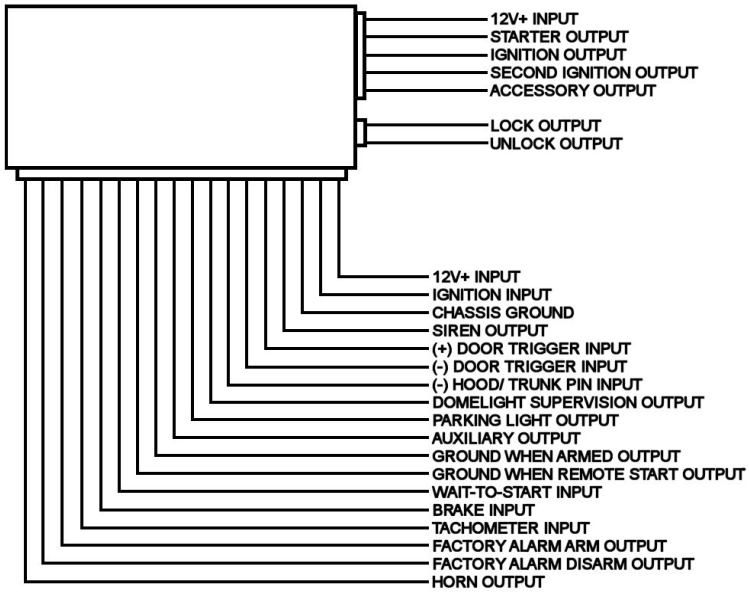
INSTALLATION SEQUENCE

WIRES OF AN ALARM AND REMOTE START SYSTEM AND WHAT THEY CONNECT TO:



WIRE FROM SYSTEM	WIRE IN VEHICLE TO CONNECT TO
12V+ INPUT (large gauge wire)	Connect to high current 12V+ source such as the 12V constant wire in the ignition harness or the battery
STARTER OUTPUT (large gauge wire)	Connect to starter wire at ignition harness
IGNITION OUTPUT (large gauge wire)	Connect to main ignition wire at ignition harness
SECOND IGNITION OUTPUT (large gauge wire)	Connect to second ignition wire at ignition harness. Not all vehicles will have a second ignition wire.
ACCESSORY OUTPUT (large gauge wire)	Connect to main accessory wire at ignition harness. Some vehicles have more than one accessory wire. If so, each additional accessory wire must be energized with a relay.
LOCK OUTPUT	Usually a low-current output. Connects directly to the lock wire on some vehicles. Relays or diodes will be required to interface on most vehicles.
UNLOCK OUTPUT	Usually a low-current output. Connects directly to the unlock wire on some vehicles. Relays or diodes will be required to interface on most vehicles.
12V+ INPUT (smaller gauge wire)	Some systems have an additional 12V+ input wire. This will connect to the 12V+ constant wire in the ignition harness or the battery
IGNITION INPUT	Connects to the main ignition wire at the ignition harness
CHASSIS GROUND	Connects to the chassis of the vehicle preferably at a factory ground point
SIREN OUTPUT	Typically connects to the siren's RED wire. The BLACK wire from the siren is connected to chassis ground.
(+) DOOR TRIGGER INPUT	Connects to the vehicle's (+) door trigger wire if the vehicle has a (+) door trigger.
(-) DOOR TRIGGER INPUT	Connects to the vehicle's (-) door trigger wire if the vehicle has a (-) door trigger
Some vehicles with (-) door trigger wires have a separate door trigger wire for each door. All door triggers must be located and diode isolated.	
DOMELIGHT SUPERVISION OUTPUT	This will connect to the vehicle's dome light wire or door trigger wire. Usually programmable for (+) or (-) door trigger circuits. Check your alarm/remote start system's documentation
PARKING LIGHT OUTPUT	Connects to the vehicle's parking light wire. Relays or diodes will be required to interface on some vehicles.
AUXILIARY OUTPUT	Can be used to operate a trunk release, fuel door release, power windows or other features. Relays or other parts may be required.
GROUND WHEN ARMED OUTPUT	Usually used to wire a starter kill relay. Can also be used to provide a negative trigger for modules that require a signal when the alarm is armed.
GROUND WHEN REMOTE START OUTPUT	Typically connects to modules used to bypass factory security systems when remote starting the vehicle. May also be used to wire relays for additional starter, ignition, or accessory wires for remote starting the vehicle.
WAIT-TO-START INPUT	On diesel vehicles connects to one of the wires from the wait-to-start bulb in the dash. May require relays or other parts on some vehicles.
BRAKE INPUT	Connects to the vehicle's brake light wire
TACHOMETER INPUT	Connects to the vehicle's tachometer wire
FACTORY ALARM ARM OUTPUT	Connects to the vehicle's factory alarm arm wire or can be used with a relay to simulate locking the doors with a door open.
FACTORY ALARM DISARM OUTPUT	Connects to the vehicle's factory alarm disarm wire
HORN OUTPUT	Connects to the vehicle's horn wire. May require a relay.

