



Vanguard System TRAKR GPS Receiver

Startup Guide & Manual

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Introduction

The Vanguard System TRAKR is a GNSS receiver capable of emulating a ground speed radar signal based on the device's speed.

Main features include

- LED status indicator
- Emulated radar output
- Wi-Fi interface
- Weather resistant enclosure
- Android & IOS mobile application interfaces

Technical Specifications

Device Information		GPS Specifications	
Operating Voltage	3.5 – 36 V	Satellite Constellations	Up to 4
Operating Temperature	-20°C to 70°C (-4°F to 158°F)	Satellites Used	Up to 92
Storage Temperature	-40°C to 85°C (-40°F to 185°F)	Velocity Accuracy	0.05 m/s (0.1 mph)
Size	12.3 x 16.6 x 5.6 cm (4.86 x 6.55 x 2.22 in)	Start-Up Times	Cold: 29 s Hot: 2 s
Weight	.77kg (1.7lbs)	Speed Update Rate	25 Hz
Cable Length	4.5 m (15 ft)		

Regulatory Compliance

The receiver must be installed in a location to provide a separation distance of at least 20cm (8in) from all persons and must not be co-located or transmit simultaneously with any other antenna or transmitter, except in accordance with FCC multi transmitter product procedures.

FCC Notice

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- *Reorient or relocate the receiving antenna.*
- *Increase the separation between the equipment and receiver.*
- *Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.*
- *Consult the dealer or an experienced radio/TV technician for help.*

IC RSS-210/RSS-Gen Notices

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of this device.

L'opération est soumise aux deux conditions suivantes: (1) cet appareil ne peut pas provoquer d'interférences et (2) cet appareil doit accepter toute interférence, y compris les interférences qui peuvent causer un mauvais fonctionnement de l'appareil.

Contains FCC ID: O7P-4343 Contains

IC: 10147A-4343

Installation

Receiver Mounting

The receiver should be mounted in a location with a clear view of the sky, preferably in all directions. The unit is equipped with magnets for installation. When a metallic surface is not available, a mounting plate can be purchased. (Part number: AE6927)



Bottom of TRAKR



Mounting Bracket (AE6927)

Connecting to Device

The TRAKR has a 4-pin amp connector that will connect to most monitors or other devices for power and speed. If using a Y cable, make sure the receiver is connected to the powered connector. Adapter cables are available if the 4-pin amp does not work in the required application.

Connector: 4P Amp CPC Pin-out

Pin	Function
1	Ground
2	Radar Signal
3	Power
4	Radar Detect

Operation

Direct to Monitor

The unit should be connected to a console and powered on. When the unit locks onto a minimum number of satellites and is in motion it will output a speed reading. Calibrating the VG TRAKR to the console using the speed calibration procedure in the console's manual is recommended for the most accurate reading. Default settings of the device can be changed using VG TRAKR Link which is explained in the VG TRAKR Link Mobile Application section.

Standalone Operation

With the use of the VG TRAKR Link mobile applications on Android or iOS devices, the receiver can be used to display ground speed in a standalone operation. In this mode the LED will flash slowly indicating an output fault, but this will not affect the speed reading of the device.

LED Operation

- The LED provides a visual indicator of the device's performance. If the LED is off, then the device is not connected to a power source.
- If the LED is flashing quickly, then the device is powered on and is acquiring satellites before it will output speed.
- If the LED is steady on, the device has acquired enough satellites to output speed.
- A slow flash indicates that a fault has been detected by the device and needs to be serviced.

Status Light States

LED Status	Description
Steady on	Satellites acquired and outputting speed
Fast flash	Powered on and acquiring satellites
Slow flash	Device detected a fault
Off	No power to device

VG TRAKR Link Mobile Application

Note: Although the overall design of the application is the same on Android and iOS devices, locations and overall look will vary between the two operating systems and specific devices. This will cause some screens to look different than the figures below.

