

# **TRAIL TECH®**

## **VOYAGER**

### **QUICK-START**

010-ELV-194

## **1. DC POWER REQUIRED**

Do not connect Voyager directly to AC power except when using the AC wall charger. See power section for details.

## **2. MOUNT VOYAGER:**

Voyager is made to be bolted to the vehicle. Use the included handlebar mounts, or refer to the manual.



## **3. VEHICLE SENSORS:**

Refer to the sensor installation sections. You should install the wheel sensor, ignition sensor, engine temperature sensor, and vehicle power connection.



## **4. CHARGE BATTERY:**

Voyager's internal battery comes pre-installed. It may need to be charged before use. Once the vehicle power connection and the tach ignition sensors are installed, charging will begin immediately and Voyager should have full functionality. (There is also an AC wall charger available, sold separately.)



## **5. MICRO SD CARD SLOT:**

The MicroSD card slot is located on the side of Voyager under the rubber weather protector. The MicroSD card enables transfer of tracks between Voyager and a PC. During operation, make sure the card slot cover is properly seated to keep debris out. Tracks saved as GPX files on your computer can be placed on the MicroSD memory card, then imported onto Voyager for viewing and route following. This is a great way to share recorded tracks, or for pre-planning trips.

## **6. WARNING INDICATORS:**

First set a threshold for max temperature, then when Voyager detects the vehicle is exceeding the temperature limits the indicator lights will alert you of the situation. You can set when the red and yellow indicators will flash and when they will stay on solid. Set the thresholds in the SETTINGS MENU.

# **TRAIL TECH®** **VOYAGER** QUICK-START

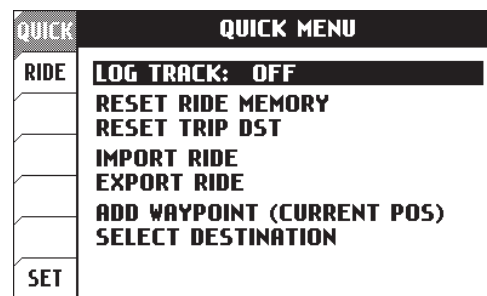
## 7. SCREENS:

Voyager's has seven tabbed screens. Press UP and DOWN on the joystick to move between them. On some screens you can also press RIGHT on the joystick for full screen display or more detailed data.



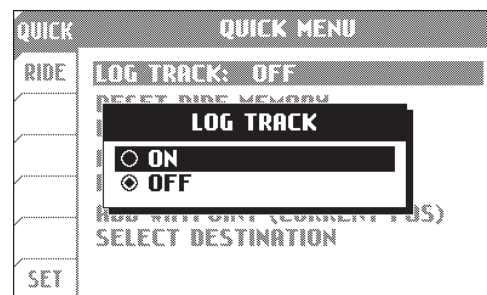
## 8. QUICK-MENU:

Press the upper-left MENU button one or two times to enter the QUICK menu. Here you can toggle logging, import/export files, change settings, etc.



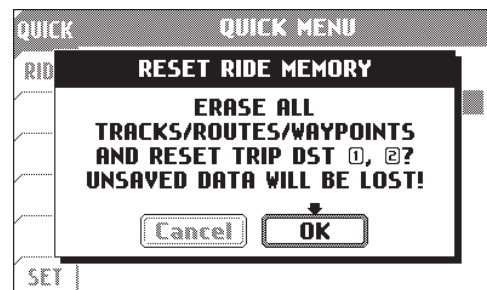
## 9. START LOGGING:

To start logging, press the MENU button to open the QUICK menu. The top item should be LOG TRACK, select it and change it to ON to begin logging. You will notice the icon in the upper-left of the MAP screen changes from PAUSE (||) to RECORD (●). If it is grey, Voyager may still be attempting to acquire a satellite signal and not logging yet. It will take a few minutes for Voyager to acquire a satellite signal when first turned on. Go to the SAT tab to verify satellite communication (be sure Voyager has a clear view of the sky.) Default settings also require the engine to be on and the wheel rolling to log. See the "Sensor Notes" section in the manual if you are not using one of the sensors.



## 10. RESET RIDE MEMORY:

To clear memory (erasing all tracks/routes/waypoints) select RESET RIDE MEMORY in the QUICK menu.





