The **UltiMate** is a fully-featured **add-on alarm system** which can be controlled by an existing remote keyless entry system (RKE); it is also a sophisticated completely **stand-alone alarm system** utilizing its own high performance transmitters, and it can even be configured as **both, controlled by its own transmitters and a host system**, such as a remote keyless entry system or Omega's vehicle tracking system.

IM-ULT (0302)

Executive Model ONE

UltiMate

Vehicle Security Alarm System

Installation Instructions

How are you installing this unit?

If you are installing this unit as a "Stand-Alone" alarm system, you will need to make the main harness and secondary harness wiring connections, but not the arm/disarm harness. You will need to program transmitters.

If you are installing this unit as an "Add-On" alarm system to a factory-installed keyless entry system, you will have to connect the arm/disarm harness, in addition to the main harness and secondary harness wiring connections. You may or may not need to program transmitters.

Please CAREFULLY READ this booklet!

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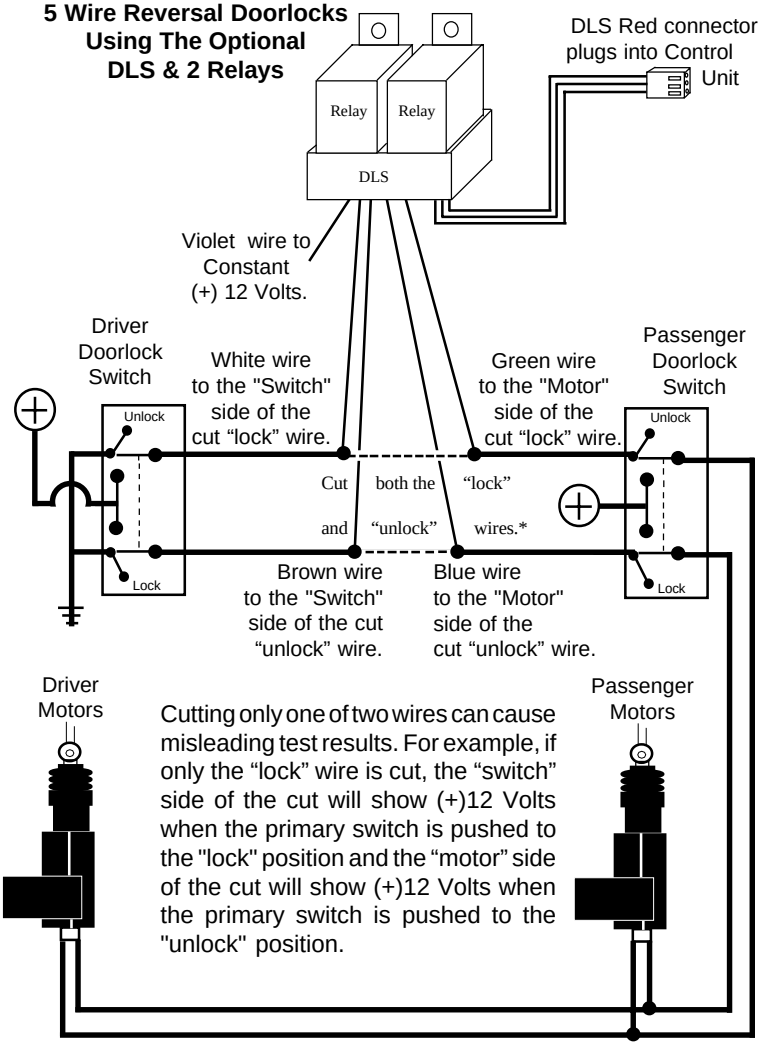
5 Wire Reversal Doorlocks Using The Optional DLS & 2 Relays



system is a 5 Wire Reversal system, a DLS and two relays must be used. When driver's door unlock priority is desired, use the optional DLS-3.

5 Wire Reversal Rest At Ground Systems differ from the Negative and Positive Pulse systems in the fact that there are no relays or doorlock control unit. In this type of system, the switches themselves supply the positive voltage directly to the doorlock actuators, and, more importantly, provide the return ground path. The correct doorlock interface for this type of system is the optional DLS or DLS-3 and 2 or 3 relays. The important thing to remember is the wires in this system *rest at ground,* which means that the wires must be "opened", or cut, to make the connections.

Examine the wires on the back of the switch. Normally five wires will be found. Of these wires, one will be constant 12 volts positive, regardless of the switch's position. Two wires will be grounded regardless of the switch's position. Of the two remaining wires, one will show 12 volts positive when the switch is pushed to "lock", and the other will show 12 volts positive when the switch is pushed to "unlock".

These two wires are both routed to the doorlock actuators and are connected to either end of the actuator's motor winding. When the switch is pushed to one position, one of these two wires will have 12 volts. This voltage flows through the wire to the actuator's motor winding, and since the other wire is still *resting at ground* an electrical circuit is completed. When the switch is pushed to the opposite position the electrical flow is *reversed*. When the correct wires are found, they must be cut. Notice in the diagram (following page) that the driver's switch is the primary switch and referred to as the "switch" wires. The wires that go to the secondary switch are referred to as the "motor" wires. Even though the cut is made between the switches, the two sides are still correctly called the "switch" and the "motor" sides, with consideration of "Primary" and "Secondary" switch; please see the diagram.

The UltiMate "out of the box" can be directly connected to 3 Wire Negative and 3 Wire Positive doorlocking systems. The DLS and 2 relays shown here is an optional interface, like the DLS-3 for driver's door priority applications. Omega also offers other specialty doorlocking interfaces; all include their own detailed instructions.

What is the UltiMate?

Just that- the ultimately flexible vehicle security alarm system, period. The UltiMate is a fully-featured **add-on alarm system** which is controlled by an existing remote keyless entry system (RKE); it is a sophisticated completely **stand-alone alarm system** utilizing its own high performance transmitters, and it can be configured as **both, controlled by its own transmitters and a host system**, such as a remote keyless entry system or Omega's vehicle tracking system.

The UltiMate's unique design concept also includes **dealer lot inventory protection**- special dealer transmitters are capable of operating every UltiMate-equipped vehicle on a dealer's lot at the same time. The entire vehicle inventory may be secured and protected, yet vehicles are easily accessible for customer demonstration or service. Even with these special dealer operations, the vehicle purchaser is assured of a secure and uncompromised antitheft system by special design features and Omega's exclusive and patented Automatic Transmitter Verification and Unauthorized Transmitter Alert.

Executive Model ONE Transmitters

Types of Transmitters

There are three types of transmitters which can be directly programmed to operate the UltiMate system. These are Omega transmitters, and not OEM transmitters which can also operate the UltiMate when it is installed as an "add-on" alarm to an existing keyless entry system.

- The purchaser and owner of the vehicle will utilize the **User Transmitter** (provided the UltiMate is not installed as an add-on alarm to a factory keyless entry system). User Transmitters are black in color, and up to four total may be programmed into the UltiMate. The User Transmitter is code-jumping, and offers more features than if the Ultimate is operated as an add-on alarm with an OEM transmitter.
- The car dealer may use a **Long-Range Dealer Transmitter** to secure the inventory, and he may also use a **Short-Range Dealer Transmitter** to access and demonstrate individual vehicles. Long-Range Dealer Transmitters, which are yellow, and Short-Range Dealer Transmitters, which are clear, are available in like-coded lots, thus allowing multiple dealer transmitters to all operate every UltiMate-equipped vehicle in inventory.