Getting Started

VG TRAKR Link is available from the Google Play Store or Apple App Store.

iOS: <https://bit.ly/4fnVYfq>

Android: <https://bit.ly/48Loo0i>

Access to the device's location is required when starting VG TRAKR Link for the first time. Please see our privacy statement at: <https://www.agexpress.com/privacy-policy/>

Connecting to TRAKR's Wifi Network

Network Name: AEWIFI_VRXXXXXX where VRXXXXXX is the serial number of the receiver Password:

123456789

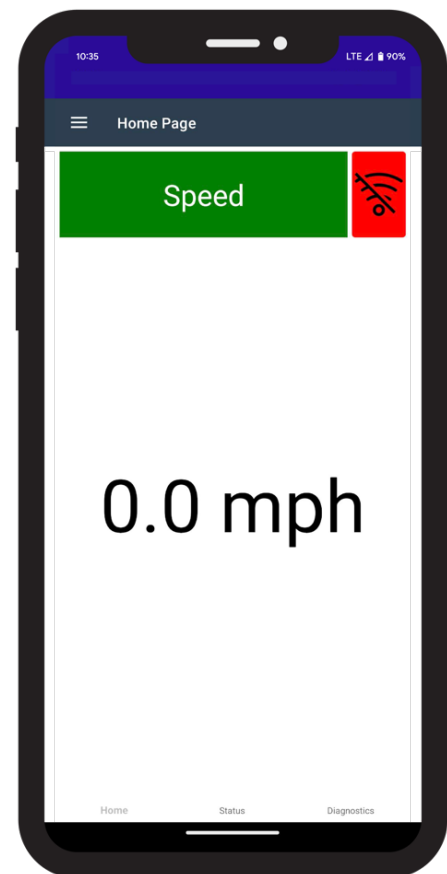
Home Screen

The Home Screen shows the ground speed of the receiver and connection status to the receiver or GPS fix status when connected.

Speed 5.0 mph 

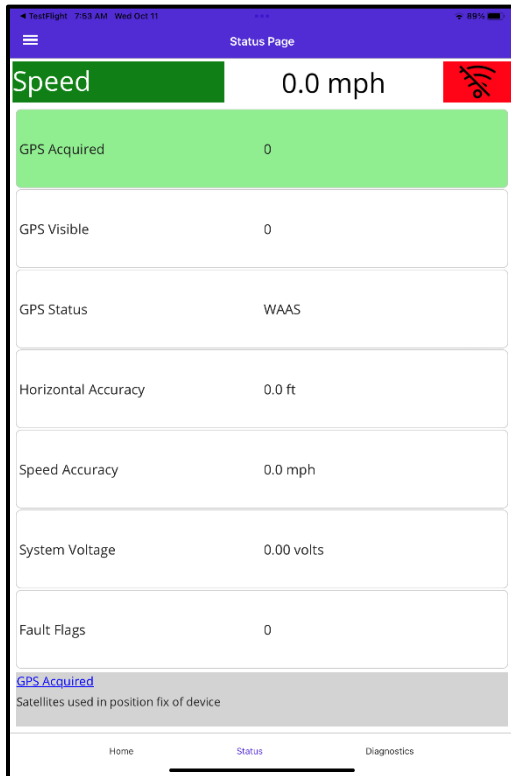
Default: The minimum number of satellites required for speed output is four.

GPS Indicator	Satellite Conditions
0 bars	< 3 satellites
1	4 – 5 satellites
2	6 – 8 satellites
3	9 – 11 satellites
4	> 12 satellites
Last bar blank	No lock
Last bar yellow	2D lock
Last bar green	3D lock (WAAS)



Status Page

The Status page displays current information about the GPS signal strength and receiver.



GPS Acquired: Number of satellites used in the position fix of the receiver.

GPS Visible: Number of satellites visible to the receiver.

GPS Status: Indicates if the receiver has no fix, GPS (2D Fix) or DGPS (3D Fix).

Horizontal Accuracy: Reported accuracy of the receiver.

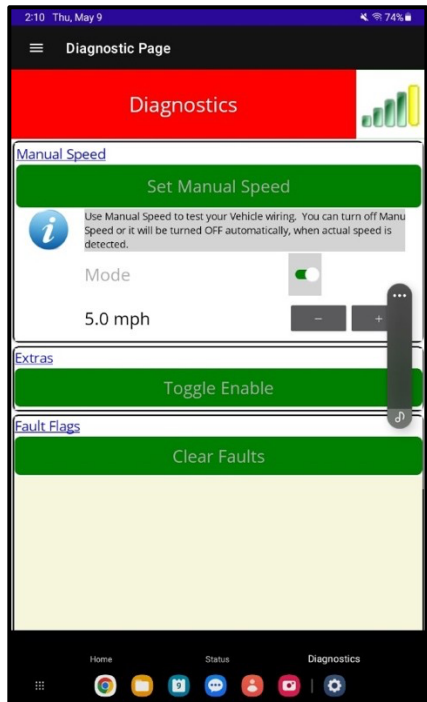
Speed Accuracy: Reported speed accuracy of the receiver.

System Voltage: Input voltage measured by the receiver.

