Satellite Radio Installation Guide

Tools Needed: (depending upon vehicle)

<table>
<thead>
<tr>
<th>Flat Blade Screwdriver</th>
<th>Phillips Screwdriver</th>
<th>Panel Tool</th>
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<tr>
<td>Pliers</td>
<td>Drill &amp; Bit Set</td>
<td>Utility Knife</td>
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<tr>
<td>Wire Stripper/Crimp Tool</td>
<td>Socket &amp; Ratchet Set</td>
<td>Torx Driver Set</td>
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As with any car audio/video installation, your first step is to disconnect the negative terminal of your car battery to prevent short circuits. Check your Crutchfield MasterSheet™ (available for most vehicles) or vehicle owner’s manual for specific directions. In some vehicles, disconnecting the battery may require you to re-enter a security code or have the dealer reset the internal computer.

Note: Both plug-and-play and dedicated in-car satellite radio tuners require the installation of a satellite radio antenna. The satellite radio antenna installation process is virtually the same for both types of tuners, and will be covered in the last section of this guide.

IMPORTANT

Before starting, compare items on your invoice with items received. Carefully check through packaging material. If any item is missing, please call: Crutchfield Customer Service at 1-800-955-9091

Although reasonable attempts are made to verify the accuracy of the information contained in this guide, it is presented without warranties or guarantees of any type due to the constantly changing nature of this type of information and running changes in vehicle production. Any person or entity using this information does so at his or its own risk. If you find our instructions do not apply to your vehicle, or if you have questions, do not continue with your installation. Contact our toll-free technical support for assistance (Tech support phone number is on your invoice).
Installing a Plug-and-Play Tuner

The most popular way to get satellite radio in the car is with a plug-and-play tuner. This is a removable tuner that can be played through both car and home stereos with the appropriate accessory kits.

Plug-and-play tuners must be mounted in the cradle, also called the docking station, found in the car accessory kit. Power and signal connections are usually made at the cradle.

There are two ways to mount the cradle in your car:

1. Using the included mounting hardware
2. Using an optional vehicle-specific mount

Accessory kit mounting hardware
The cradle’s mounting hardware typically features an arm with an industrial-strength, self-adhesive pad on a backing plate. To install the cradle using the included hardware, first find a convenient spot on your dash to mount the cradle. You’ll want to make sure that you can reach it easily and that the tuner isn’t blocking any of your dash controls. It helps to have someone hold the tuner in place while you sit in the driver’s seat to check the placement.

Once you’re sure where you want to mount the cradle, swab the area with a cleansing pad (included in most kits), peel the backing off the self-adhesive pad, and stick the mount in place. Apply moderate pressure for a minute or so to ensure that the pad adheres correctly. Some vehicle kits also include screws for a more permanent installation, though you’ll want to think carefully before drilling into your dash.

Once the mount is in place, slide the tuner into the cradle, make the appropriate signal and power connections (see page 4), and you’re ready to go.

CAUTION:
Always be careful when drilling or cutting in a vehicle. Be aware of things such as wiring, windows, fuel lines and safety devices. Check drilling/cutting depth and location to avoid damage to vehicle appearance.
Optional Vehicle-specific Mounts

Vehicle-specific mounting kits let you install select satellite radio tuners (or controller/displays) in hard-to-fit vehicles without modifying the dash. These typically bolt to the dash frame and offer a backing plate for mounting the tuner’s cradle (you’ll still need the tuner’s car accessory kit; you just won’t use the included mounting hardware).

There are three advantages to vehicle-specific mounts:

1. Vehicle-specific mounts fit in convenient spots (selected by the manufacturer) that do not interfere with dash features such as climate controls and air-conditioning vents.
2. Vehicle-specific mounts are designed to blend-in well visually.
3. Since vehicle-specific mounts are bolted into place, the installation is more sturdy and permanent-looking than standard adhesive-pad methods.

Installation of a vehicle-specific mount varies from vehicle to vehicle. In general, though, you’ll likely have to engage in some dash disassembly and reassembly. The instructions included with the mount will guide you through the process for your vehicle.