## POWER AND TACH SENSORS INSTALLS

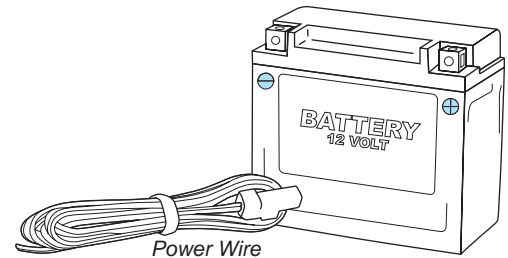
### POWER CONNECTION:

#### FOR USE ON 12-60V DC SYSTEMS ONLY!

Connecting to AC power will damage Voyager and void the warranty.  
Use a volt meter to confirm 12-60V DC.

**Fuse:** Introducing a fuse into the circuit before electronics is always a good idea.  
**Use a 1 amp fuse with Voyager (not provided).**

**Vehicles with DC Power:** Voyager requires DC power. Vehicles with a battery or capacitor and regulator/rectifier produce DC power. Connect the power wire directly to the vehicle's 12V battery. Connect the red wire to the positive(+) battery terminal and the black wire to the negative(-) battery terminal.



**Vehicles with AC Power:** Use the Voyager AC wall charger, or upgrade to a DC electrical system. Most carbureted MX bikes put out AC power, but Voyager requires DC power.  
Voyager will run approximately 5-8 hours on a full battery charge with no external power.

### SENSORS:

The Voyager sensors plug securely into Voyager using waterproof connectors.

They are different sizes (you cannot plug a sensor into the wrong connector.)



### TACH IGNITION SENSOR:

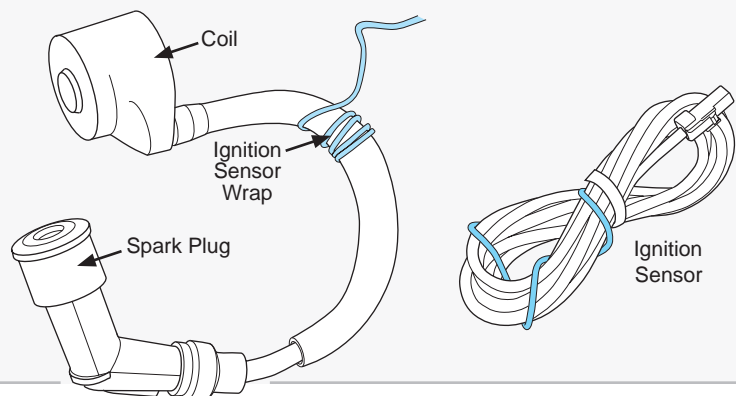
The ignition sensor enables tachometer readings and the animated bar graph on the tach screen of Voyager.

#### OPTION 1: (Preferred option for most vehicles.)

Capacitive coupling to spark plug wire:

1. To install ignition sensor wire, wrap the red part of the sensor wire around the coil wire 5 times.

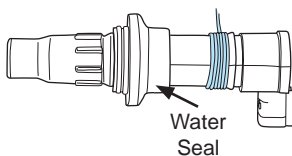
If required, you may shorten the length of the ignition sensor. Be very careful when stripping back the black casing to avoid damaging the inner red wire.



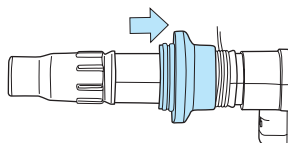
#### OPTION 2:

If the coil is attached to the spark plug, then wrap the sensor like this:

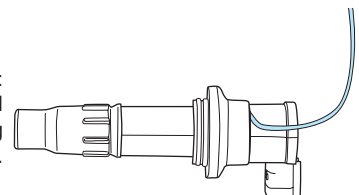
Step 1:  
Pull water-seal  
down. Wrap  
ignition sensor  
around spark  
plug.



Step 2:  
Replace  
water-seal.



Step 3:  
Reinstall  
spark plug  
into motor.