Fault Flags: Number of active faults indicated by the device. Faults are shown on the Diagnostics page.

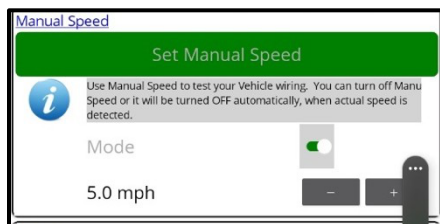
Diagnostics

The Diagnostic page allows the user to set a manual speed and review any faults that were detected by the receiver.



Manual Speed

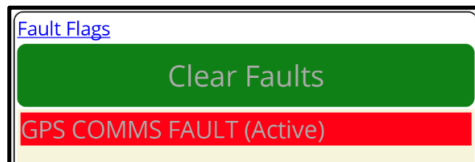
- The manual speed function allows the user to verify if the console is receiving a speed signal from the receiver. This setting can be toggled on or off by tapping the slider.
- Simulated ground speed is set by tapping the plus or minus buttons to increase or decrease the set speed.



Note: Following the recommended calibration procedure of the attached console is preferred to fine tune the calibration number.

Fault Flags

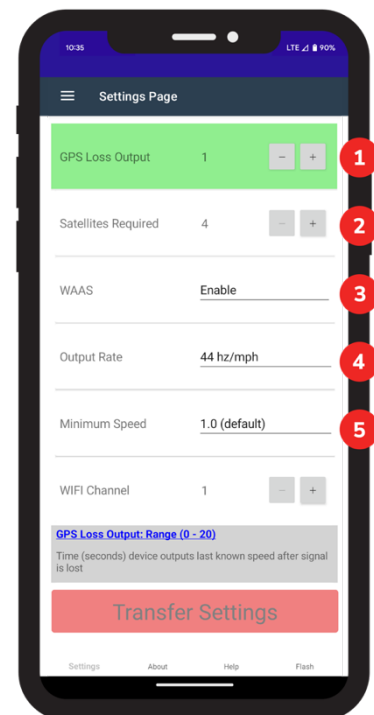
- This section displays any active faults and allows the user to reset the faults.
- Troubleshooting information is located in the Appendix section.



Mobile App Settings Page

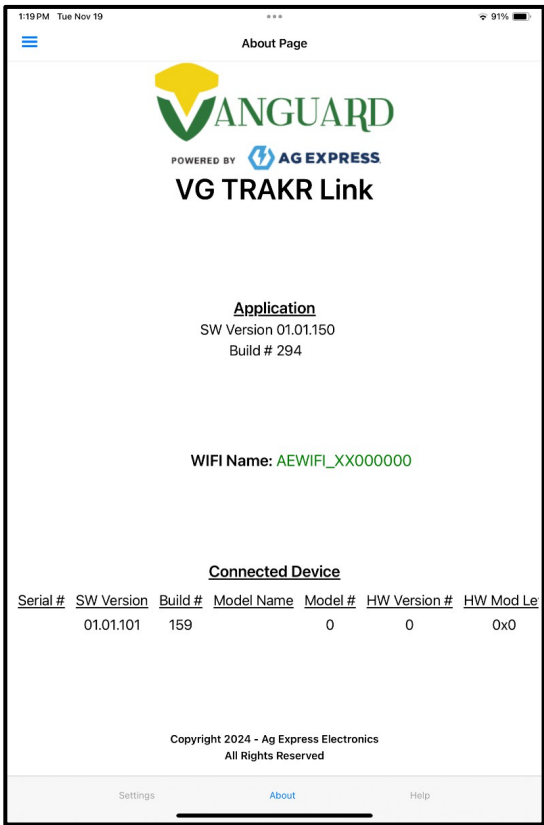
User Settings

1. Loss of GPS Radar Delay – *The time device will output last known velocity if GPS is lost*
 - a. Minimum: 1 second
 - b. Maximum: 20 seconds
2. Satellites Required – *The minimum Number of satellites required for speed output.*
 - a. Minimum: 4 (default)
 - b. Maximum: 10
3. WAAS Enable – Requires SBAS locked output speed
 - a. Enabled
 - b. Disabled (default)
4. Output Rate – *Adjust speed pulse output rate to match console*
 - a. 10.12 Hz/mph (Hiniker/some Micro-Track)
 - b. 44 Hz/mph (CNH)
 - c. 57 Hz/mph (JD)
 - d. 59HZ/mph (DJ/ Vanguard/ RV Consoles) (default)
 - e. 70.4 Hz/mph
 - f. Custom
5. Minimum Speed – *The minimum MPH required to output speed pulse*
 - a. 0.25 – 1.5 mph or custom
 - b. 1.0 mph (default)