Transmitter Programming Methods

There are two distinct transmitter programming methods:

- **User Transmitter Programming** allows up to four transmitters to be programmed into the system, and does not affect the operation of the Valet Switch. Both User Transmitters or Dealer Transmitters may be programmed using this method.
- **Dealer Transmitter Programming** will allow only one transmitter to be programmed into the system, and the Valet Switch can not be used to place the system in valet mode nor to override an armed or activated system. Either one User Transmitter or one Dealer Transmitter may be programmed using this method.

User Transmitter Programming Procedure

Step 1 - Have all transmitters present. Turn the vehicle's ignition on and within 7 seconds press the Valet Switch **5** times. The system will respond by briefly sounding the horn once.

Step 2 - Within 7 seconds press the OPTION button on the first transmitter to programmed. The system will respond with a horn chirp, which confirms that the transmitter has been successfully programmed into the system.

Repeat Step 2 for each transmitter which is to operate the system.

Turn the ignition switch off or wait 15 seconds and the system will exit the User Transmitter Programming mode, which is indicated by the horn briefly sounding. If programming the maximum four transmitters, when the fourth transmitter is acknowledged, the system will also exit the User Transmitter Programming mode.

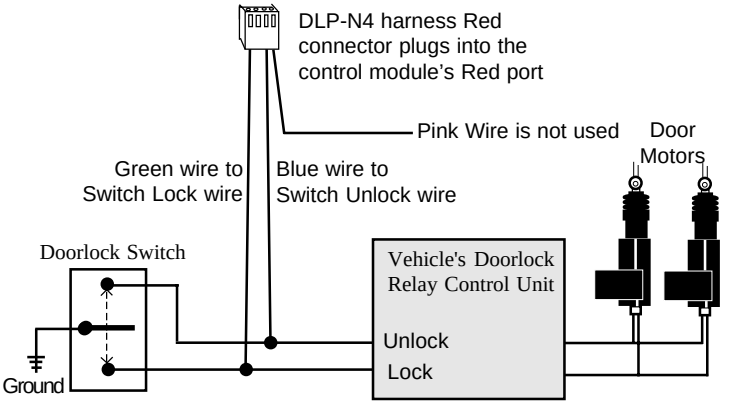
When any transmitter is programmed, even one which already operates the system, all previously known transmitters will be erased.

For 48 hours after transmitters have been programmed with this method, every time the ignition switch is turned on, the horn will rapidly chirp for two seconds and the LED Status Light will flash the number of transmitters between pauses for 90 seconds. This is "Unauthorized Transmitter Alert".

Dealer Transmitter Programming Procedure

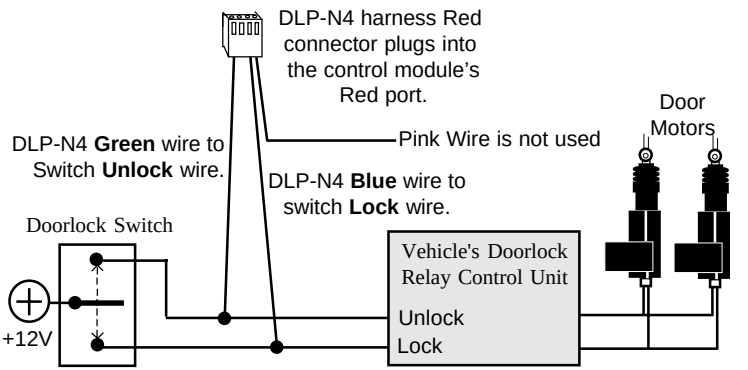
Step 1 - Turn the vehicle's ignition on and within 7 seconds press the Valet Switch **10** times. The system will briefly sound the horn once at the fifth Valet Switch press and then 2 chirps at the tenth Valet Switch press.

3 Wire Negative Doorlocks Using The Control Unit Outputs



3 Wire Positive Pulse Systems are very similar to the Three Wire Negative Pulse system except the vehicle's doorlock switches use 12 volt positive pulses to operate the vehicle's doorlock relays or control unit. Examine the three wires on the back of the switch; **if more than three, suspect a 5 Wire Reversal system**. One will be constant 12 volt positive, regardless of the switch's position. Of the two remaining wires, one will show Positive when the switch is pushed to "lock", and the other will show Positive when the switch is pushed to "unlock".

CONNECTION: Connect directly as shown; use the included DLP-N4 doorlock harness and simply reverse the lock and unlock wires. If the doorlock system needs more than 500mA to operate it, or if the



Plug-In Power Doorlock Interface Port

The UltiMate features a plug-in port for an optional doorlock interface, allowing it to operate the vehicle's existing power doorlocks. The 4 pin port on the system's control module produces a negative pulse output for locking the doors (inside pin), a constant 12 volt pin *for the optional relay coils only* (second pin from inside), a first negative pulse output for driver door unlock (second pin from outside), and a second negative pulse output for unlocking all other doors (outside pin). In addition, **the lock and unlock #1 outputs are dual polarity**, which allows the UltiMate to operate both 3-Wire Negative and 3-Wire Positive doorlocking systems out-of-the-box with the included DLP-N4 doorlock harness.

All connections should be with proper terminals, connectors, or by soldering and insulating with quality vinyl electrical tape or heat shrink tubing. All wiring should be carefully routed to avoid the possibility of chaffing or otherwise being damaged.

The vast majority of power doorlocks are found as three system types: 3 wire negative pulse, 3 wire positive pulse and 5 wire reversal, rest at ground. Other power doorlock systems which may be encountered are the vacuum pump types found in older Mercedes vehicles and the single wire, dual-voltage which has appeared in some late model vehicles. The best way to identify a doorlock system is to examine the doorlock switch's wiring.

3 Wire Negative Pulse Systems are typically indicated by the presence of three wires at the switch. Of these, one will show constant ground, regardless of whether the switch is being operated or not (at rest). Of the remaining two wires, one will show ground when the switch is pushed to the "lock" position, and the other wire will show ground when the switch is pushed to the "unlock" position. With the switch at rest, these two wires will read voltage, usually 12 volt positive but in some cases less. The wires from the switches operate doorlock relays or a doorlock control unit with built-in relays. The correct connection point is between the switches and the relays.

CONNECTION: The included harness (DLP-N4) can allow direct connection between the security system and a 3-Wire Negative Pulse system. Some doorlock systems, however, require more than the 500mA Ground output that the security module can provide. In these cases the optional model DLS and two relays must be used. When driver's door unlock priority is desired, use the optional DLS-3.

Step 2 - Within 7 seconds press the OPTION button on the single transmitter to programmed. The system will respond with a horn chirp, which confirms that the transmitter has been successfully programmed into the system.

Turn the ignition switch off or wait 15 seconds and the system will exit the Dealer Transmitter Programming mode, as indicated by the horn briefly sounding. If an attempt is made to program more than one transmitter the system will also immediately exit the Dealer Transmitter Programming mode.

When Dealer Transmitter Programming is used, the Unauthorized Transmitter Alert chirping warning **will not operate**, but the LED Status Indicator will flash the single transmitter code for 90 seconds permanently (this flashing LED will not go away after 48 hours).

