Vehicle Productivity and Security

The 7400H is a versatile GPS tracking beacon, designed for fleet management needs in all commercial vehicles. The "H" designation in the model number indicates that the beacon is hardwired when installed in the vehicle.

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.

Kit Contents

- GPS Beacon device with SIM
- GPS External Antenna (if required)
- Wiring harness

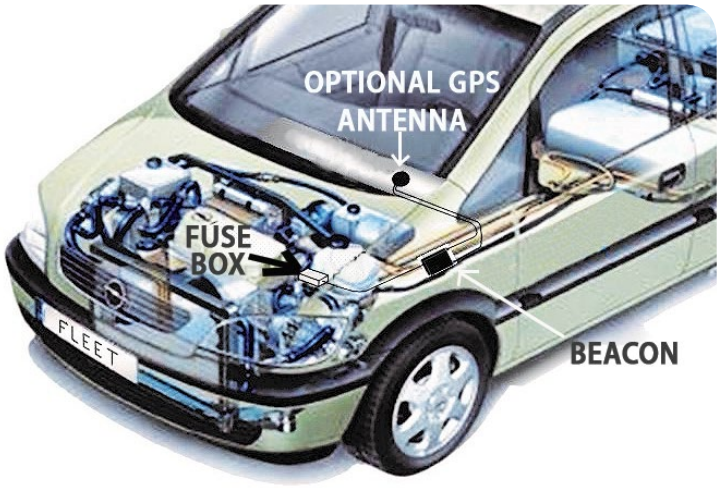
Tools and Supplies Required

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

Antenna Configuration

The 7400H beacon has a combined GPS/cell network antenna module contained within the beacon casing. An optional external GPS antenna may be connected to the beacon to boost the GPS signal reception if required.

For internal antennas, the beacon must be positioned properly for good signal reception. If the Optional external GPS antenna is used, it 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.



Optional GPS Antenna Installation

The following antenna models are supported:

Standard Antenna

- Part Number: 74xx-ANT-STD
- Black plastic housing; approx. 1.7 x 1.4 x 0.5 in (43 x 36 x12 mm)
- Mounted with peel-and-stick adhesive patch

For best performance, the top of the antenna should face the sky through the area of least signal blockage.

- An ideal location is underneath the front windshield glass. For covert installations, an ideal location is under the dashboard as close to the front windshield as possible.
- In a car, the antenna can be mounted under the rear window or in a trunk, under the rear deck, as close to the rear window as possible.

Antenna Installation Notes

- Signals will penetrate upholstery, carpet, plastic dashboards, etc., but not metal panels or brackets.
- Signals will penetrate window glass but not metallic tinted windows or painted edges of windows.
- Radio antenna or defrost wires embedded in glass may degrade signals.

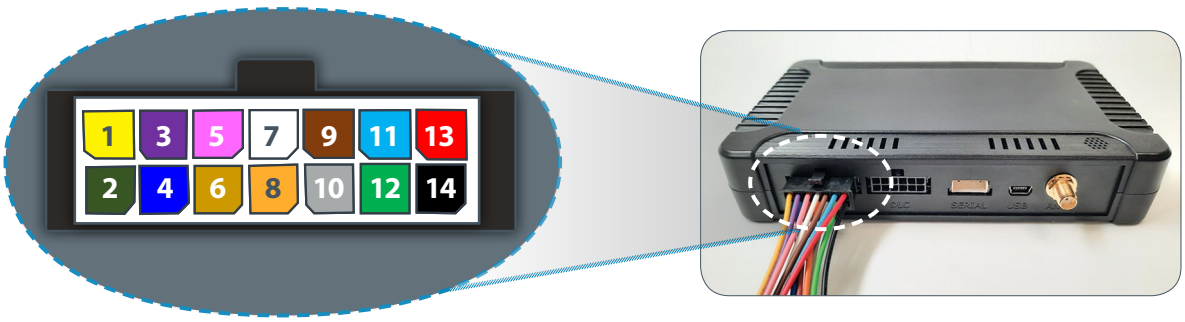
Beacon Installation Position

- 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 recommended to secure the beacon in place only after all wiring is complete.
- If the optional external GPS antenna is used, under a seat is often a suitable location for beacon installation. Be sure it is not close to any heat sources or areas that experience moisture or vibration.
- If the internal antenna is used, it is important that the top face of the beacon is facing the sky with no metallic obstruction. In this case, the beacon is ideally located under the dashboard.
- Visibility of the indicator LEDs will be useful for testing and troubleshooting.

7400H Power Harness

The included wiring harness for the 7400H has a 14 pin Molex which plugs into the port labelled "I/O" on the back panel of the beacon. The colored wires are described below.

