

Resetting The Programmable Features

The installer may quickly and easily return all 17 programmable features back to the factory settings. Changing individual features were explained in detail in the previous section. However, a Total System Reset feature allows the installer, if needed, to quickly return all 17 features to the factory-set default positions. If only returning the Override Code to the factory default is desired, this is also easily accomplished. To perform Override Code Reset or Total System Reset, follow these steps:

- Step 1-** Locate the small round hole in the lower control module case. Two solder dots are visible on the PCB beneath this hole.
- Step 2 -** Short the two solder dots together, and hold them shorted (a slotted jeweler's screwdriver works well for this).
- Step 3 -** Momentarily shorting the solder dots together will result in one chirp. The Secret Override Code is now returned to the factory-set default of 1 & 0 presses.
- Step 4 -** Shorting the solder dots for a few more seconds will result in two more chirps. When this occurs all 17 Programmable Features are now returned to the factory-set default positions.

See the Owner's Guide for transmitter programming instructions (transmitters are pre-programmed into the REC-11+).

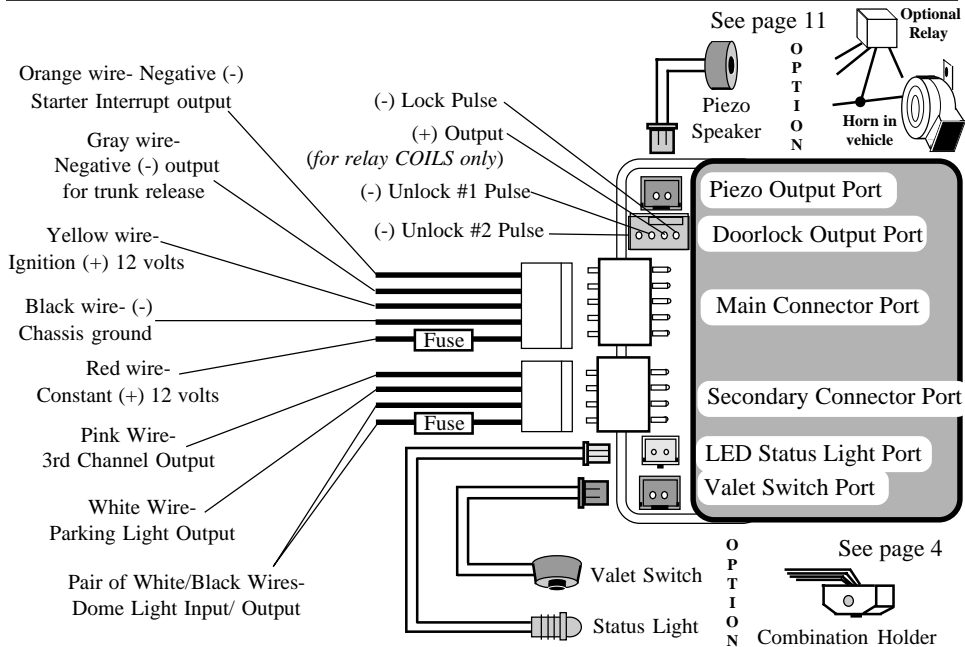


REC-11+ REMOTE RECEIVER UNIT

INSTALLATION INSTRUCTIONS

This product is designed for professional installation only!

Wiring Overview



Page 2

#	Feature	Default Setting	TX button for Default
1	Secret Override Code : Default 1&0 Switch Press		(see Owner's guide)
2	Doors Automatically Lock 90 seconds after the Ignition is turned "Off" : Default OFF (UNLOCK)		
3	Doors Automatically Relock 90 Seconds after Remotely Unlocking : Default OFF (UNLOCK)		
4	Doors Lock with Ignition "On" : Default ON		(LOCK)
5	Ignition "Off" Unlock #1 : Default ON		(LOCK)
6	Ignition "Off" Unlock #2 : Default ON		(LOCK)
7	Activating Trunk Release also Unlocks Doors: Default ON		(LOCK)
8	.8 or 3 Second Doorlock Pulse: Default .8 Second		(LOCK)
9	Double Unlock Pulse : Default OFF		(UNLOCK)
10	Audible Confirmation of Received Transmitter Signal : Default ON		(LOCK)
11	Automatic Starter Disable After Ignition "Off" : Default OFF		(UNLOCK)
12	Automatic Starter Disable After Unlocking: Default OFF		(UNLOCK)
13	Ignition Activated Anti-Carjacking : Default OFF		(UNLOCK)
14	Transmitter Activated Anti-Carjacking : Default OFF		(UNLOCK)
15	30 Second Parking Lights upon Remote Unlock : Default ON		(LOCK)
16	"Panic" or 3rd Channel From Button III : Default 3rd Channel		(UNLOCK)
17	1 Car Operation or 2 Car Operation : Default: 1 Car Operation		(LOCK)

Page 23

The Programmable Features

The REC-11+ Remote Keyless Entry has 17 programmable features that can be used to customize the system's operation. Brief programming instructions and a list of these features follows; **see the Owner's Guide booklet for complete details of the features and their programming.**

To program features:

Step 1 - Turn off the ignition, and within 5 seconds press the Valet Switch 5 times.

The system will respond by sounding the piezo or horn for a short period.

Step 2 - Enter the Secret Override Code- if this is the default setting, press the Valet Switch once.

The system will respond one long, then two short chirps.

Step 3 - Within 10 seconds access the desired feature by pressing the Valet Switch the same number of times as the feature number.

The system will acknowledge the entry by chirping the same number of times.

Step 4 - Within 10 seconds, press the transmitter's LOCK button to turn features on, or press the UNLOCK button to turn features off (see list on the next page).