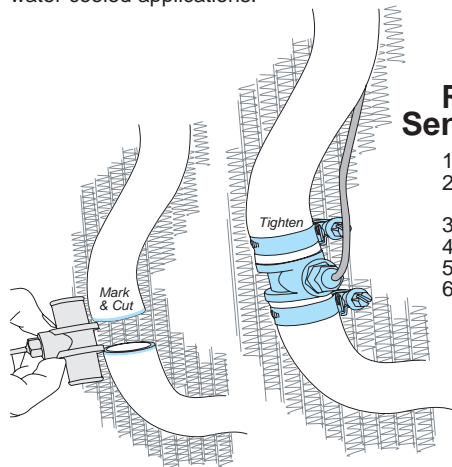


## TEMPERATURE SENSORS AND ANTENNAS INSTALLS

### TEMPERATURE SENSORS:

Most Voyager kits contain a model-specific temperature sensor. Installing the temperature sensor enables temperature readouts on Voyager's gauge screens. Alternative sensors are available.

Vehicles cooled with water use sensors to measure the fluid temperature, while air-cooled machines take the cylinder head's temperature at the spark plug. The radiator fin sensor is the easiest installation for water cooled applications.



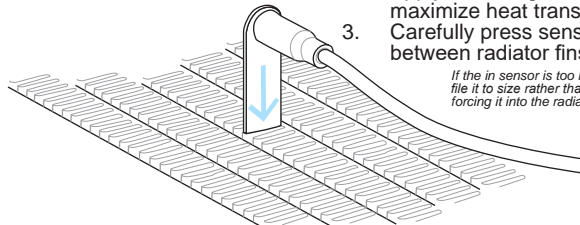
#### Radiator Hose Sensor Installation:

1. Drain fluid.
2. Measure inner diameter of hose *before* cutting.
3. Mark hose.
4. Cut hose.
5. Slide on hose clamps.
6. Install sensor & tighten hose clamps.

#### Radiator Fin Sensor Installation:

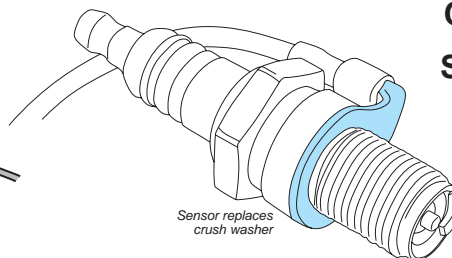
1. Confirm correct size.
2. Apply thermal grease to maximize heat transfer.
3. Carefully press sensor between radiator fins.

*If the in sensor is too large, file it to size rather than forcing it into the radiator.*



#### CHT Cylinder Head Spark Plug Sensor Installation:

1. Remove crush washer from spark plug.
2. Replace with temperature sensor.
3. Re-install spark plug.

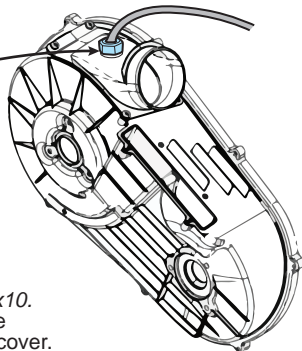


#### CVT Sensor Install: (Continuously Variable Transmission)

200°F+ Warning: CVT Belt wear occurs more rapidly at high temperatures.

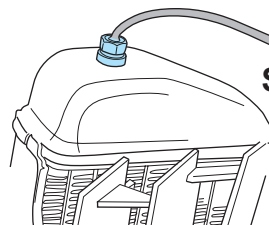
*Let the belt cool down to increase lifespan.*

1. Drill 13/64" (5mm) hole in hard plastic CVT exhaust.
2. Thread sensor into hole.  
*The sensor threads are M6x10.*
3. Use high temp RTV (silicone gasket sealer) to seal case cover.  
*Not included in kit.*



#### Screw Sensor Installation:

1. Remove radiator pressure relief bolt.
2. Replace with temperature sensor.



### GPS ANTENNAS:

#### Internal GPS Antenna:

The **INTERNAL** GPS antenna is adequate for normal use. If there is excessive metal around the Voyager Pro mounting location, the reception may be affected.

#### External GPS Antenna:

An **EXTERNAL** GPS antenna can be screwed into the back of the meter and mounted to achieve a better antenna position. The external GPS antenna available from Trail Tech should be mounted flat, on a non-metallic surface, with an unobstructed view of the sky.