Once you’ve installed the mount, you will need to attach the vehicle kit cradle to the bracket. This can be done by matching the bolt pattern on the bracket with the small screw holes on the back panel of the tuner’s cradle and using the screws that come with the mount. You can also choose to use the self-adhesive pad to attach the cradle to the mount arm, though this is less secure than using screws.

Note: Vehicle-specific mounts are not available for all vehicles. Check our online fit database by clicking on “What fits my car?” at Crutchfield.com or call a Sales Advisor to see if we have one for yours.

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Part of the appeal of plug-and-play tuners lies in the simplicity of their connections. Power, for example, is supplied through a DC power adapter. You simply plug one end in the appropriate place on the cradle, then plug the other end into your vehicle’s DC power outlet (cigarette lighter).

Antenna Connection for Plug-and-Play Tuners
The antenna connection brings the satellite signal to the tuner. The antenna connection is straightforward: the antenna’s connector, called a FAKRA plug, simply inserts into the appropriate input on the cradle.

Signal Connections for Plug-and-Play Tuners
There are three options for getting the sound from your satellite radio tuner to your in-dash receiver:

1. Cassette adapter
2. FM modulator
3. RCA patch cables

Cassette adapter
If you have an in-dash cassette deck, you can use a cassette adapter (often included with the car accessory kit) to input the sound. Simply plug the mini-jack end into the cradle’s audio output, and insert the cassette adapter in the deck.

FM modulators
There are two types of FM modulators: wireless and wired.

Many newer plug-and-play tuners feature built-in wireless FM modulators. All you have to do is tune your FM stereo to an unused frequency, engage the modulator on the tuner, and select the corresponding frequency. The tuner then “broadcasts” the signal wirelessly over that frequency; your receiver’s antenna picks it up the way it would any FM signal. The drawbacks include the potential for interference, and the fact that you might have to change broadcasting frequencies as you move into new areas which feature stations on different frequencies.

Wired FM modulators plug directly into the back of your receiver. One end goes into the receiver’s antenna input; the antenna input goes into the FM modulator. The plug-and-play tuner then connects to the modulator via its audio output. As with the wireless modulator, the satellite signal is “broadcast” over an unused frequency. This type of modulator is less susceptible to interference than its wireless counterpart, but you still might have to change stations when traveling.
To install a wired FM modulator, first find a good mounting location. Keep in mind that you will need to access your factory radio through its antenna input, as well as connect the satellite radio tuner to the modulator.

Most FM modulators require a 12-volt connection to a switched (on/off) power source. Since you have to remove your radio to get to the antenna input, you’ll have easy access to the power and ground wires in your factory radio harness. If you don’t want to splice into your factory wires, you can make the power connections at your fuse panel. Look for empty fuse holders and insert fuse taps, which help you connect wire to the fuse panel. You’ll also have a black ground wire that must be secured beneath a nearby screw that makes contact with bare metal on the body of the vehicle.

Following the instructions on your Crutchfield MasterSheet™ (available for most vehicles), remove your receiver from the dash and unplug the antenna from the rear of the unit. Plug the vehicle’s antenna cable into the antenna input on the FM modulator. Next, run the output of the modulator to your receiver’s antenna input (certain vehicles require an antenna adapter — use the online Vehicle Selector or call a Sales Advisor to inquire about a specific vehicle). If this leaves slack in your antenna lead, tie it up so it won’t interfere with safe vehicle operation.

Install the satellite radio tuner and make all of the audio connections at the FM modulator. Determine which of the available modulation frequencies is least likely to be shared by a strong local radio signal and tune the modulator to it before you mount the hideaway box (on some models you can change this setting on the fly).

RCA patch cables (auxiliary input)

If your in-dash receiver has an auxiliary audio input, you can take advantage of the option that gives you the best sound of all: RCA patch cables. You need to run the cables from the cradle (they plug in here via a mini-jack connection) to your receiver’s auxiliary inputs. You’ll get the fullest bandwidth response, and your system won’t be susceptible to radio-wave interference.
There are two types of dedicated in-car tuners: universal tuners and tuners that work with a compatible, same-brand in-dash receiver.

