

## Commercial Vehicle Productivity and Security

The 7050R2 and 7053R2 are high performance beacons designed for fleet management needs in all commercial vehicles.

Combined with our commercial mobile monitoring portal, subscribers can manage and view the location of any or all vehicles in a fleet, run a variety of valuable reports, and manage vehicle maintenance alerts.

The “R2” model is a variant of the base model that replaces the input with a second output.



### Kit Contents

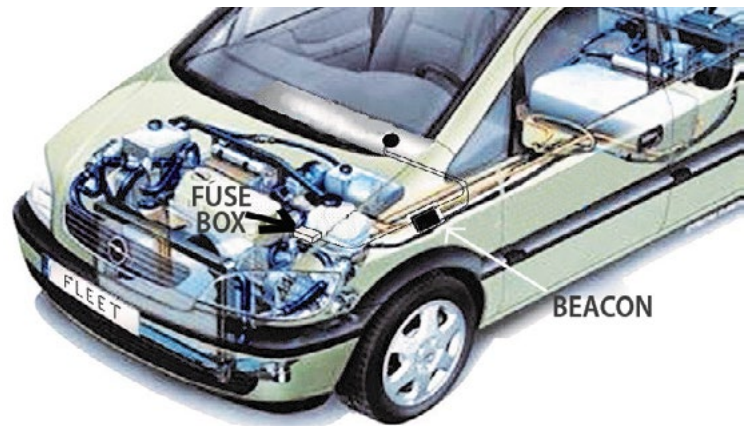
- GPS Beacon device with SIM
- Wiring harness

### Tools and Supplies Required

- Wire cutters, wire strippers
- Voltmeter (multimeter)
- Soldering iron, solder
- Electrical tape
- Plastic cable ties
- Screw drivers, mounting screws
- Wrenches, sockets

## Antenna Configuration

The 705xR2 beacon has a combined GPS/cell network antenna module housed within the beacon enclosure. The beacon must be positioned in the vehicle so that it has a clear signal path to as much of the sky as possible, without metal obstruction.



## Beacon Installation Position

- The beacon is not waterproof or weatherproof and should always be installed in the passenger compartment of the vehicle.
- Determine the best location for the beacon – any spot where the beacon can be fastened in place with plastic cable ties is suitable.
- It is important that the top face of the beacon (the side opposite the label) is facing the sky with no metallic obstruction. An ideal location is under the dashboard.
- It is recommended to secure the beacon in place only after all wiring is complete. Be sure it is not close to any heat sources or areas that experience moisture or vibration.
- Visibility of the indicator LEDs will be useful for testing and troubleshooting.

## Connect Power and Ignition Sense

The wiring harness included in the installation kit contains 7 wires. These wires are used for the basic installation: 8-32V constant power (red), ground (black), and ignition sense (white).

### Notes

- Connect the wiring harness to the power and ignition source, as well as any I/O sources (if used), before attaching the harness to the beacon.
- If wiring harness wires need to be extended, use the same gauge wire and solder the extension wire on, then insulate with heat shrink tubing or electrical tape.
- Ensure that no wires are routed near heat sources.

### Power Connection Instructions

- Connect the black (ground) wire to battery negative or the vehicle chassis – this wire **must** be connected first, before the power or ignition sense wires. Be sure the grounding screw is not painted or coated with an insulating material.
- With the vehicle's ignition turned OFF, use a multimeter to assist in finding a suitable, constant 8-32V power connection point – directly to the vehicle's battery may be best. **Important Note:** To prevent damage from excessive current, install a 3A fuse on the power wire.
- Ensure that any wires in the wiring harness that are not to be connected do not come in contact with power, ground, or any other voltage. Insulate them with electrical tape.

### Ignition Sense Connection

- **Important Note:** The ignition sense connection is mandatory. Failure to install the ignition sense correctly will result in erroneous data being reported from the beacon.
- Find a source of 8-32V that is switched on and off with the ignition key in the run position (accessory position is not acceptable). This connection should produce 8-32V when the vehicle ignition is ON and 0 Volts when the vehicle ignition is OFF. Connect the white (ignition sense) wire to this point. Voltage transitions must occur instantly. Gradual or stepped transitions from one voltage to another may not be detected. **Important Note:** To prevent damage from excessive current, install a 3A fuse on the ignition wire.