When transmitter of either User or dealer type is programmed by the Dealer Transmitter Programming method, and the UltiMate unit has also been connected to be operated by a remote keyless entry system (via the arm/disarm wires), if the remote keyless entry is used to unlock the vehicle's doors for a accumulated total of 20 times, without the Omega transmitter being used, the Omega transmitter **will automatically be erased** from the system.

Programmable Features

The UltiMate has 30 programmable features. Most of these features have a direct effect upon how the UltiMate operates, and thus allow the end user to customize the system's operation to their preference. Other of the programmable features are installation related, and thus are more important to the installer rather than the end user.

Programming the features manually is accomplished with the Valet Switch to access programming mode and the specific feature, and the transmitter to change the chosen feature. If the UltiMate is integrated with an OEM keyless entry system, the factory transmitter also changes the feature when programming, although this is done via the arm/disarm wiring connections, the same as the how the OEM keyless entry arms and disarms the UltiMate in normal operation.

The Omega FPM-1 Features Programming Module can also be used to program the UltiMate's features, per the instructions included with the FPM-1. When using the FPM-1, it cannot program Feature #1,

Selectable Code Override, and it can only select levels 2 and 3 on Feature #22, Horn Chirp Volume Level (see page 21).

The **Features Programming Checklist** on the opposite page will greatly assist in programming the features. Review the programmable features, then mark each applicable box with "\" next to the feature to be changed as a marker to use during the programming procedure. After entering the features programming mode; as each feature is programmed during the process, change its mark to "X". Utilizing this checklist helps maintain progression through the programming procedure, and ensures that all features to changed are completed.

Before attempting feature programming, familiarize yourself with the programming procedure instructions. **For individual feature descriptions, please refer to the Operation Guide booklet.**

To access the Features Programming Mode, follow these steps:

Step 1 - Within 5 seconds of turning the ignition "off", press and release the Valet Switch 5 times. The system will respond by chirping, then briefly sounding the horn, and the LED Status Light will start rapidly flashing.

Step 2 - Within 10 seconds access the desired feature by pressing the Valet Switch the same number of times that equal to feature number. When the feature is selected, the LED Status Light will change from rapidly flashing to flashing the same number as the feature, between pauses.

Step 3 - Within 10 seconds change the chosen feature. Press the transmitter's LOCK button to turn the feature "on", or press the UNLOCK button to turn the feature "off". Turning the feature "on" is indicated by one horn chirp; turning the feature "off" is indicated by two horn chirps. Also, turning a feature "on" will cause the LED Status Light to illuminate steady, while turning the feature "off" will cause the LED Status Light to go out.

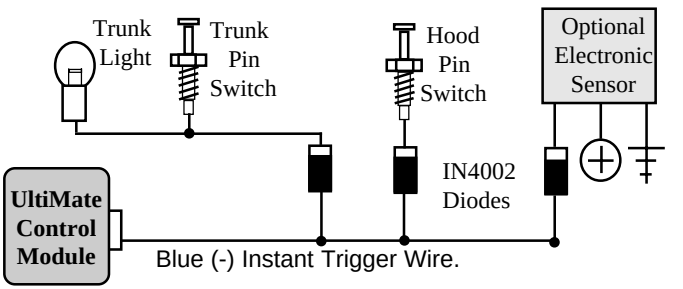
Once a particular feature has been configured to the desired setting, the next feature to be programmed may be accessed by repeating Step 2; i.e. press the Valet Switch equal to the number of the next feature. As each is programmed, continue to access each feature to be changed for programming until finished.

If 10 seconds expire without programming activity (i.e.- not pressing the LOCK or UNLOCK buttons or pressing the Valet Switch to select another feature), the system will exit the features programming mode, which is indicated by the horn sounding once.

The **Blue wire** is a Negative instant trigger used primarily to detect entry into the hood or trunk area of a vehicle.

CONNECTION: The included pin switches may be installed to provide this trigger circuit; or, if there are existing switches (example: a light in the luggage compartment or a "Trunk Ajar" light in the dash), the Blue wire may be connected directly, provided this is a negative ground switching circuit. An indication of such a circuit is the wire having no voltage present when the hood or trunk is open, and up to 12 volts when the hood or trunk is closed. This wire cannot be used with mercury switch types of hood or trunk lights. If the vehicle is equipped with a usable trunk or hood circuit, locate the proper wire and splice the Blue wire directly to the vehicle's wire.

When wiring more than one of the vehicle's circuits and/or additional circuits to this wire, **diode-isolation** may be required to maintain each circuit's proper operation (diagram below). An example would be wiring a hood pin switch and trunk light switch together. Without isolating, the trunk light will illuminate whenever the hood is raised. Also, diode-isolation is necessary when combining sensors together or when adding a sensor in the same circuit as the pin switches.



The **Pink wire** is an optional output similar to the Gray trunk release wire; however, this output is not capable of disarming the system when it is used and therefore no audible or visual confirmation.

CONNECTION: On applications such as optional remote starter modules, which have a Negative pulse activation wire, the Pink wire may be directly connected. For other applications an optional relay may be needed. To configure a relay, connect the Pink wire to relay pin (85), and connect Constant Positive 12 Volts to relay pin (86). Connect pin 30 to power, or ground, as needed. Pin #87 is then connected to the application.

feature is optional. If the polarity selecting jumper is not used, either the Green Negative door trigger wire or the Violet Positive door trigger wire must be connected.

Notes and tips for both types of domelight systems: The correct wire will show a polarity change when any of the doors are opened. If the vehicle has delay dome lights, remember to take this into account when testing the wire. If the pin switch is mounted in the metal structure of the vehicle, and the dome light goes out when the switch is removed, suspect a grounding-type dome light system. While the traditional pin switch is mounted in the front door jamb area, also be aware that many vehicles utilize other types of switch devices to operate the interior lights. Some imports have a sliding type of switch and many have the pin or sliding switches in the rear door jamb area. In addition, some vehicles utilize switches in the doors, either connected to the exterior door handles or to the latching mechanism. A vehicle which has the dome lights illuminating when the exterior door handle is lifted is an example of this type of switching system. Also be aware of vehicles which diode-isolate each door. Typically, this is usually encountered with dash displays that indicate individual doors being ajar. The proper wire to connect to in this type of system is the common wire which is routed to the dome light itself.

If domelight supervision or Smart Trigger is not used, one of the following two door trigger wires must be connected:

The **Green wire** is an "open door" input to the control module for vehicles having *Negative switching* door pin switches.

CONNECTION: Connect the Green wire to a wire in the vehicle which is common to all the door pin switches; the correct wire in this type of dome light/door jamb pin switch system will have no voltage present and will also show chassis ground when the doors are opened, and up to 12 volts when the doors are closed.

The **Violet wire** is identical to the Green Door Trigger wire, except that it is an open door input to the control module for vehicles having *Positive 12 volt* door pin switches.

CONNECTION: Connect the Violet wire to a wire in the vehicle which is common to all the door pin switches; the correct wire for this type of dome light/door jamb pin switch system will have 12 volts present when the doors are opened, and chassis ground when the doors are closed.