**Universal in-car tuners**
Universal satellite radio tuners can connect to any stereo via a built-in wireless FM transmitter or a wired FM modulator. Universal tuners include a wired display/control module that must be mounted in or near the dash. The FM modulator installs as described above. The wired display/control unit usually comes with a flush-mount cradle and the necessary hardware to permanently mount to your dash.

**Aftermarket in-car tuners**
Aftermarket satellite tuners connect to a compatible, aftermarket receiver’s changer-input port using an included proprietary cable. The receiver controls all of the tuner’s functions, while the single connection provides the satellite radio signal to the receiver, and power to the tuner. This wiring and control convenience make a dedicated tuner a viable and attractive satellite radio option.

The tuner box itself installs much like a CD changer. The first thing you need to do is find a good location for it. Under the passenger seat is the most common location. However, you should take into account the fact that you need to run the antenna cable to the tuner, and the tuner cable to your receiver, so finding a spot convenient for both is ideal.

The tuner box has four mounting feet, one on each corner. Once you’ve found the spot in which you’d like to mount it, mark the location of the feet. You’ll then have to drill holes for the screws (which are usually included with the tuner). Note: before drilling, check beneath the mounting location to make sure you don’t puncture the fuel tank, fuel lines, transmission or brake lines, etc. If all is clear, drill away. Then all you have to do is secure the box in place with the screws.

To ensure neat cable runs that are out of sight, you might have to remove trim panels and pull up some of your vehicle’s carpet. Though not difficult, this should be done carefully. Once the cables are connected, and the tuner is mounted, you’re ready for satellite radio.

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**SAFETY CHECK**

✔ Check that wires do not interfere with window operation.
✔ Test window and door lock operation.
✔ Make sure seats and seat belts are secured to manufacturers specifications.
✔ Check brake light wiring connection and test operation.

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A universal satellite radio tuner comes with a wired display/control unit that mounts permanently, for a sleek, factory installation look.

Under a front seat is the most popular location for mounting a dedicated satellite radio tuner. Cut slits in the carpet and you can run the wires directly to the receiver.
Installing A Satellite Radio Antenna

**Installing a Satellite Radio Antenna**

The antenna is a vital element of your satellite radio setup; without it, you can’t receive the signal. The best place to mount the antenna is on the roof of your vehicle, as far from obstructions (such as roof racks) as possible. This will ensure the best possible signal reception and reduce instances of signal dropout.

Most new satellite radio antennas feature magnetic bases which secure tightly to your vehicle’s roof. Some also incorporate self-adhesive pads, but these are not as easy to remove and are generally not used unless the installation is, without a doubt, permanent.

The biggest challenge is running the antenna cable into the vehicle, and strategies for doing so vary depending on the type of vehicle in which you’re installing the system.

**Passenger cars**
The most common strategy is to mount the antenna on the roof, then run the cable under the weather-stripping around the back window. This often allows you to run the cable into the trunk without exposing it. From there, you can run the cable along with the existing wires into the cab of the vehicle, all the way to the tuner box. You might have to remove some trim paneling and pull up some of your vehicle’s carpet in order to run the cable unseen to the tuner box.

**Pickup trucks**
The most popular option is to mount the antenna on the roof, remove the third brake light (or bed light), route the antenna cable into the vehicle through this opening, then replace the light. In a few cases, this might require extensive panel removal in the truck in order to get the cable to the tuner box, but it provides an excellent, water-tight option.

**SUVs**
SUVs offer perhaps the easiest antenna solution. With the tailgate open, the cable can be run underneath the weather stripping, then under the carpet all the way to the tuner box.

For a visual overview of these processes, be sure to check out CrutchfieldAdvisor.com’s satellite radio installation video. It’ll give you a good idea of the work that goes into installing an antenna in various types of vehicles.