QUICK START

The RAC Geo II - Quick Start for Installation & Use

This Quick Start provides basic instructions for getting your RAC Geo installed and operating. For more detailed instructions, the complete User's Manual can be downloaded at *www.jamartech.com/manuals*.

What is the RAC Geo II?

The JAMAR Technologies Road Analysis Computer (RAC) Geo II is an accurate, easy-to-use distance measuring instrument (DMI) that incorporates GPS technology.

The RAC Geo II has been designed with features to provide you with a versatile and functional instrument that can be learned in a very short time. This cost-effective unit saves time & money by allowing personnel to measure distance, accurate up to 1 foot per mile, while recording GPS coordinates of roadway features.

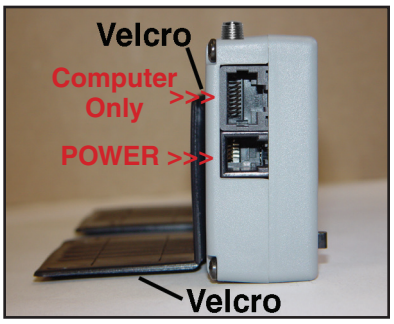
How does it work?

The RAC Geo II has an on-board GPS receiver built into the unit. Once it locks onto the GPS satellites, it can track movement. Power is provided by a 12V auto adapter, which makes the unit completely portable from vehicle to vehicle. (Power can also come from any existing DMI power wiring if you already have this.)

While the on-board GPS receiver will track distance, we recommend the use of the external GPS antenna for the best accuracy. This screws into the top of the Geo II and comes with the unit.

Accuracy using GPS-based distance measuring is approximately 1 foot per 1000 feet. In addition to distance measuring, the RAC Geo II also has the unique ability to track and store GPS coordinates using the on-board GPS receiver. The GPS coordinates of road features (intersections, bridges, signs, guardrails, etc.) can then either be internally stored for download to the RACPro software, or read directly off the RAC's display.

Installing the RAC Instrument



The compact case design of the RAC Geo allows mounting of it in a number of convenient locations. Popular locations include on the front of the dashboard, above or below the dashboard, or on the windshield using the optional windshield mounting bracket. Wherever you decide to mount the instrument, remember it should be within easy reach and the display should be visible without obstructions.

It is most common to mount the RAC to the front of the dashboard using the Velcro provided. Two plastic 'L' brackets are also provided to facilitate mounting to the top of the dashboard if that is your preferred location. For best results, attach the 'L' bracket so that the bottom of the 'L' is facing away from the RAC as shown in the figure here.

Using the two 'L' brackets allows you to compensate for curved dashboards even if it requires the RAC to be mounted on a left or right slope.

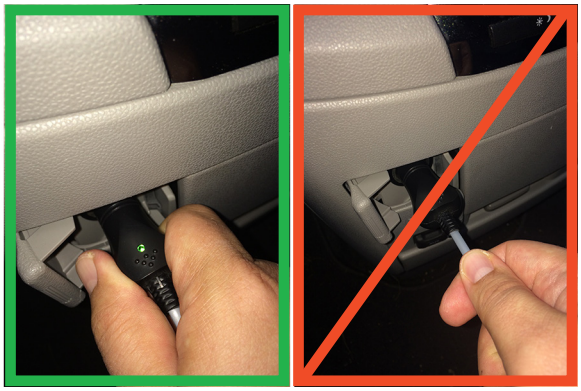
Note: While the RAC Geo II is designed to withstand very high temperatures, we recommend disconnecting the RAC and storing it in the glove box or below the dash if the vehicle will be left for long periods of time in direct sunlight and high temperatures.

Connecting Power to the RAC Instrument

After mounting the RAC, plug the Geo's auto adapter power supply into your vehicle's 12V outlet and connect the other end to the PWR port on the RAC Geo, as shown below. Note that the auto adapter is not required if you are using an external sensor kit, such as a magnetic, modular or OBD sensor. In these cases, the you can set the Geo's auto adapter aside and use the cabling from the external sensor to plug into the Geo's PWR port.

You may want to consider allowing enough slack in the cable to permit a passenger to hold/operate the RAC if necessary. Regardless of the mounting location, Velcro strips are provided for quick, easy mounting & removal of your RAC.

