increase or decrease the rate of the selected product. When operating in **Automatic** control mode, the rate bump buttons will increase or decrease the target rate. In **Manual** control mode, these buttons will adjust the actual application rate.

12. Touch the **AccuBoom Override** to override all sections On for the selected On-Override time. See the "AccuBoom" section on page 12 for details.

13. The **AutoBoom Status Indicator** is displayed if an optional AutoBoom system is connected to the field computer. See the "AutoBoom" section on page 14 for more information regarding the AutoBoom Status Indicator.

14. The **Section Status Display** shows information for each configured section. Active sections appear green while sections currently disabled (or toggled off) appear in white.

15. The **Swath Information** displays the number of the current swath when using the Straight Line, Fixed Contour, or Pivot patterns. When using the Enhanced Last Pass pattern, this area displays **LAST**.

16. Touch the **Nudge Settings** icon to to display the In-Job Nudge Settings screen. Use this screen to set the active nudge value and enable the on-screen nudge controls.

17. Use the **Zoom In** and **Out** icons to change the level of detail shown on screen.

18. Touch the **Alternate Guidance Pattern** button to toggle the pattern used to provide guidance for the job in progress.

19. Access the **Menu** to display additional tools and features of the job in progress. The Menu contains the tools for recording a field boundary and creating or editing a Guidance Path.

Menu

Touch the **Menu** icon on the Guidance screen to access additional tools and features of the field computer. The Menu also offers access to the **Home** screen. The following tools and features may not be accessible at the same time. Be sure to read the descriptions and ensure appropriate information is displayed on-screen to allow access to the following features and tools.

Guidance Views

The following views are available for the Guidance screen:

The **Down Field** view is displayed each time the guidance screen is displayed. This view represents the view from the vehicle cab.

Switch to the **Bird's Eye** view to display a view looking down from above the vehicle's current location.

Use the **Field Review Mode** to display large areas of an application map and areas of the field in which the vehicle is not currently located.

Guidance Path (A-B) Tools

The following tools and features may be found in the Menu when the Straight Line, Fixed Contour or Pivot guidance patterns are active.

To Load an A-B Line:

Touch the **Load A-B Line** icon to load a previously saved line into the current job. This icon will not appear if an A-B Line has already been set. Reset the line to access the Load A-B Line tool.

To Create A-B Line:

Note: The Set A and Set B icons will be displayed on the **Guidance** screen when the Straight Line Guidance Pattern is active.

Touching the **Set A** icon will place the first, or A, point of the path at the current vehicle location. Regardless of where the vehicle moves from this point, the field computer will use the selected pattern to connect this point with the next set point. After the Set A icon is selected, the Set B icon will appear.

Touch the **Set B** icon to place the second, or B, point of the guidance path. Once the B point has been set, the field computer will use the selected Pattern to create the Guidance Path displayed on the **Guidance** screen.

Set B by Heading Feature:

Use the **Set B by Heading** feature to create a guidance path along a heading. Touch this icon and use the displayed keypad to enter a heading between 0° and 359° (with 0° being due North).

Note: The Set B by Heading feature is only available with the Straight Line Guidance Pattern.

To Configure a Displayed A-B Line:

Select the **A-B Tools** icon to access additional tools for use with the current A-B Line.

Select the **Reset A-B Line** icon to clear the displayed path. If the displayed path will need to be recalled in the future, be sure to save the current path before selecting reset.

Touch the **Save A-B Line** icon to save the displayed path. Once saved, an A-B Line can be recalled at any time or loaded into other jobs. In addition, saved paths can be transferred from the field computer via the File Maintenance feature. Refer to the *Envizio Pro and Envizio Pro II Installation and Operation Manual* for details on the File Maintenance feature and transferring saved paths.

Use the **Re-calibrate A-B Line** tool to re-calibrate the displayed path to the current vehicle position. Due to DGPS drift over time, this feature allows the operator to re-calibrate the A-B Line to a known position in a field.

In-Job Nudge Settings:

The Nudge Feature allows the operator to fine tune the displayed path for actual field conditions.