INSTALLING AN ALARM AND REMOTE START SYSTEM WITH KEYLESS ENTRY:

1. **Begin by carefully disassembling the vehicle**. Typically, the dash below the steering wheel, driver's running board, and kick panel will need to be removed to access the vehicles wiring. Some vehicles may require that some of the vehicle's door panels be removed as well as the running board and kick panel on the passenger side. When disassembling the vehicle document the disassembly procedure so you know how to reassemble the vehicle. Place all disassembled parts in a safe place where they will not be accidentally lost or stepped on.

2. **If you haven't already done so, locate and tag (with wire ties or masking tape) the wires in the vehicle you will need to connect to**. Knowing the exact locations of the wires before you begin installing the system will help you plan out where you need to route your wiring.

3. **Begin installing the system by mounting the system's control** unit. Install the control unit securely in a safe, dry place **inside** the vehicle. Never install the control unit under the hood. The control unit should be mounted in a suitable location that would be difficult for a potential thief to located, but allow for convenient installation position. Do not mount the control unit in the way of any moving parts. Do not mount the control unit near any heat sources. Mount the control unit in a way that it does not vibrate or rattle. Avoid installing the unit anywhere easily visible under the driver's side dash. The first place a thief will go when attempting to steal a car is the driver's side under dash to access the starter and ignition wires. If the control unit is easily visible, it can be disconnected and defeated during a theft attempt. Some good locations are above or behind the glove box, under the center console, above the under dash fuse box, or in the dash behind the radio. For maximum remote range, mount the control unit high under the dash and as far away as possible from metal.

4. **Route the antenna**. The position and location of the antenna will affect remote control range. Do not shorten or lengthen the antenna. Route the antenna wire away from the control unit. Avoid running the antenna along any wire harnesses. Keep the antenna and control unit as far away from metal as possible. If the antenna is intended to be mounted to the windshield, it is recommended that the antenna be placed behind the rear view mirror or in the upper corner of the passenger side of the windshield with the antenna pointing down.

5. **Mount the LED status indicator.** Most alarm and remote start systems have an LED status indicator used for system programming and diagnostics. It also serves as a theft deterrent. The LED should be installed in a place visible from both sides and the rear of the vehicle. It is best to install the LED on a small removable panel like a blank switch or dash bezel. Check for clearance on both sides before any drilling. Use quick-disconnects near the LED if the panel is removable. This allows the panel to be removed without having to cut wires

6. **Mount the override/ program switch.** Alarm and remote start systems have an override switch to disable the alarm system if the remotes are damaged or missing. The switch is also used for feature programming. Care must be given to mounting the override switch since just by hotwiring the ignition and flicking the switch, a thief can disarm the alarm and steal the car. The alarm override switch should be mounted in someplace hidden but convenient. Good locations include behind the hood release lever, inside the ashtray opening, inside the center console (where it can't be accidentally bumped), or in the glove box. Before drilling, check for clearance on both sides.

7. **If the alarm system has an outboard shock sensor (the shock sensor is not "built-in" to the control unit), secure the shock sensor.** Shock or impact sensors are the most common sensors included with vehicle security systems. They are designed to detect various degrees of impact to the vehicle during a break-in attempt. Some shock sensors have a dual-stage response. A light shock to the vehicle may only chirp the siren and/or flash the parking lights to warn away a potential thief or intruder. A heavy shock will trigger the alarm. These sensors are most effective in detecting a punched-out door lock. However, when adjusted to be sensitive enough to detect breaking glass, they will false alarm. The shock sensor should be securely mounted underneath the dash. Use double sided tape or a wire tie to secure it to an air duct, wire harness, or trim panel. Avoid mounting it in the way of any moving parts or relays. Avoid mounting it to the steering column or screwing it to metal, as it will cause poor sensitivity