#		FEATURE	DEFAULT
1	☐	Selectable Coded Override	1 & 0 (see page 29)
2	☐	Last Door Arming	OFF
3	☐	Automatic Rearming	OFF
4	☐	Starter Interrupt Circuit	ON
5	☐	Automatic Starter Interrupt	OFF
6	☐	Ignition Activated Override	OFF
7	☐	Doors Lock With Last Door Arming	OFF
8	☐	Doors Lock With Automatic Rearming	OFF
9	☐	Doors Lock With Ignition	ON
10	☐	Ignition OFF Unlock #1	ON
11	☐	Ignition OFF Unlock #2	ON
12	☐	Open Door Bypass To Previous Three Features	ON
13	☐	Confirmation Chirps	ON
14	☐	Confirmation Chirps In Valet Mode	OFF
15	☐	Activated Alarm Cycle	60 Seconds (ON)
16	☐	Lights On Upon Disarm	ON
17	☐	Disarm Alarm Upon Trunk Release	ON
18	☐	Doorlock Pulse Time	.8 second (ON)
19	☐	Double Unlock Pulse	OFF
20	☐	Arming Delay	3 Seconds (ON)
21	☐	Pulsed Horn / Steady Siren Output	Pulsed Horn (ON)
22	☐	Horn Chirp Volume Level ***See page 21***	Level 2 (OFF)
23	☐	Total Closure Lock Output	OFF
24	☐	Alarm Functions Bypass	OFF
25	☐	Ignition-Activated Anti-Carjacking Protection	OFF
26	☐	Door-Activated Anti-Carjacking Protection	OFF
27	☐	Open Door Warning Upon Arming	OFF
28	☐	PANIC Button Operates "Panic" or Additional Output	Panic (ON)
29	☐	Transmitter-Activated Anti-Carjacking Protection	OFF
30	☐	Doorlocking In Add-on Mode	OFF

Installation

Installation Considerations

Be aware before starting the installation of the UltiMate's unique ability to be installed as an "add-on" security system, a "stand-alone" security system, or as a combination of both, and plan the installation accordingly. Take special care in **making wiring connections**; soldering is most desirable, followed by correct crimp-type terminals. "Quick-tap" or "t-tap" connections are acceptable, providing that extreme care is taken to ensure that they are done correctly. The "strip and twist" method of joining wires is the least desirable; although a satisfactory connection can be made if done properly, this is the least reliable method of joining wires. When using any method, it is most important that the spliced wires be adequately insulated; not only to prevent short-circuits, but to also protect the wires' splice from exposure to the weakening effects of air and moisture.

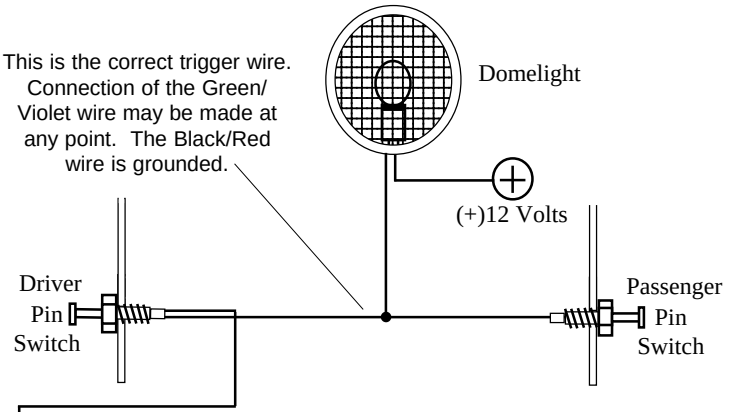
The single most important factor regarding the proper operation and effectiveness of a vehicle security system, and thus its owner's satisfaction, is its installation.

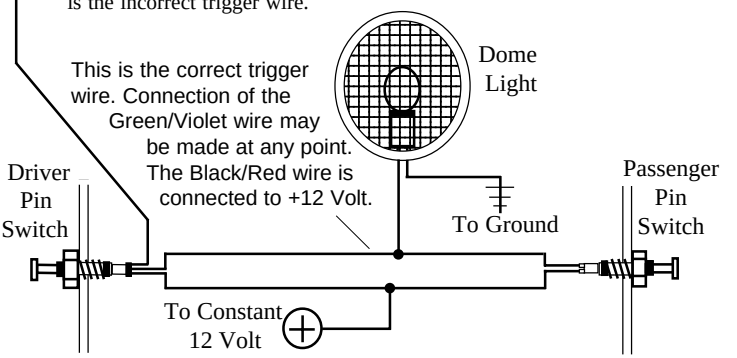
Always **mount the Control Module** in the vehicle's interior compartment, in a secure location that is not easily visible or accessible. Ensure that moisture, vibration and temperature extremes are minimized. Acceptable locations include mounting behind the dash, behind the glovebox or other interior panels.

The **LED Status Light** and **Valet Switch** are important parts of the UltiMate system and must be installed. The installer has two basic installation options for these items.

These items may be separately installed as a **custom mounting**. Mount the LED Status Light in the vehicle interior where it can be easily seen by the operator, and preferably where it can be seen from the exterior of the vehicle. Drill a 9 / 32" hole in a suitable interior panel, route the wiring harness through the hole to the control module, and snap the LED in place. Plug the LED Status Light's small 2-pin plug into the red matching port on the control module. Mount the Valet Switch, using its adhesive pad, in a hidden location which is accessible to the operator; carefully route the wires to the control module, and plug the valet switch's blue 2-pin plug into the control module's blue 2-pin port.

Typical Negative Switching Domelight System





Typical Positive Switching Dome Light System

in the correct polarity setting. The Smart Trigger jumper is in the UltiMate kit's parts bag. If the Black/Red wire was connected to Negative polarity, the Smart Trigger jumper should be on the inner two pins of the PCB standup; if the Black/Red wire was connected to Positive polarity, the Smart Trigger jumper should be on the outer two pins of the PCB standup. The top of the control module's case has markings for the Smart Trigger PCB standup, and includes "+" and "-" symbols reflecting this inner and outer pins positioning. **The Smart Trigger**

Black/Violet wire to constant Positive 12 Volt, and Smart Trigger can not be utilized.

Flashing the headlights is not recommended. The halogen headlights found in modern vehicles are not designed to be rapidly turned on and off, and if connected to the security system, a reduction of their useful life may be noticed. If flashing the headlights is still desired, a relay must be used, since the headlight's current draw exceeds the 7 amp rating of the built-in relay. If flashing headlights and parking lights are desired, use two relays - configure one relay to supply the parking lights and the other relay to supply the headlights.

The **Black/Red** and **Green/Violet** wires are provided for domelight supervision, which illuminates the interior lights of the vehicle upon disarming. The Black/Red wire is the input to the UltiMate control module's built-in domelight supervision relay, and the Green/Violet wire is the output from the relay.

CONNECTION: The polarity of the domelight supervision output must be selected by connecting the Black/Red wire to Positive or Negative. Determine which polarity the vehicle uses to operate the dome light; this is either "Negative switching" or "Positive switching"; the diagrams on the following page explain more on how to determine which type is present.

The proper vehicle wire to connect the Green/Violet wire to, the dome light activation wire, is common to all the door pin switches. The correct wire will change polarity as the doors are opened and closed. If the vehicle uses a Negative switching domelight system, the activation wire will have no voltage present and show chassis ground when the doors are opened, and up to 12 volts when the doors are closed. The correct wire will show this change when any of the doors are opened. If it is a Positive switching system, the above is reversed. If the vehicle has delay domelights, take this into account when testing.