Touch the **Nudge Settings** icon to display options for the in-job nudge controls and enable the on-screen nudge controls.

With the on-screen nudge controls enabled:

Touch the **Nudge Right** icon to move the guidance path to the right in the increments set on the Nudge Settings screen.

Touch the **Nudge Left** icon to move the guidance path to the left in the increments set on the Nudge Settings screen.

Recording a Field Boundary

To Record a Field Boundary:

1. Begin a job file by following the procedure outlined in the Starting a Job section.
2. With the vehicle stopped and positioned at the start of the field boundary, touch:

Menu → **Field Boundary Tools** → **Record Field Boundary**

3. Begin driving the boundary of the field. The field computer will record the vehicle path displayed in yellow.
4. At anytime you may press **Pause** to temporarily stop recording the field boundary. This feature is useful when refilling a product or when the vehicle's path will not reflect the actual field boundary. Touch **Resume** to continue recording the current boundary.
5. To close the field boundary, touch the **End** icon on the Guidance screen. The field computer will connect the starting point of the boundary to the vehicle's current location with a straight line when closing a boundary.

Other Field Boundary Tools

The following icons will be used while creating a Field Boundary.

Touch the **Boundary Tools** icon to display boundary tools available for the current job.

A previously recorded boundary can be loaded into the current job file by selecting the **Load Field Boundary** icon in the Menu. A list of job files stored on the field computer is displayed. Select the job name to load the boundary recorded that Field Boundary into the current job.

Touch the **Delete Boundary** icon to reset the current Field Boundary. A field boundary must be present in the current job or this icon will not appear in the Menu.

Touch the **Record Field Boundary** icon to begin recording a New Field Boundary. While a Field Boundary is being recorded, the Pause and End Field Boundary icons are displayed on the Guidance screen.

AccuBoom

The following sections offer an overview of the optional Raven AccuBoom system when used with the Envizio Pro or Envizio Pro II. Refer to the *Envizio Pro and Envizio Pro II Installation and Operation* Manual for additional information regarding the AccuBoom system.

Setup

To view current settings for an optional AccuBoom system, touch:

Tools Menu ➔ **System Menu** ➔ **AccuBoom**

The **AccuBoom Configuration** screen will be displayed.

1. The **On Override** option is the the number of seconds for the AccuBoom Override. Be sure to check the **Enable Override Popup** option at the bottom of the screen to display the AccuBoom Override icon on the Guidance screen.

2. The **Turn Off Percent** value sets the percentage of the boom section width that must be in a previously applied area, or no-spray zone, before AccuBoom will control that section.

3. Touch the **Boom Selection** button to select the boom sections which AccuBoom will automatically control.

4. Adjust the **On** or **Off Look Ahead** settings to compensate for the time required to open or close the control valve. Enable the 'Use Look Ahead Distance' to set the look ahead values in feet or meters.

5. Select the **Aggressiveness** setting best suited for the field conditions and driving style. For more information on the AccuBoom aggressiveness feature, refer to the *Envizio Pro and Envizio Pro II Installation and Operation Manual*.

Operation

If the **Use Zone Map** option has been enabled for the active job (see the **Start a Job** section), the **Menu** will contain tools for recording AccuBoom Zone Map features.

To Load a Zone Map with a Job in Progress:

1. Begin an AccuBoom enabled job with the **Use Zone Map** option selected (refer to the **Start a Job** section earlier in this guide).

2. Touch:

Menu ➡️ **Zone Tools** ➡️ **Load Spray Zone Map**

3. Select the name of the desired Zone Map from the list and touch ✅ to load the map.

To Edit the Zone Map:

1. Begin an AccuBoom enabled job with the **Use Zone Map** option selected (refer to the **Start a Job** section earlier in this guide).

2. Touch:

Menu ➡️ **Zone Tools**

3. Select the following icons to begin recording a:

Field Boundary   No-Spray Zone   Spray Zone

4. Select the reference point of the vehicle and then touch the ✅ icon.

5. The Guidance screen will re-appear and the field computer will begin recording the boundary or feature. On the Guidance screen, a Pause and End icon appear for the feature currently being recorded.