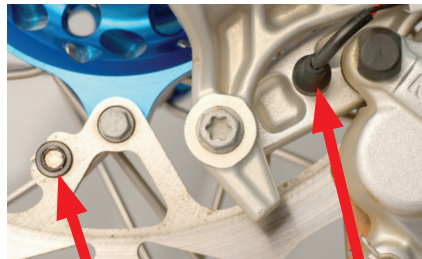


## WHEEL SENSORS INSTALLS

### KTM WHEEL SENSOR

Trail Tech wheel sensors work with the KTM and Husqvarna OEM install location.

Screw the wheel sensor into the OEM caliper position. Insert the black magnet into the pre-drilled hole in the rotor and secure with the retainer clip.



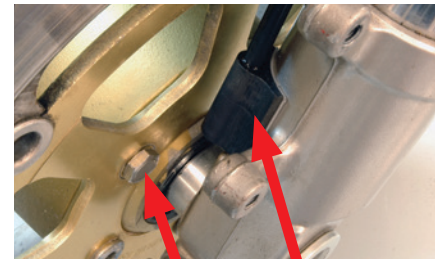
KTM Magnetic Retainer

KTM OEM Wheel Sensor Position

### CONVENTIONAL FORK SENSOR

If the fork is close to the brake rotor, then the VHB fork sensor can be used. Peel and stick the sensor to the fork.

Try to have the tip of the sensor about 1/2 inch away from the magnet in the rotor.



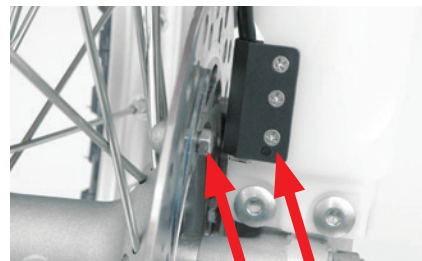
Rotor Bolt Magnet

Conventional Fork VHB Wheel Sensor

### INVERTED FORK WHEEL SENSOR

If there are fork guards next to the brake rotor, then the fork guard wheel sensor can be installed as shown.

Try to have the tip of the sensor about 1/2 inch away from the magnet in the rotor.



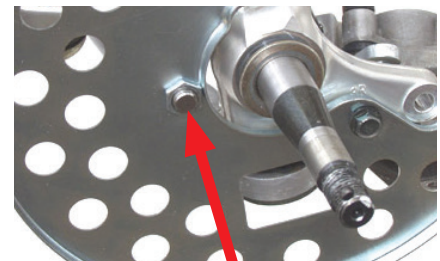
Rotor Bolt Magnet

Inverted Fork Wheel Sensor

### ROTOR SHIELD WHEEL SENSOR

For UTVs and quads with a rotor shield, position the sensor there.

Drill a 3/8" hole and use the jam nuts to secure the sensor to the rotor shield. Use loctite rather than over-tightening the jam nuts.

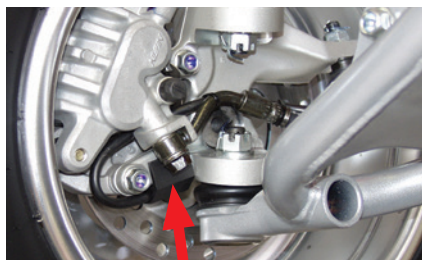


Rotor Shield Wheel Sensor

### BRAKE CALIPER WHEEL SENSOR

Some ATVs require mounting the wheel sensor directly to the brake caliper.

Drill a 1/8" hole through the caliper mount, then use the self-tapping screw to secure the sensor.

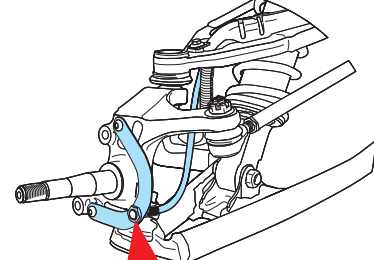


Brake Caliper Wheel Sensor

### C-BRACKET WHEEL SENSOR

Some kits include a metal C-bracket to help mount the sensor, as shown.

Use the jam nuts to secure the sensor to the C-bracket. Use loctite rather than over-tightening the jam nuts.



C-Bracket Wheel Sensor

### MAGNET INSTALLATION:

Install a magnet on the brake rotor to trigger the speed sensor each wheel rotation.

Remove one of the stock rotor bolts and install the magnetic rotor bolt as shown, do not over-tighten past 10 ft-lb of torque. If the magnetic bolt will not work, the kit includes a spare magnet that can be installed into one of the rotor spaces. Use the included retainer clip or epoxy such as JB Weld to secure.