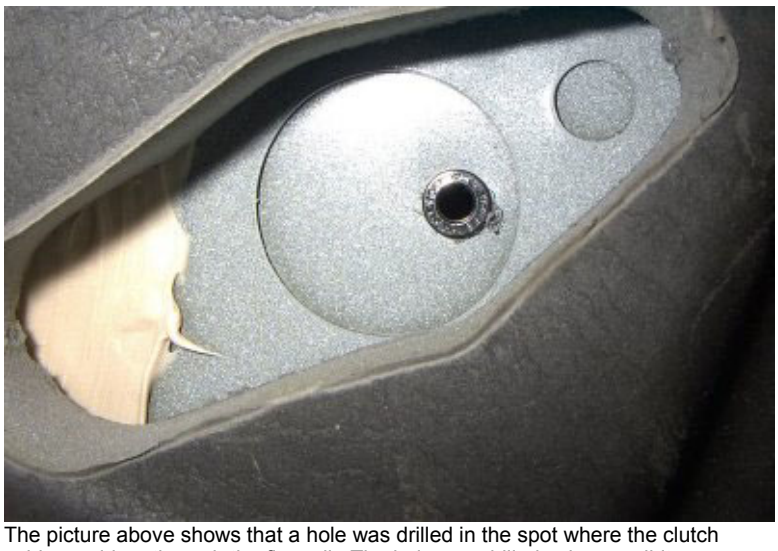
8. **Secure the radar, microwave, or field disturbance sensor.** Most aftermarket systems do not include radar sensors but most allow for additional sensors to be added. These sensors are very useful in helping protect vehicle contents. They flood the area to be protected with a microwave energy field. When the field is disturbed by a large mass such as a human body, the sensor sends a trigger to the alarm control unit to trigger the alarm. The larger the object the faster the sensor will react. These sensors are ideal for protecting convertibles and vehicles with removable tops. Like most shock sensors, these sensors can also be dual stage sensors. This means they can warn at a distance and trigger to a full alarm if the interior space is entered. Radar, microwave, and field disturbance sensors generally cover an area similar to the head of a mushroom. It should be mounted in the center of the interior of the vehicle, facing upward. If your vehicle has a center console between the front seats, mounting the sensor under this console facing up may be an ideal location. Make sure that the sensor is not placed behind any metal parts or major harnesses of the car. The sensor will detect through fabric or plastic, and it needs to face towards the area that is to be protected. The sensor should always be adjusted outside, away from any fluorescent lights. These lights, as well as temperature, and weather conditions can affect the sensitivity of these sensors.

9. **After mounting the control unit, shock sensor, and any additional sensors or modules, route the wires to their intended locations inside the vehicle**. In most vehicles you will need to route your wiring to the ignition harness, the driver's kick panel, under the hood, the trunk, passenger kick panel, and sometimes inside one or more of the vehicle's doors. Plan out what wires need to be routed to each location and carefully route your wires to that location. Wires should be carefully run from the control unit to each component. Wires should be wrapped in electrical tape, split loom, or plastic tubing to match the look of the factory wires. Wires should be run alongside factory wires to make the wires look as if they came that way from the factory.

10. **Running wires from the control module inside the vehicle to the locations under the hood should be carefully considered.** Unlike an amplifier power wire, the wires from an alarm and remote start system are relatively small gauge, which makes using an existing hole through the firewall a good option. An alternate method, if an existing hole cannot be found or if thicker wires must be run to provide power to the alarm and remote start system, is to drill a hole in the firewall. Be certain not to drill through any fluid lines or factory cables. Use a plastic grommet to protect the wires from being cut by the metal edge of the drilled holes.

TIPS FOR ROUTING WIRES THROUGH THE FIREWALL:

- Most vehicles have rubber grommets that are large enough to feed your siren wire through using a coat hanger.
- If the vehicle has an automatic transmission, there is usually a spot reserved for where the clutch cable would go through the firewall. This is usually an excellent spot to drill a hole.
- Avoid drilling a hole whenever possible. Some vehicles have wires, fuel lines, or brake lines that run inside the firewall, invisible from either side



The picture above shows that a hole was drilled in the spot where the clutch cable would go through the firewall. The hole was drilled using a unibit.

A unibit is the preferred method of drilling through metal.

Whenever drilling holes always use a plastic or rubber grommet to protect your wiring and prevent any sharp edges from damaging the wire's insulation and causing any possible shorts.

A few examples of hood pins added for an alarm/remote start installation:

11. **Mount the siren.** The siren must be mounted securely under the hood. Mount the siren where the siren cannot be seen or reached from below the vehicle. Mount it away from any heat sources or moving parts Point the siren down to avoid water collecting in it.

12. **Make your connections under the hood**. For most alarm and remote start installations you will need to locate and connect to the vehicle's tachometer wire and hood pin wire under the hood. Most remote start systems have a hood trigger input to shut down or disable the remote start when the hood is opened. This is a safety feature. For a security system, the hood trigger input will trigger the alarm if the hood is opened. The intent of a hood trigger input is to protect the engine compartment and the contents that are susceptible to tampering such as the siren, battery, or starter. Generally, models equipped with a factory security system have a factory hood pin switch. Some vehicles do not have a factory hood pin. In order to protect the engine compartment a hood pin must be added. Some systems include a pin switch and pin switch bracket that can be used as a hood pin, or they are available at most car audio and electronics stores. The pin switch bracket is used to mount the hood pin switch. The bracket is typically and "L" shape and is mounted to the side of the firewall or inside fender area.