WARNING: When disconnecting the power adapter, be sure to grasp the base of the adapter while pulling it out, as shown below. Failure to do this may result in damage to the adapter.

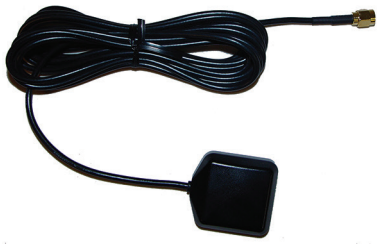


Installing the External Antenna

The RAC Geo comes with an external GPS antenna that screws into the top of the Geo. *Note that the antenna is not required when using the Geo, but it is recommended for best accuracy and quickest GPS lock.*

To use the antenna, screw it into the top of the RAC Geo, being sure to get a tight connection. Once screwed into the unit, route the antenna to the roof of your vehicle. The antenna has a magnetic base, so it will attach itself to any metal.

Note that it is recommended that you do not touch the metal antenna connection while a count in progress as this can interfere with the GPS signal.



Power On & Start Up

Your RAC Geo DMI has been designed for simple operation, using large individual keys which provide a click and tone feedback.

The two 6-digit high-intensity LED display windows allow flexibility in displaying data to you. The upper, larger display window (referred to as D-1) is primarily used to display distance. It is also used to indicate menu locations, time and GPS coordinates. The lower, smaller display window (referred to as D-2) is used to display count status, speed, interval distance, menu descriptions, event codes, GPS coordinates, etc.

OFF/ON

This is the slide switch which provides power to the RAC Geo. When turned on, the RAC will go into GPS Sensor start-up mode.

GPS Sensor Mode Start-Up

When starting in GPS Sensor mode, the RAC Geo will Display *GPSSen* in D-1, indicating it is set to GPS Sensor Mode. It will then switch to display *GPS FO* in D-1 and *SEnSor* in D-2 and begin to look for GPS satellites.

The RAC Geo will display *GPS F1* in D-1 once it has found a minimum number of satellites for a GPS signal (usually in less than 60 seconds).

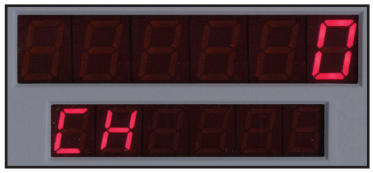
Once the RAC Geo has reached an F1 lock the Geo will set itself in Count Hold with *CH* displayed in D-2 and *0* displayed in D-1. At this point, the Geo is ready to start counting or access menu functions.

Once F1 is achieved, the Geo is ready to start, but it will continue to try to find more satellites in the background. Also during start up, the RAC Geo will perform some behind-the-scenes functions including: set the unit of measuring (feet, mile, meter) and the vehicle number to be the last one used when the RAC was turned off, set itself to count up, and set the Distance Pulse Output interval to zero.

GPS Sensor Mode Start-Up

Looking for GPS Satellites

GPS Satellites Found



Ready to Start

Troubleshooting

The most common support questions regarding the RAC Geo is that when the unit is turned on it does not search for satellites, as described above, and instead immediately goes to Count Hold.

If your Geo does not search for satellites when you turn it on it has probably been switched into external sensor mode. In this mode, the unit does not use GPS for measuring and, as such, will go right to Count Hold (CH) when turned on.

To toggle back to GPS mode, first turn the unit off. Next, turn the unit back on while holding the ENT & #3 key. This will set the unit back to GPS mode.

This procedure can be used to toggle back and forth between GPS mode and external sensor mode.

Menu Functions

The Menu key allows you to select a variety of functions. After pressing the Menu button, the Add and Sub keys can be used to scroll through the options, which are displayed in D-2. To select an option, press the ENT (Enter) key. Below is a brief description of each menu item. Refer to the full User's Manual for more detailed instructions.

