Phoenix 10™ Installation and Operation Guide

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-Phoenix 10 Installation and Operation Guide
-Manual No. 016-0171-215 Rev. B
-Any comments or feedback (include chapter or page numbers if applicable).
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Overview

The Raven Phoenix 10™ is a compact GPS speed sensor unit which is designed to output a simulated radar speed signal to a rate control console or field computer.

The Phoenix 10 is easy to install and in most cases may be set up and ready for operation within a half hour. This guide has been prepared to assist with installation and initial set up of the Phoenix 10 speed sensor.

Common Sources of GPS Interference

GPS is a line of sight system which means that the Phoenix 10 requires an unobstructed view of the sky during operation in order to provide a speed signal. Please be aware of the following sources of interference commonly encountered when installing and operating a GPS based system.

- Electrical Motors
- Generators
- Alternators
- Radio Transmitters
- Radar

- Buildings
- Trees
- Overhead Power Lines
- Implement and Cabin Structures
- Transmitting Antennas or Towers

Installation

Table 1: Phoenix 10 Kit Contents

Description	Part Number
Guide, Phoenix 10 Installation and Operation	016-0171-215
Sensor, Phoenix 10 Speed	063-0172-988
Cable, 15' [4.5 m] Interface	115-0171-817

Refer to the following steps for best practices for mounting the Phoenix 10 speed sensor.

Note: Do not permanently mount or route cabling until setup is complete and the speed sensor is working properly.

1. Select a location to mount the Phoenix 10 speed sensor. The antenna should be mounted on the tallest point of the vehicle (usually on top of the vehicle cabin) using the magnetic mount. Make sure that the antenna has a clear 360° view of the sky.
2. Connect the 4-pin connector to the Phoenix 10 and route the cable into the vehicle cabin. Route the cable to avoid tripping hazards and avoid pinch points which could damage or break the cable.
3. Connect the 3-pin connector to the radar speed input connector or port for the rate control console or field computer.

Power Connections

Note: The Phoenix 10 speed sensor requires between 9 and 16 volts DC power for operation. Verify that the vehicle has a negative ground system before connecting the Phoenix 10 receiver.

1. Route the red and white power leads to a source of clean, controlled 12 volt DC power.
2. Connect the red lead wire (with 5 A fuse) to clean, switched power source.
3. Connect the white lead wire to negative or ground.

Initial Power Up

The following procedure is recommended for the first time the Phoenix 10 is powered up. This process is only necessary during the initial operation of the speed sensor and will help to identify and minimize possible sources of interference.

GPS Initialization

When connected to an active power source for the first time, the Phoenix 10 will begin scanning for a satellite broadcast. During this initial start up, the sensor may take up to 15 minutes to initialize and begin outputting valid speed information.

Note: To help ensure the shortest possible start up time, move the vehicle outside and away from the sources of interference listed in the Common Sources of GPS Interference section on page 2.

During subsequent power up sequences, the Phoenix 10 should begin outputting radar speed signals after approximately 20 seconds.

Verifying Operation

1. Turn off all radio and GPS equipment on the machine.
2. Connect the Phoenix 10 power leads as described in the *Installation* section on page 2.

   Allow several minutes for the speed sensor to obtain a signal.
3. On the Raven rate control console or field computer, set the speed sensor type to "SP2/Radar" and enter an initial speed cal value of 785. Refer to the Raven console instruction manual for details on setting the speed sensor type and speed cal value.

Note: For non-Raven consoles, refer to the instructions provided with the console for information on setting the speed cal value and associated settings.

4. Check the Phoenix 10 initialization every few minutes by driving the vehicle forward. When a speed is registered on the rate control console or field computer, the speed sensor is tracking satellites and generating radar speed information.
5. Begin checking for sources of interference by powering on other radio or GPS systems one at a time while driving forward. Wait about 30 seconds after each device is powered on and monitor the speed display on the console.

   If the console or field computer stops displaying speed information, the last device powered on may be causing interference with the Phoenix 10.