Magnetic Rotor Bolt



Magnetic Retainer or Spare Magnet



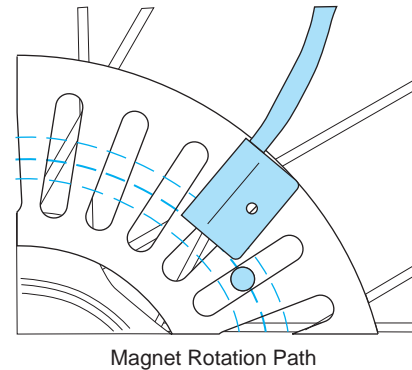
## WHEEL SENSORS SETUP

### WHEEL SENSOR TEST:

Test for correct sensor/magnet placement before permanently mounting.

1. Set the vehicle on a stand so that the front (left) wheel spins easily.
2. Plug the wheel sensor cable into the computer.
3. Install the magnetic bolt.
4. Hold the sensor in place on the caliper mount by hand. While someone watches the computer, roll the wheel. If the computer does not register, move the magnet or sensor and try again. There should be 1/2" or less gap between the sensor and magnet.

**Do not mount so that the magnet passes the middle section of the sensor. Either the sensor will not register at all; or the sensor will register twice, causing a "double trigger" effect (computer displays twice the true speed.)** If a double-trigger is unavoidable, divide the wheel size setting in the computer by 2 to correct the problem.



Magnet Rotation Path

### MEASURE WHEEL SIZE:

Knowing your exact wheel size is critical for the wheel sensor to calculate correct speed and distance data.

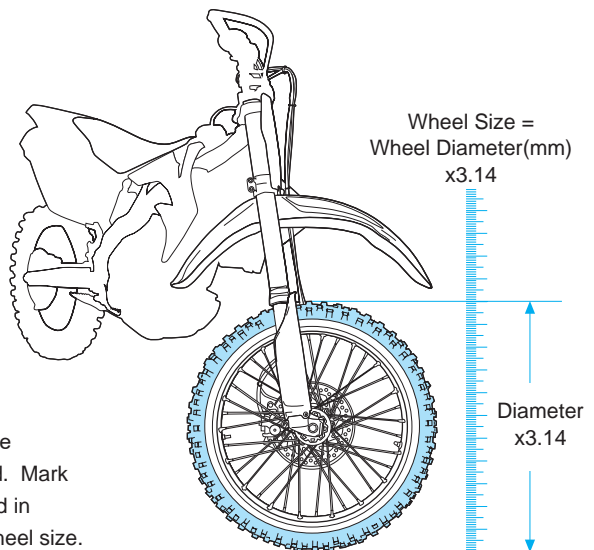
When comparing calibration to GPS data, use a long straight section of road with no tight corners or small vertical movements.

#### Method 1: Ruler

Find the circumference of front wheel by measuring its diameter in millimeters. Multiply the Wheel Diameter by 3.14. The result is your wheel size.

#### Method 2: Rolling

On a flat surface, mark the tire sidewall and the ground with a marking pen. Roll the wheel until the mark on the tire completes one revolution and is back on the ground. Mark the ground at this location. Measure the distance between the marks on the ground in millimeters (multiply inches by 25.4 to convert to mm). Use this number for your wheel size. For accuracy, the rider's weight should be on the bike when making the measurement.



#### Method 3: Distance Measurement

This is the most accurate method.

1. Set the wheel size to 2110mm (motorcycle) or 1675 (ATV).
2. Find a length of road where the distance is known.
3. Ride the distance, noting how far the computer reads (i.e. the road is known to be 5 miles and the computer shows 4.95 miles.)
4. Use the numbers to solve for X in the following equation:

$$(\text{new wheel size}) = \frac{(\text{actual miles}) \times (\text{current wheel size})}{(\text{current miles})}$$

$$X = \frac{5 \times 2110}{4.95} \Rightarrow X = \frac{10550}{4.95} \Rightarrow X = 2131$$

#### Generic/Average Sizes:

Motorcycle: 2110 mm  
ATV: 1675 mm

#### Wheel Size:

Enter the number you calculate from one of the above formulas into setup mode.