### Important Notices

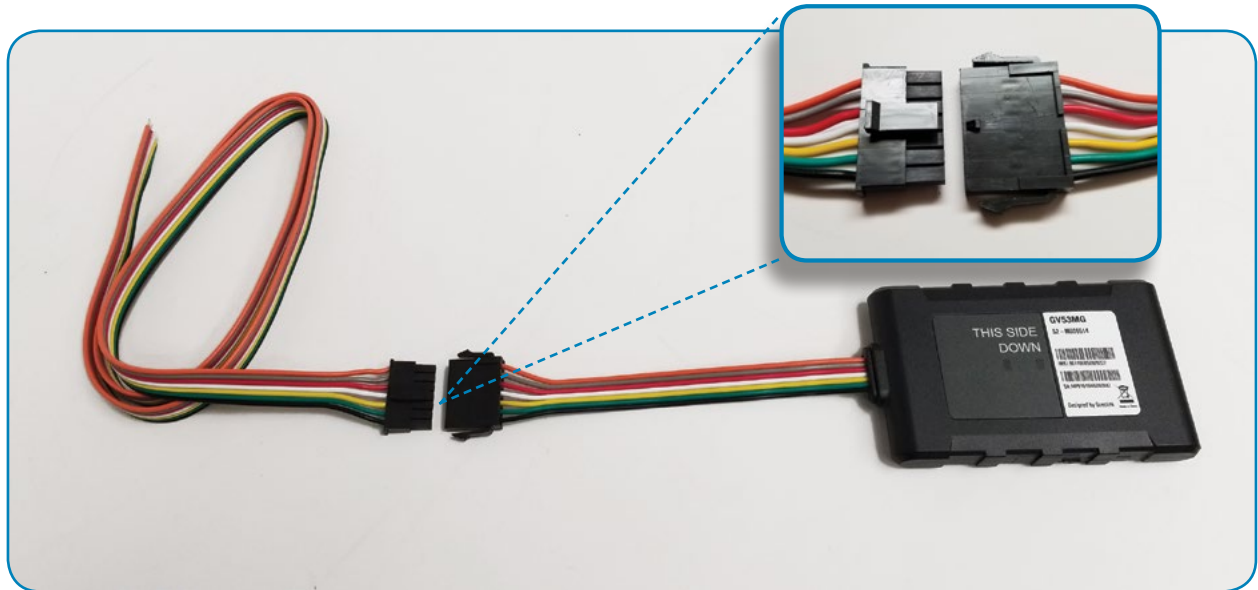
The 705xR2 beacon model is designed to operate from 8 to 32 volts DC. **8V is the minimum voltage at which the device will operate reliably.** The user is responsible for ensuring the voltage supplied to the beacon remains in this voltage range to include transient voltage spikes and load dump voltages. Failure to comply may damage the beacon. The current draw under normal operating conditions is approximately 44mA at 12V.

Typically, the device is connected to circuits in the vehicle that are already fused via the vehicle's fuse box. However, to ensure that damage from excessive current is prevented, **it is required that a 3A fuse be installed on both the power and ignition wires.**

**The beacon should never be connected to the same power source as the vehicle Electronic Control Module (ECM), as this may adversely affect the vehicle electronics.**

Failure to install the ignition sense correctly will result in erroneous data being reported from the beacon. This may result in false or incorrect reporting of vehicle starts, stops, ignition on and off.

#### Vecima 705x and Wiring Harness



#### 7-Pin Molex Connector – Pin Descriptions

Pin	Wire Color	Description
1	Orange	RXD (not used)
2	Grey	TXD (not used)
3	Red	Power input (+8 to +32v constant)
4	White	Ignition input
5	Yellow	Output 1
6	Green	Output 2
7	Black	Ground



#### Outputs

- Two outputs are provided which are used to remotely control vehicle functions such as door lock/unlock and starter disable/enable. Output 1 is on the Yellow wire (Pin 5) in the harness and Output 2 is on the Green wire (Pin 6).
- The outputs can be configured via the web portal to interactively toggle an external circuit between open and closed states, or to pulse the circuit to the closed state for either 1 or 3.2 seconds, then automatically open the circuit.
- To close an external circuit, the beacon output acts as a ground source (or what is referred to as a current sink) to the external circuit. To open an external circuit, the output will be open. Since the output can draw a maximum current of 150mA, it is recommended that you use the output to control a relay and use the relay to manage the external circuit.

### Connect and Mount Beacon

- Attach 7-Pin Molex on the wiring harness to the beacon and ensure that the retaining clips snap in place. Attach the wiring harness to the beacon and ensure that the retaining clip snaps in place.
- Affix the beacon securely to the vehicle using the mounting slots found on either side of the case. If the beacon is not securely mounted, it may report false start, stop as well as other erroneous events.
- If a suitable panel for affixing the beacon is not available, fastening the beacon to a bracket or wire bundle with plastic cable ties is also adequate. Be sure to secure any loose or extra lengths of wire.

### LED Indicators

The 705xR2 beacon has two LEDs on the front of the device which indicate the current state of the Cell and GPS connectivity. Please refer to the following chart to determine the connectivity state:

Cell (Green LED)	Device is searching for the Cell network	Fast flashing
	SIM card requires code to unlock	On
	Device has registered to the Cell network	Slow flashing
GPS (Red LED)	GPS is asleep	Off
	GPS is fixed	On
	Device is searching for GPS	Fast flashing

Note: Fast flashing intervals are about 100ms ON followed by 200ms OFF. Slow flashing intervals are about 200ms ON followed by 1000ms OFF.

### Warnings and Known Issues

- It is important that the Molex connector is installed fully into the beacon, and that the device is firmly attached to the vehicle. Excessive vibrations from a loose installation can cause incorrect results.
- The 705xR2 beacon is not a waterproof or sealed device. Care must be taken to ensure the device is kept away from water or any other liquids, as well as excessive dust.
- If an older model 6xxx device is being replaced with a 705xR2, do not use the 705x adapter cable as this may result in damage to the beacon. Please remove the 6xxx wiring harness from the vehicle and use a 705x wiring harness instead.