Pause and End Icons

Recorded Path

AccuBoom Override

The Guidance screen will also display a reminder above the **Menu** icon when the field computer is in Spray Zone Edit mode. The **Menu** contains the tools for editing Spray Zones when this reminder appears. To exit the edit mode, touch the ✅ icon within the **Menu**.
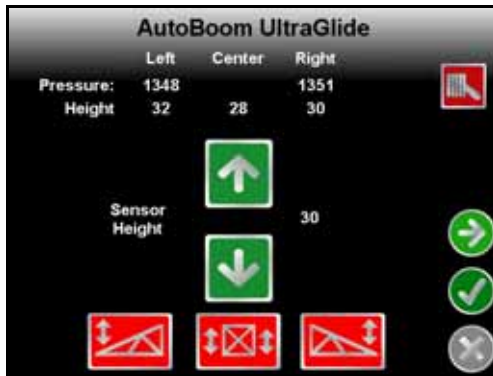
AutoBoom

The following sections offer an overview of setting up and using an optional Glide Series AutoBoom system with the Envizio Pro or Envizio Pro II. Refer to the *AutoBoom Calibration and Operation* manual for detailed setup and calibration information regarding the AutoBoom system.

To view the Glide Series AutoBoom settings and to enable automatic boom height control, touch ![icon], then ![icon] and ![icon] to access the Glide Series AutoBoom setup screens.

Enabling AutoBoom While Staring a Job

1. Touch the ![icon] icon on the Home screen and configure any necessary options on the Start Job - Verify Settings screen.

2. Complete the procedure in the **Start a Job** section earlier in this guide and select the ![icon] to accept the displayed settings.

3. Before guidance will begin, the operator will be prompted to review the Glide Series AutoBoom system settings.

   The AutoBoom Setup screen will display similar to the following:

4. If ![icon] is displayed in the upper right corner, touch the icon to toggle the AutoBoom system on.

5. Touch the **Left** or **Right Boom Disabled** button to toggle automated boom height control for each boom.

   Warning: Booms may raise and lower unexpectedly. Make sure the area around the booms is clear of obstructions and people before touching these buttons.

6. Touch ![icon] if system adjustments are necessary, or to fine tune the AutoBoom system.

7. Touch the ![icon] icon to open the job and begin guidance.

Operation

During a job, the **AutoBoom Status Indicator** will be displayed on the **Guidance** screen.

This area may display the following indicators for the current status of the AutoBoom system:

| Disabled | Off | Both Enabled | Left/Right Enabled | or | Center Rack Enabled |

Status of the center rack is only displayed if a Glide Series AutoBoom system capable of controlling the center section is connected to the field computer. Touch the displayed status icon to access the **Glide Series AutoBoom Calibration** screen.

Troubleshooting

The following are a few general tips for troubleshooting the product control system. Refer to the *Envizio Pro and Envizio Pro II Installation and Operation* manual for detailed troubleshooting information.

Issue	Possible Cause	Solution
CANbus cannot read Node(s)	• CANbus ends not terminated	• Make sure that both ends of the CANbus system are properly terminated. Refer to the *Raven CANbus Network Installation* Manual for more information.
	• Corroded pins in CANbus connections	• Check CANbus cable connectors for any highly corroded pins. • Ensure dielectric grease has been applied to all cable connections exposed to weather and field conditions.
	• Moisture in connection	• Check CANbus cable connectors for any corroded pins. • Ensure dielectric grease has been applied to all cable connections exposed to weather and field conditions.
	• Connectors not seated properly	• Check that all CANbus cable connectors are inserted fully (until the locking tab is engaged). • Be sure to remove any moisture in connections which were not properly seated. Check for corroded pins and apply dielectric grease when reconnecting CANbus cables.

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(P/N 016-0171-149 Rev E 6/11 E17846)

R A V E N

Simply improving your position.℠