- **Menu 1: Auto Calibration (A-CAL)** – Only used with external sensor mode.
- **Menu 2: Manual Calibration (E-CAL)** – Only used with external sensor mode.
- **Menu 3: Pre-Distance (P-diS)** – outputs a low level signal at a pre-selected distance interval and signal duration.
- **Menu 4: Clock Set (CLoSEt)** – used to view either elapsed time or set the timer to real time.
- **Menu 5: Distance Pulse Output (dPO)** – provides a +5VDC output pulse at a pre-selected distance interval and signal duration.
- **Menu 6: Memory Store (StorE)** – only used with RACPro software, allows you to store events in memory.
- **Menu 7: Memory Status (StAtUS)** – only used with RACPro software, shows you the amount of available memory.
- **Menu 8: Memory Erase (ErASE)** – only used with RACPro software, clears the memory.
- **Menu 9: Store GPS (Str-g)** – only used with RACPro software, same as Menu 6 but with event based GPS.
- **Menu 10: Track GPS (Str-t)** – only used with RACPro software, same as Menu 6 but with second-by-second GPS.
- **Menu 11: Display GPS (gPS-n)** – allows you to view GPS info directly on the display.
- **Menu 12: Format GPS (gPS-Fo)** – allows you to toggle the format of how GPS info is displayed.
- **Menu 0: Return to Normal Operation (rEturn)** – exits the Menu functions.

Key Functions

Count Hold

The Count Hold key will start or stop the computation of distance pulses. When in Count Hold, **CH** will be displayed in D-2 and the RAC will not accumulate any distance. If speed is also being displayed, it will continue as CH **does not** stop the computation of vehicle speed. When released, CH in D-2 will go out and distance computation will resume.

Display Hold

Display Hold will stop the display from updating while the RAC will continue to accumulate distance internally. When in Display Hold, **DH** will be displayed in D-2. If speed is also being displayed, it will continue as DH **does not** freeze the speed display. **Note:** You cannot put the RAC in both Count Hold and Display Hold at the same time. Count Hold will take precedence over Display Hold.

Unit

The Unit key allows you to select the desired unit of measurement. This can be selected/changed while moving or at rest. When pressed, the distance will cycle from total feet to miles to kilometers/meters. The LEDs to the left of D-1 indicate which unit is currently being used.

The Speed key allows you to turn on or off the display of speed (mph or kph) in D-2. The display of speed is not interrupted by either the Count Hold or Display Hold keys.

Menu

The Menu key allows you to select from a variety of functions. After pressing the Menu button, the Add and Sub keys can be used to scroll through the options, which are displayed in D-2. To select an option, press the ENT (Enter) key. The options are:

Menu 1 - Auto Calibration (A-CAL)
Menu 2 - Manual Calibration (E-CAL)
Menu 3 - Pre-Distance (P-diS)
Menu 4 - Clock Set (CLoSEt)
Menu 5 - Distance Pulse Output (dPO)
Menu 6 - Memory Store (StorE)
Menu 7 - Memory Status (StAtUS)
Menu 8 - Memory Erase (ErASE)
Menu 9 - Store GPS (Str-g)
Menu 10 - Track GPS (Str-t)
Menu 11 - Display GPS (gPS-n)
Menu 12 - Format GPS (gPS-Fo)
Menu 0 - Return to Normal Operation (rEturn)

Add

The Add key instructs the RAC to count **up**. It is also used in the Menu function to scroll up through the various options, and is used in the Pre-Distance function.

Subtract

The Sub key instructs the RAC to count **down**. When in this mode, the LED indicator for the active unit of measurement will flash to indicate that you are subtracting distance. Should you count down to zero (0), the RAC will provide a tone and automatically begin counting up.

The Sub key is also used in the Menu function to scroll down through the various options, and is used in the Pre-Distance function to subtract a desired distance from the displayed distance.

Dim

The Dim key allows you to select from four (4) levels of display brightness to best suit the ambient light conditions. Full bright is best for daylight conditions while full dim may best suit night conditions. Each time the Dim key is pressed, the brightness will drop one level until the lowest level is reached. It will then jump back to the high brightness level. Both D-1 and D-2, as well as the LED indicators, are controlled by the Dim key.

Clear

The Clear key is normally used to clear the D-1 distance display as well as the Interval Distance in D-2 if that function has been selected. Clear can be used on the run (while measuring), which allows you to establish a zero starting point without having to stop your vehicle in traffic or the center of a busy intersection. Clear will not reset the Time Counter in normal mode.

Enter

The Enter key instructs the RAC to accept the previously keyed value currently on the display. It is also used in the Menu function and Interval Distance application.

Numbers 0 - 9

The numeric keys are used to identify menu options and select numbers desired for calibration, pre-distance, distance pulse output, clock set, etc.

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