The UltiMate has a unique "**Smart Trigger**" feature which saves time- if the installation includes domelight supervision, that circuit can also serve as the open door input, or door trigger, by correctly configuring a PCB jumper. If Smart Trigger is used, the Green or Violet door trigger wires do not have to be connected.

After connection of the Green/Violet and Black/Red wires are completed, the next step is to **ensure that the Smart Trigger jumper is**

Also included is a **combination holder** assembly for the LED Status Light and Valet Switch (exploded view of all parts, below). Mount the combination holder assembly in a location where it can easily be seen by the driver, and preferably where it can be seen from outside. Two mounting options are provided: double-sided adhesive tape for "no-mar" mounting, and two screws for permanent mounting.

If using the adhesive tape, properly prepare the mounting surfaces to ensure good adhesion, and then affix the completed combination holder assembly. To complete the holder assembly, adhere the Valet Switch to the upper combination holder half, insert the LED into the upper half collar, and then snap the two halves together with the wires exiting the hole in the rear of the upper half.

If using the screws for a more permanent mounting, carefully screw the upper half to its mounting location (avoid overtightening), install the Valet Switch and LED Status Light to the upper half, and then snap the assembly halves together with the wires exiting the hole in the rear of the upper half.

To complete any of the mounting methods, carefully route the wirings to the control module to avoid any chances of them being chafed or pinched, and plug them into to their respective control module ports.

The control module has a **Dual Zone Sensor Port** for the easy addition an optional sensor device. When adding an optional sensor, follow the installation instructions included with the sensor. After installing, route the harness and connector from the sensor to the security system control module. Plug the sensor's connector into the module's White port marked "Aux.".

The connection and mounting of the **optional electronic siren** is on page 22, and **power doorlock connections** are the final section.

7-Pin Arm/Disarm Harness

If the UltiMate is to be installed as an "add-on" security alarm to an existing remote keyless entry system (RKE), or if it is installed with Omega's GPS2000 Tracking, Control and Notification system, the 7-pin arm/disarm harness must be connected.

The 7-pin harness contains the wires which will operate the UltiMate as an "add-on" alarm. A 12 Volt Positive pulse on the **Pink** wire will arm the system and a 12 Volt Positive pulse on the **Gray** wire will disarm the system. The **Blue** wire is a pass-through wire connected to the Pink wire and the **Green** wire is a pass-through wire connected to the Gray wire. Both of these circuits are diode-isolated.

The **White** wire is the "lock" override wire and the **Brown** wire is the "unlock" override wire - any change in the electrical state of these wires while the Pink and Gray wires receive a Positive pulse will cause the UltiMate **not** to arm or disarm. The White and Brown wires have the capability of learning polarity - both Negative and Positive switch types will operate the White and Brown wires. Because of this polarity-learning circuitry, these two wires **must be connected** when the UltiMate is first supplied Power and Ground. Also, if the White or Brown wire is not needed, the unused wire(s) **should be grounded**.

A 12 Volt Positive pulse on the **Gray/Red** wire will disarm the UltiMate; this wire may be connected to a Positive trunk release wire.

Five basic types of system connections are used to install the UltiMate as an "add-on" alarm, and are referred to as Types 1 through 5. A diagram of each of these five Types follows, and a sixth diagram shows how to connect the UltiMate to the GPS2000.

How to test to determine Type 1 , Type 2 or Type 3 connections (**Type 4** is for Ford vehicles with Negative pulse doorlock switches and **Type 5** is a universal connection).

Step 1 - Connect a Volt/Ohm Meter (VOM) or Digital MultiMeter (DMM) to the door **switch** wires.

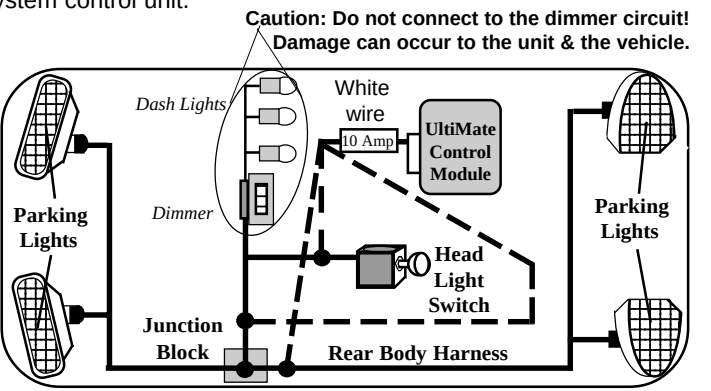
Step 2 - Operate the **transmitter** to lock and unlock the doors (**don't operate either door switch**).

If the VOM or DMM indicates any change in polarity, it can be determined that the vehicle's remote keyless entry unit back feeds power (Positive or Negative) to the door switch when the transmitter is used. If the doorlock switches are configured to switch Positive pulses and none of the doors unlock after cutting the wire, the **Type 1** wiring diagram may be used. If after cutting the vehicle's unlock wire the driver door only still unlocks, then use the **Type 3** Connection. If the

The **White wire** is a Positive 12 Volt output to flash the vehicle's parking lights.

CONNECTION: Connect this wire to the vehicle's Positive 12 Volt parking light circuit, which can usually be found at the following locations: at the headlight switch, at the fuse/junction block, or in the rear body harness in the driver kick panel. Some vehicles, notably Toyota, have a parking light relay which is triggered by a Negative Ground circuit from the headlight switch. The White wire can still be connected directly in these vehicles by finding the parking light circuit after the relay, typically at the Fuse/Junction Block.

The correct wire will show Positive 12 Volts when the headlight switch is in the "Parking Light" and "Head Light" positions. When such a wire is located, also test to ensure that it is non-rheostated: while metering the wire, operate the dash light dimmer control. The correct wire will show no change in voltage when the dimmer is operated. **Do not connect the White wire to a rheostated (dimmer) circuit!** This will backfeed the parking lights through the rheostat or illumination control module, and possibly cause damage to the vehicle or security system control unit.



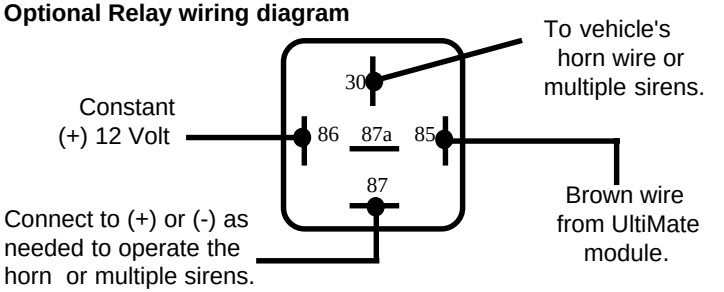
Recommended connection points for the White wire

Many European imports have separate left and right side parking lights. When left & right parking lights are on separate circuits, a pair of 6 to 10 amp diodes may be used to connect the White wire to each parking light side, or the domelight supervision wires (Black/Red and Green/Violet) may be used. The White wire is connected to one parking light side, and the Green/Violet to the other side. Connect the

Another alternative is to disconnect the horns, then operate the horn switch. Typically, a "clicking" sound from the vehicle can heard as the horn button is pressed, and released, which confirms the presence of an existing horn relay. Yet another alternative is to consult a wiring schematic of the vehicle in question to determine if an existing horn relay is present.