14 Pin Power Harness and I/O Connector – Physical Pin Out



14 Pin Power Harness and I/O Connector – Pin Descriptions

Pin	Wire Color	Description
1	Yellow	Ignition input (+)
2	Dark Green	Switch 1 input (+)
3	Purple	Switch 2 input (-)
4	Blue	Switch 3 input (-)
5	Pink	[not used]
6	Light Brown	Switch 4 input (-)
7	White	Relay 1 output (-)
8	Orange	[not used]
9	Dark Brown	Relay 2 output (-)
10	Grey	[not used]
11	Light Blue	[not used]
12	Green	1-Wire data [Driver ID, Temperature Sensor] (coming soon)
13	Red	Power input (DC 8V to 40V)
14	Black	GND

Connect Power and Ignition Sense

These wires on the 7400H power harness are used for the basic installation: 8-40V constant power (red – Pin 13), ground (black - Pin 14), and ignition sense (yellow – Pin 1).

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 8-40V 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 8-40V that is switched on and off with the ignition key in the run position (accessory position is not acceptable). This connection should produce 8-40V when the vehicle ignition is ON and 0 Volts when the vehicle ignition is OFF. Connect the yellow (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 7400H beacon is designed to operate from 8 to 40 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 between 45-180mA 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.

Auxiliary Input

- The auxiliary inputs can be used to detect and report the opening and/or closing of a circuit. There are four auxiliary inputs available on the 7400H beacon, as indicated in the wire descriptions above. Note that a minimum voltage of 8V is required to trigger any input.
- Auxiliary input 1 is considered to be closed when connected to a vehicle power source and are considered to be open when connected to ground or an open circuit. Auxiliary inputs 2, 3 and 4 are considered to be closed when connected to ground and are considered to be open when connected to a vehicle power source or an open circuit.
- When using auxiliary inputs to measure the state of vehicle circuits, it is recommended that you use a relay to control the input signal to the device.

Output

- Outputs can be used to remotely control vehicle functions such as door lock/unlock and starter disable/enable. There are two outputs available on the 7400H beacon, as indicated in the wire descriptions above. Both outputs are configurable for general use.
- 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 300mA, it is recommended that you use the output to control a relay and use the relay to manage the external circuit.

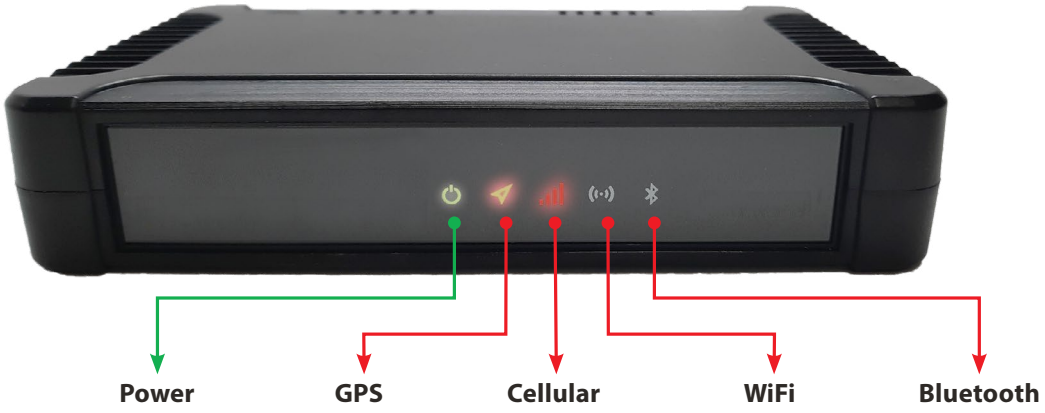
Connect and Mount Beacon

- Attach the 14-Pin Molex on the wiring harness to the port labelled "I/O" on the back face of the beacon. Ensure that the

retaining clip snaps in place.

- Affix the beacon securely to the vehicle. If the beacon is not securely mounted, it may report false Starts and Stops 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



LED	LED Color	LED Pattern	Description
Power	**Green**	1 Short blink (0.1 second) every 8 seconds	The device is in sleep mode
		Solid ON	The device is in full operation mode
		Fast blinking	The device is in full operation mode, and ECM data is transmitting
GPS	**Red**	Steady blink (0.7 seconds ON, 0.7 seconds OFF)	Searching for GPS signal
		Solid ON	GPS position fixed
Cell Network	**Red**	OFF	Cell module is OFF
		Steady blink (0.7 seconds ON, 0.7 seconds OFF)	Searching for Cell signal
		Slow blink (0.2 seconds ON, 2 seconds OFF)	Cell network registered
		2 Blinks every 2 seconds	Cell network connected
		Solid ON	Server is connected
		Continuous fast blinking	SIM PIN error
Wifi Hotspot	**Red**	OFF	This feature is not used
Bluetooth	**Red**	OFF	This feature is not used

Warning and Known Issues

- It is important that the cable is securely attached to the beacon, and that the device is firmly attached to the vehicle. Excessive vibrations from a loose installation can cause incorrect results.
- The 7400H 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.