13. **Make your connections inside the driver's door**. This will not be necessary on most vehicles, but a handful of vehicles will require making connections inside one or more of the doors of the vehicle. This may be required if the door lock wires, door trigger wire, or factory alarm arm or disarm wires are located only inside one or more of the doors of the vehicle.

14. **Make your connections in the driver's kick panel.** This is the area under the driver's side dash on the far left side. On many vehicles the door lock wires, door trigger wire, parking light wire, brake wire, factory alarm disarm wire and/or trunk trigger wire can be found in the driver's kick panel. These wires may be found at a module up high in the driver's kick panel or in the corner against the firewall or they may be found low in the drivers kick panel in a harness leading towards the rear of the vehicle.

15. **Make your connections in the passenger kick panel or behind the glove box.** It will not be necessary to make connections in this location in many vehicles, but on some vehicles wires must be located in a harness or at a module in the passenger kick panel or behind the glove box.

16. **Make your connections in the trunk or rear hatch.** It will not be necessary to make connections in this location on most vehicles, but on a few vehicles the trunk trigger wire or trunk release wire can only be found in the trunk area.

17. **Make your connections at the steering column.** This is where you will make all your power connections and in some cases the horn trigger wire. Take care in working with the ignition harness of any vehicle. Many other wires, including airbag wires, can usually be found in the ignition harness of most vehicles. You want to be careful not to accidentally unplug or damage any of the connectors or the wiring. Unplugging any of the connectors may deploy the airbags or trigger a "check engine" light or similar error code light to appear on the dash.

18. **Connect chassis ground.** This is one of the most important connections. A poor or improper ground causes 90% of all problems that may arise with an alarm or remote start. The best ground point in a vehicle is a place with a good physical connection to the same metal that the vehicle battery ground itself shares. Avoid using the bracing underneath the dash. This is a high-resistance ground point and should not be used. It is preferred that a factory ground point (usually located in the driver's kick panel) is used. Some manufacturers in their installation manual recommend and insist on using the negative terminal of the battery for the alarm or remote start system's ground point. Connect this wire to bare metal, preferably with a factory bolt rather than your own screw. Screws tend to either strip or loosen with time. Ground all components to the same point. If a screw must be used, connect chassis ground to bare metal and use a star washer to ensure a proper ground connection. Check for clearance on both sides before drilling

19. **Test features and functions. At** this point, all your connections should be made and the installation is complete Program all necessary and desired features for the alarm or remote start system. Consult the installation manual on how this must be done. If a remote start has been installed, test the vehicle outdoors in a well ventilated area. Roll down the driver's window. Put the vehicle in park and set the emergency brake. Sit inside the vehicle and remote start the vehicle. Turn the climate control system on. Turn the fan to medium and turn the temperature to hot. Verify the fan is working and there is hot air coming out of the air vents. Next turn the temperature to cold and turn on the air conditioning and wait to verify that cold air is coming out of the vents. Verify adequate transmitter range by remote starting the vehicle from a distance of at least 100 feet. Shut down the vehicle from the same range. Sit in the vehicle and lock the doors with the remote. Wait 3-5 minutes and remote start the vehicle. If the vehicle's horn honks and lights flash, the factory security has been triggered. The remote start will need to be wired to disarm the factory security. Test the shutdown inputs. The remote start should shut down when the brake pedal is depressed. Also, most remote start systems have a hood trigger input. This will shut down the remote start or prevent the remote start from operating if the hood is up. This is a safety feature. If an alarm has been installed, arm and disarm the system and check that the siren chirps and parking lights function properly. If power door locks have been integrated, verify the doors lock when the alarm is armed and unlock when the alarm is disarmed. Test the door inputs. Make sure all doors trigger the system, not just the driver's door. If the trunk trigger has been interfaced, verify the trunk or rear hatch triggers the alarm when opened. If a starter disable has been installed, arm the vehicle, wait 30 seconds and try to start the vehicle. It should not start. If the alarm includes an impact sensor, arm the system, wait 30 seconds and try to trigger the alarm by firmly thumping your fist on the window pillar. **Be careful not to use enough force as to dent the vehicle's body!** Be sure to remove all rings and jewelry first. Adjust the shock sensor until the desired sensitivity is obtained. Verify the system can be disarmed using the alarm's override switch. Consult the alarm's owner's manual for the proper procedure. Test any additional features that have been installed.

20. **If all is satisfactory, make sure unit and harnesses are tied up properly and reassemble the vehicle**.