Configuring An Optional Relay: The Brown Horn/Siren output wire has a 1 Amp capacity, which, if exceeded, can damage the security system control module. In certain situations, such as a vehicle which lacks a horn relay or installing multiple optional sirens, an optional SPDT relay is required. The following diagram shows to configure the relay.

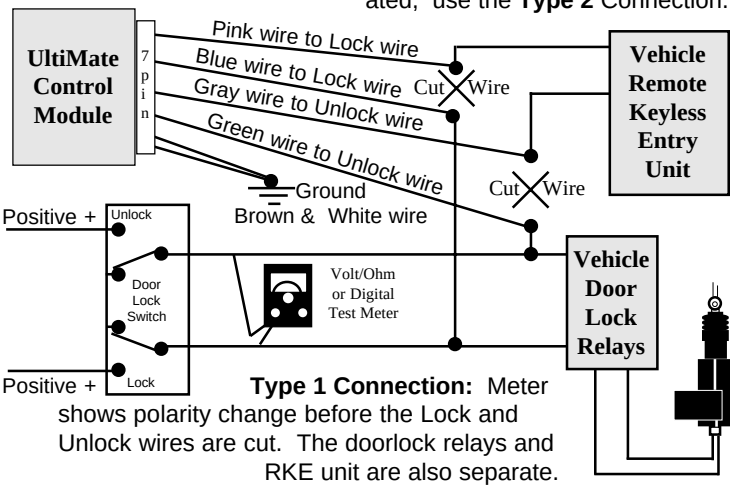
Optional Relay wiring diagram



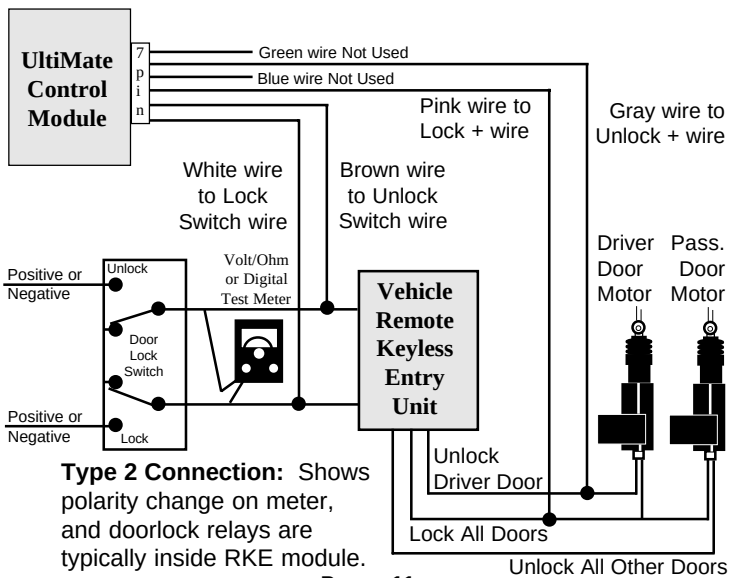
The Optional Electronic Siren: Find a location in the engine compartment away from the extreme heat of the engine and manifold. A suitable location will offer a firm mounting surface, will also allow sound dispersion out of the engine compartment, and not be accessible to a thief. The siren must be pointed downward to avoid moisture collecting inside it and to enhance sound dispersal. When the siren is used Feature #21 must be changed to the "steady" setting.

CONNECTION: Connect the Brown wire directly to the siren's Black wire. The siren's Red wire is then connected to a Constant 12 Volt Positive source. The security system has a provision for this connection, which is located on the control module between the 8-pin secondary harness connector and the Smart Trigger PCB stand-up.

VOM or DMM indicates no change in polarity, then it can be determined that the vehicle's remote keyless entry unit does not back feed power (Positive or Negative) to the door switch when the transmitter is operated, use the **Type 2** Connection.



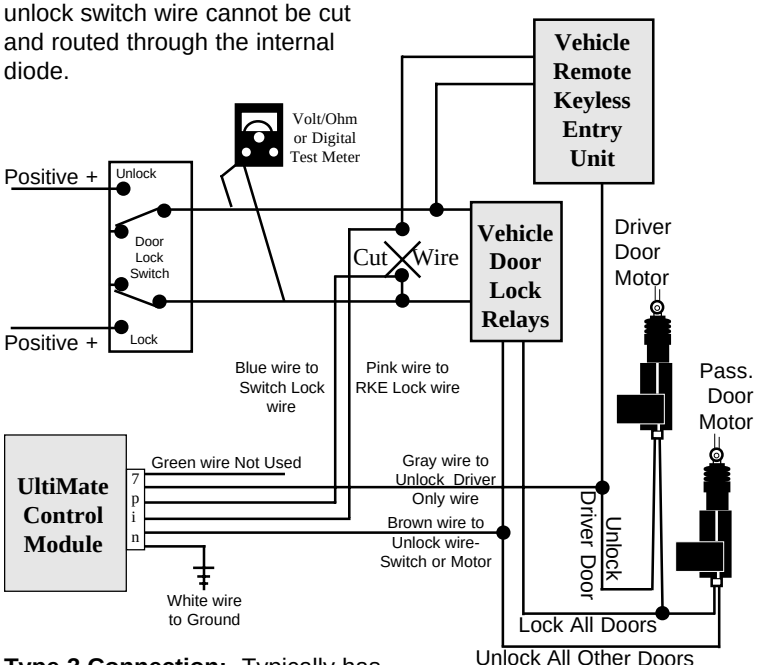
Type 1 Connection: Meter shows polarity change before the Lock and Unlock wires are cut. The doorlock relays and RKE unit are also separate.



Type 2 Connection: Shows polarity change on meter, and doorlock relays are typically inside RKE module.

The Type 2 Connection: When the Gray or Pink wires receive a Positive pulse the security system will arm or disarm. If the Brown or White wire receive a Positive or Negative pulse at the same instant that the Gray or Pink wire receives a pulse, the system will not arm or disarm because the door switch should not operate the system. The Brown and White wires "learn" the polarity of the switch wires. Therefore, these wires must rest either at 12 Volts Positive or at Negative ground.

The Type 3 Connection: This system typically has doorlock relays that are separate from the Remote Keyless Entry module with the exception being the driver door unlock relay is inside RKE module. The Type 3 Connection utilizes the unlock operation parameter that only the transmitter can unlock the driver's door only. Since the driver door unlock relay is in the RKE module, the unlock switch wire cannot be cut and routed through the internal diode.



Type 3 Connection: Typically has doorlock relays separate from the RKE module.