6. To minimize interference, try moving the Phoenix 10 away from the device or antennas used with the system. If the console still does not display speed, check the cable and power connections for the system or device and verify that the system is functioning properly.

7. Once all radio and GPS equipment is powered up, continue driving the vehicle and monitor the speed display on the console for a short period.

8. If no further problems are encountered, power down the vehicle and all equipment. Mount the speed sensor securely and route the cable to avoid tripping hazards and pinch points which may damage or break the cable.

9. Finally, repeat the power up steps to verify operation and complete the installation.

Specifications

Phoenix 10 Speed Sensor

Size	2.1" x 5.09"
Weight	18 oz. [0.51 kg]
Mounting	Magnetic
Operating Temperature	-40° to 158° F [-40° to 70° C]
Storage Temperature	-40° to 176° C [-40° to 80° C]
Operating Humidity	5% to 95% R.H. Non-condensing at 140° F [60° C]
Storage Humidity	100% Condensing
Power Consumption	2-3 Watts (Typical)
Voltage	9-16 VDC
Radar Out	45 Hz/mph
Radar Update Rate	4 Hz
Minimum Speed Output	0.5 mph [.8 km/h]
Minimum Recommended Operating Speed	2 mph [3.2 km/h]

4-Pin Conxall Connector

Pin Number	Description
1	+12 VDC
2	Signal Ground
3	Ground
4	Radar

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Limited Warranty

What Does this Warranty Cover?

This warranty covers all defects in workmanship or materials in your Raven Applied Technology Division product under normal use, maintenance, and service when used for intended purpose.

How Long is the Coverage Period?

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Bring the defective part and proof of purchase to your Raven dealer. If the dealer approves with the warranty claim, the dealer will process the claim and send it to Raven Industries for final approval. The freight cost to Raven Industries will be the customer's responsibility. The Return Materials Authorization (RMA) number must appear on the box and all documentation (including proof of purchase) must be included inside the box to be sent to Raven Industries.

What Will Raven Industries Do?

Upon confirmation of the warranty claim, Raven Industries will (at our discretion) repair or replace the defective product and pay for the standard return freight, regardless of the inbound shipping method. Expedited freight is available at the customer's expense

What is not Covered by this Warranty?

Raven Industries will not assume any expense or liability for repairs made outside our facilities without written consent. Raven Industries is not responsible for damage to any associated equipment or products and will not be liable for loss of profit, labor, or other special damages. The obligation of this warranty is in lieu of all other warranties, expressed or implied, and no person or organization is authorized to assume any liability for Raven Industries.

Damages caused by normal wear and tear, misuse, abuse, neglect, accident, or improper installation and maintenance are not covered by this warranty.

RAVEN INDUSTRIES
Extended Warranty

What Does this Warranty Cover?

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Do I Need to Register My Product to Qualify for the Extended Warranty?

Yes. Products/systems must be registered within 30 days of retail sale to receive coverage under the Extended Warranty. If the component does not have a serial tag, the kit it came in must be registered instead.

Where Can I Register My Product for the Extended Warranty?

To register, go online to www.ravenhelp.com and select Product Registration.

How Long is the Extended Warranty Coverage Period?

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How Can I Get Service?

Bring the defective part and proof of purchase to your Raven dealer. If the dealer approves with the warranty claim, the dealer will process the claim and send it to Raven Industries for final approval. The freight cost to Raven Industries will be the customer's responsibility. The Return Materials Authorization (RMA) number must appear on the box and all documentation (including proof of purchase) must be included inside the box to be sent to Raven Industries. In addition, the words "Extended Warranty" must appear on the box and all documentation if the failure is between 12 and 24 months from the retail sale.

What Will Raven Industries Do?

Upon confirmation of the product's registration for the Extended Warranty and the claim itself, Raven Industries will (at our discretion) repair or replace the defective product and pay for the standard return freight, regardless of the inbound shipping method. Expedited freight is available at the customer's expense

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