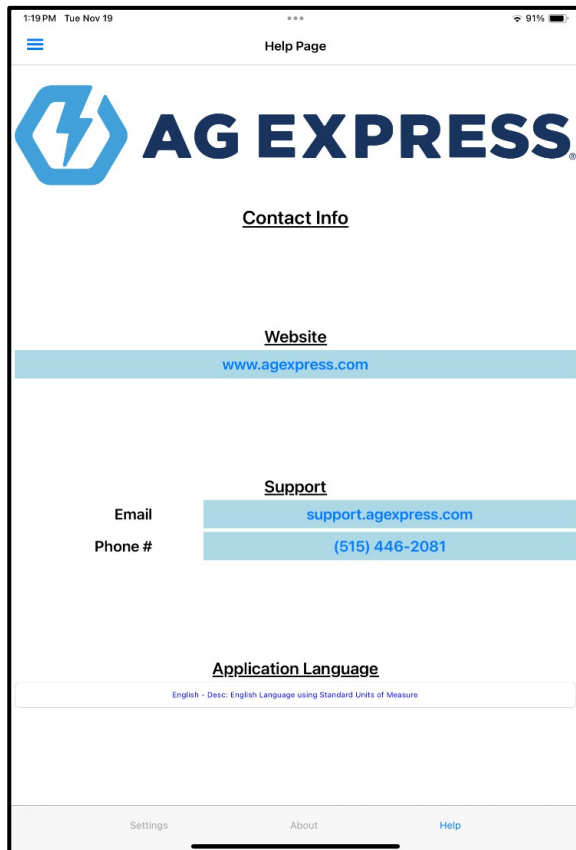
About Page

The About page displays information on the connector receiver’s software and hardware versions as well as which version the mobile application is on.



Help Page

- The Help Screen provides contact information or troubleshooting support.
- Selecting the web address will send the user to the Ag Express Website.
- Selecting the email address will create an email draft that will include the device information and allow the user to enter any questions they may have in the designated field of the email.
- Selecting the phone number will launch the phone app on equipped devices and connect the user to our support team during business hours
- Selecting Application Language allows the user to set the desired language and units for their mobile application.



Appendix

Troubleshooting Faults

Fault Code	Description	Troubleshooting Steps
RADAR_OUT_STG_OR_OPEN_FAULT	Ground speed signal wire is not connected to monitor or is shorted to ground.	1. Check connection to monitor/controller that pin 2 is inserted in connector correctly on both sides of connector. Check pinout of monitor/controller/adaptor harness matches the table provided earlier in manual. 2. Check receiver lead for pinches or cuts in wire that could short the output to ground. 3. Internal issue of receiver and will need to be repaired by Ag Express
RADAR_OUT_STB_FAULT	Ground speed signal wire is shorted to battery.	1. Check pinout of monitor/controller/adaptor harness matches the table provided earlier in manual. 2. Check receiver lead for pinches or cut that would short signal wire to battery. 3. Internal issue of receiver and will need to be repaired by Ag Express
LED_OUT_STG_OR_OPEN_FAULT	LED control is not connected or shorted to ground.	Device needs serviced by Ag Express
LED_OUT_STB_FAULT	LED control wire is shorted to battery.	Device needs serviced by Ag Express
FAULT_DETECT_CIRCUIT_ERROR	Internal issue of device	Device needs serviced by Ag Express
GPS_COMMS_FAULT	Internal issue of device	Device needs serviced by Ag Express
SERIAL_FLASH_COMMS_FAULT	Internal issue of device	Device needs serviced by Ag Express
PCA9535_1_COMMS_FAULT	Internal issue of device	Device needs serviced by Ag Express
PCA9535_2_COMMS_FAULT	Internal issue of device	Device needs serviced by Ag Express
ADS7138_COMMS_FAULT	Internal issue of device	Device needs serviced by Ag Express
ISM330DHCX_COMMS_FAULT	Internal issue of device	Device needs serviced by Ag Express

LIS3MDL_COMMS_FAULT	Internal issue of device	Device needs serviced by Ag Express
I2C_TIMEOUT_FAULT	Internal issue of device	Device needs serviced by Ag Express
P5V_VOLTAGE_RANGE_FAULT	Internal issue of device	Device needs serviced by Ag Express



6280 NE 14th St., Des Moines, IA 50313

AGEXPRESS.COM SALES@AGEXPRESS.COM

SUPPORT@AGEXPRESS.COM

855-334-3400