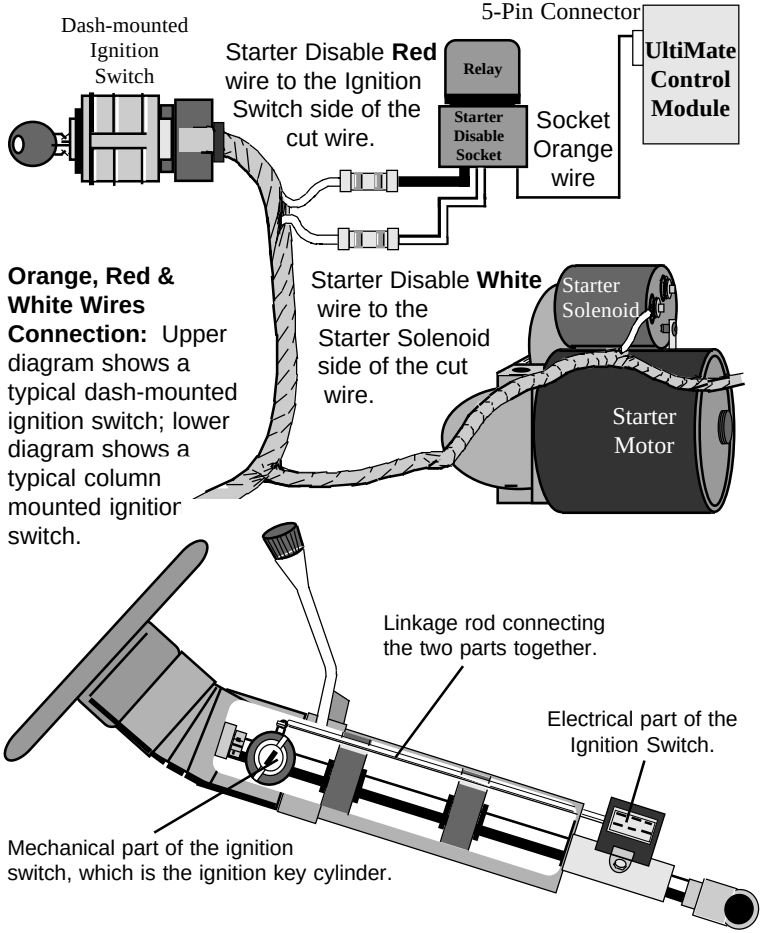
8-Pin Secondary Harness

The **Brown wire** is a Negative output (at 1 Amp) for the system's audible output, and can operate either the vehicle's existing horn or an optional electronic siren. Programmable Feature #21 should be set for the pulsed output to properly sound the horn (this is the default setting), or set for steady output for the optional siren. When Feature #21 is set for "pulsed" output, Feature #22 offers two or four settings for adjusting the horn's confirmation chirps.

The horn chirp volume may set at one of four levels **when an Executive Model ONE transmitter has been programmed to operate the UltiMate**. Then, when programming feature #22, press the remote transmitter's LOCK button for level 1 (the quietest), press the UNLOCK button for level 2, press the OPTION button for level 3, or press the PANIC button for level 4 (the loudest). Feature #22 is only available for use when Feature #21 is programmed for the "Pulsed Horn" setting. An OEM remote keyless entry transmitter and the FPM-1 Features Programming Module can only select between levels 2 and 3.
If an Executive Model ONE transmitter is programmed into an "add-on" UltiMate to program feature #22, **use the Dealer Transmitter Programming Procedure** so that the temporary transmitter can erased after twenty unlockings via the OEM transmitter.

Existing Horn Option CONNECTION: The Brown wire may be connected directly to the vehicle's horn switch wire, provided the circuit operates with 1 Amp of current or less. The horn wire is typically found around the steering column; the correct wire will show Positive 12 Volts normally, and no voltage when the horn is being sounded. Once the vehicle's horn wire is identified, probe the wire with a standard test light connected to Negative chassis ground. If the horn sounds when probed, a direct connection may be made. If not, use the diagram on the following page to configure an optional relay.

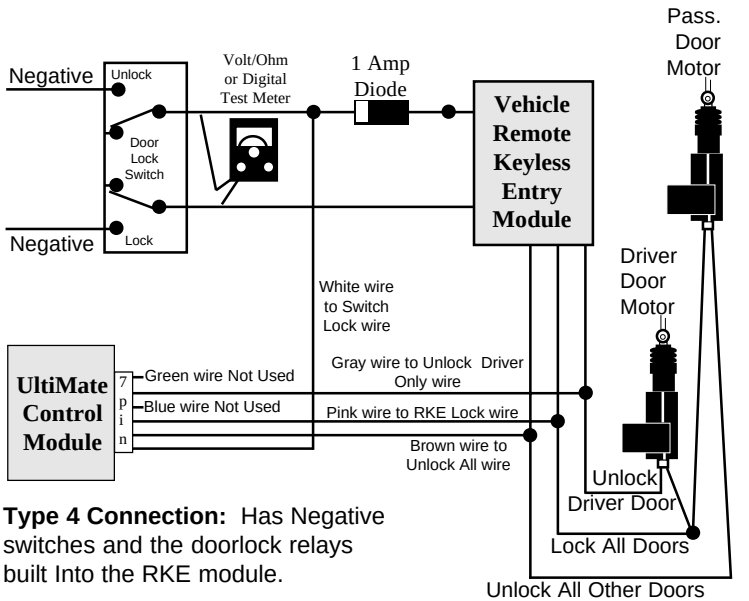
CAUTION! *Avoid the airbag circuit!* This is one of the few legitimate uses for a standard test light in a modern vehicle; use a digital multimeter (DMM) to identify the horn wire first.
Probing an airbag circuit with a standard test light can cause the Airbag to deploy!



The **Gray wire** is an optional output; typically the primary use is for trunk release. Unless the vehicle's existing trunk release switch draws no more than 250mA, an optional relay must be used.

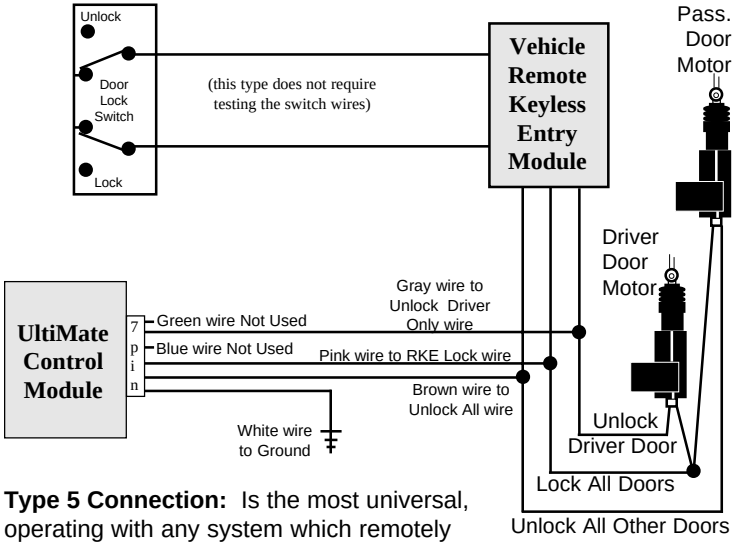
CONNECTION: Connect the Gray wire to relay pin (85), and connect Constant Positive 12 Volts to relay pin (86). Connect pin 30 to power, or ground, as needed. Pin #87 is then connected to the vehicle's trunk wire.

The Type 4 Connection: This system is used to interface the UltiMate with many Ford, Lincoln and Mercury vehicles. In this type of Remote Keyless Entry system, all of the doorlock relays are built into the RKE module, a back feed pulse is generated by the module and the doorlock switches generate Negative pulses instead of Positive, preventing using the Green and Blue pass through wires. The diode is needed to block the negative pulse generated by the Remote Keyless Entry unit so that the UltiMate can only detect the negative pulse from the switches. Connections are made easiest at the RKE module itself.



Type 4 Connection: Has Negative switches and the doorlock relays built Into the RKE module.

Type 5 Connection: This connection configuration is a universal type that will interface with any vehicle that remotely unlocks the driver's door first. With this system all of the relays are built in to the keyless entry module. The switch wires are not needed for this type of system. This type is similar to Type 3 Connection with the exception that the pink wire is hooked to the lock motor wire instead of the lock switch wire, therefore the blue pass through wire is not used.



Type 5 Connection: Is the most universal, operating with any system which remotely unlocks the driver's door first.

GPS-2000 Connection

The UltiMate is an ideal security alarm choice system for use with Omega's GPS2000 Tracking, Control and Notification system, as these models are easily configured to operate in conjunction with each other. Configuring these two units as described will have the GPS2000 arming and disarming the UltiMate, and the UltiMate arming and disarming the GPS2000.

1- Turn the GPS2000 switch #1, the arming switch, up to the "With Alarm" position.
2- Connect the UltiMate Orange wire and the GPS2000 Orange wire to the diode as shown, and then the starter interrupt socket Orange wire to the diode as shown. The starter interrupt Red wire and White wire connections are explained on page 19-20.
3- Connect the UltiMate 8-pin harness Brown wire to the GPS2000 Grey wire, then connect both of these to the vehicle's Negative horn wire. See pages 21-22 for more on the UltiMate's horn wire connection.
4- Ground the Ultimate's 7-pin arm/disarm harness White and Brown wires.

will expose this connection to failure due to a corrosive environment unless the connection has a protective coating.

The **Yellow wire** is an ignition "on" input to the UltiMate. This connection is critical to the proper operation of many of the security system's features.

CONNECTION: This wire supplies Positive 12 Volts to the control module whenever the ignition switch is "on". This connection should be made at the ignition switch harness, to the primary ignition circuit. Primary ignition has 0 Volts when the ignition key is in the "Lock", "Off" and "Accessory" positions; and Positive 12 Volts in the "Run" and "Start" positions. Locate the correct wire at the ignition switch harness and securely splice the Yellow wire to it.

The **Orange wire** is a Negative starter interrupt output, which is active whenever the UltiMate is in an armed state.

CONNECTION: To interrupt the vehicle's starter circuit, the starter wire must be located, identified and cut. Cutting the vehicle's starter wire will result in two sides- the "ignition switch" side and the "starter solenoid" side. It is recommended that this connection be made as close to the ignition switch as possible. Use a voltmeter, not a test light, to find the correct wire, which is the wire from the ignition switch to the starter solenoid.

CAUTION! Avoid the airbag circuit! Improper use of a test light can cause deployment of the airbag, which may result in bodily injury! Test lights can also damage on-board computers and associated sensors.

The starter wire will read Positive 12 Volts only when ignition key is in "start" position (cranking the engine). Cut this wire at a suitable location. Confirm that this is the correct wire by turning the ignition switch to the "start" position. The starter should not engage. Connect the starter disable socket's Red wire to the ignition switch side. Connect the starter disable socket's White wire to the starter solenoid side. Be sure that good, solid electrical connections are made as this generally is a high amperage circuit.

The following page has a diagram showing a typical dash-mounted ignition switch, and the Orange, Red and White wire connections, and another diagram illustrates the layout of a column-mounted switch.

5-Pin Main Harness

The **Black wire** provides Negative ground for the UltiMate control module; proper connection of this wire is very important.

CONNECTION: Using the correctly sized crimp-on ring terminal, connect the Black wire to the metal frame of the vehicle, preferably using an existing machine-threaded fastener. Make sure that the ring terminal attached to the Black wire has contact with bright, clean metal. If necessary, scrape any paint, rust or grease away from the connection point until the metal is bright and clean. If the control module has an insufficient ground connection, the security system can find partial ground through the wires that are connected to other circuits, and function, but not correctly. As the alarm can partially operate, a bad ground wire connection would not likely be suspected.

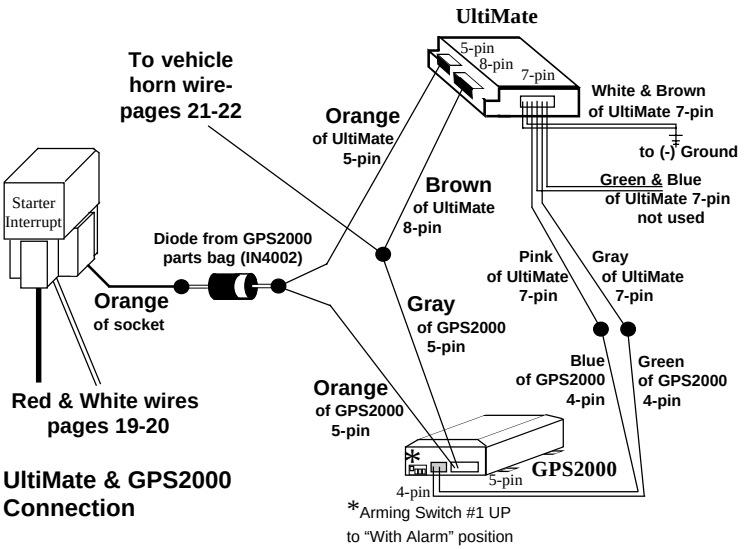
The Black (or Black/Red) wire attached to the control module is the antenna cable. <u>Do not connect this wire to anything or the Executive Model ONE transmitter's range will be reduced or eliminated</u>. Stretch the Black antenna wire out and as high as possible for the best operating range. If desired, this wire can be extended to possibly increase the unit's operating range. The same size wire should be used (22 ga.), and as a general rule the added length should not exceed twice the standard length.

The **Red wire**'s function is to supply Constant Positive 12 Volts for UltiMate system's operation. When 12 Volts is first applied to the Red wire, the system will revert to the state in which it was in when power was taken away. If the vehicle to be serviced, especially if it involves the battery, the system should be placed in Valet Mode. This will prevent the system from being activated if the battery is disconnected and reconnected. The Red wire also supplies 12 Volt Positive to the module's internal relay for flashing the parking lights.

CONNECTION: Connect the Red wire to a Constant Positive 12 Volt source. This source should have Positive 12 Volts with at least a 15 Amp capacity at all times and in all ignition key positions. Connection locations can be at the supply wire at the ignition switch, the supply wire *behind* the fuse block or the fuse/junction block. *Never* just insert the Red wire or any other security system wire behind a fuse. Also, please note that connecting directly to the battery's Positive terminal

5- Connect the UltiMate's 7-pin arm/disarm harness Pink wire to the GPS2000 4-pin harness Blue wire.
6- Connect the UltiMate's 7-pin arm/disarm harness Gray wire to the GPS2000 4-pin harness Green wire.
7- Program feature #30, "Doorlocking In Add-On Mode", ON.

Follow thoroughly the remaining UltiMate installation instructions and the GPS2000 installation instructions for the connections of all of the two units' wiring.



UltiMate & GPS2000 Connection

If the installation requires that 7-pin arm/disarm harness be used, remember that the white and brown wires "learn" polarity and **both <u>must</u> be connected when the UltiMate is first supplied Power and Ground.** Also, if the white or the brown wire is not needed, the unused wire(s) should be grounded. **Always make sure that these two wire connections are made before powering up the UltiMate control module.**

If the UltiMate will be installed and operated by Executive Model ONE transmitters only, and the 7-pin arm/disarm harness **is not needed**, then there is no need to connect the white and brown wires. In this case the 7-pin harness can be discarded.

UltiMate wiring diagram overview