The system will acknowledge turning the feature "on" by chirping once, or "off" by chirping twice.

Repeats Steps 3 and 4 for each remaining feature to be programmed. If 10 seconds of no programming activity expires (not pressing the LOCK or UNLOCK or selecting another feature) the system will automatically exit the programming mode, as indicated by sounding a long chirp.

Installation Considerations

The REC-11+'s **Main Control Module** contains electronic components, so always mount this module at a secure location within the vehicle's interior compartment. Ensure that moisture, vibration and temperature extremes are minimized. Acceptable locations may include mounting behind the dash, behind the glovebox or other interior panels.

The system's **Wiring Connections** should be securely connected to the appropriate vehicle wires with the 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. Make all required connections, then plug the harnesses into the control module.

The installer has two basic installation options for the **Status Light** and **Valet Switch**. These items may be separately installed as a **Custom Mounting** into or on existing interior panels; or, by utilizing an included **Combination Holder** assembly.

Custom Mounting:

Select a suitable surface in the vehicle interior to mount the Status Light 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 Status Light in place. Plug the Status Light's small 2-pin plug into the matching red 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.

Combination Holder Mounting:

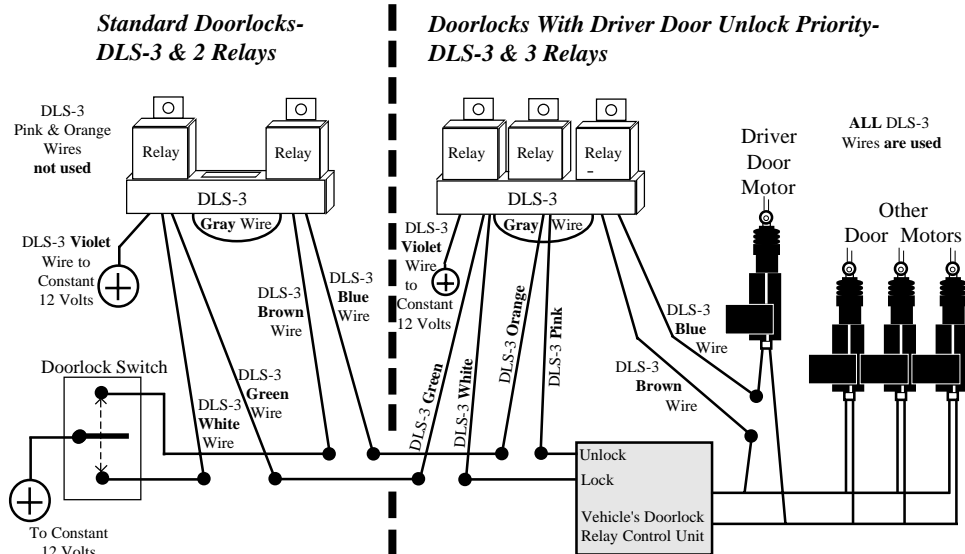
The included **Combination Holder** assembly for the Status Light and Valet Switch is shown in the exploded view at right. Mount the combination holder assembly in a location where it can easily be seen by the driver, and preferably where it can be seen from outside. Two mounting options are provided: double-sided adhesive tape for “no-mar” mounting, and 2 Phillips screws for a more 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 Status Light 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 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.

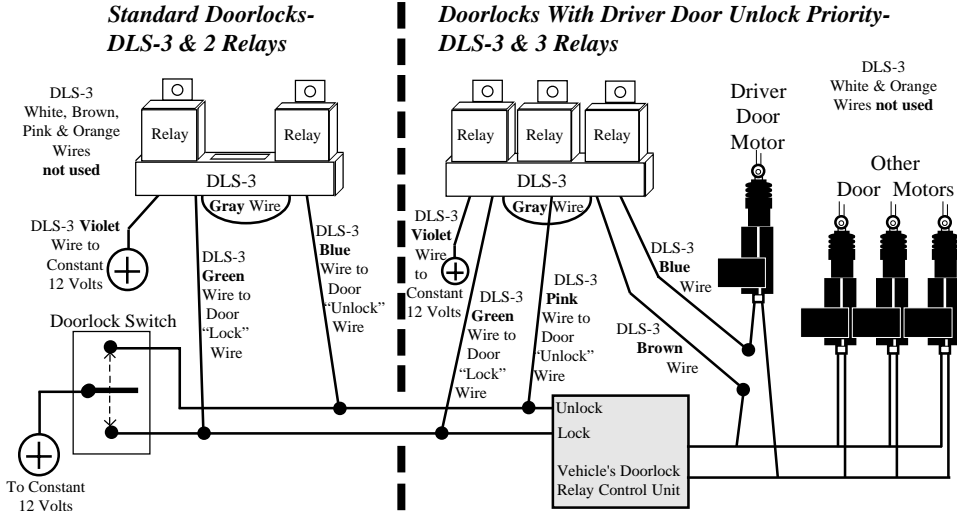


To complete any of the mounting methods, carefully route the wirings to the control module to avoid any chances of them being chafed or pinched, and plug them into to their respective control module ports.



The DLS-3 with 5 Wire reversal Systems-Standard or Driver Door Priority

Wiring Connections - Main Harness



The DLS-3 with 3 Wire Positive Systems-Standard or Driver Door Priority

BLACK WIRE: (-) Chassis Ground- This wire supplies chassis ground for the unit's operation. Connect the Black wire to the metal frame of the vehicle, preferably using an existing machine-threaded fastener and the proper size ring terminal. Make sure that the Black wire's ring terminal 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. **The thin Black wire attached to the units with a built-in receiver is the antenna wire. Do not connect this wire to anything or your transmitter's range will be reduced or eliminated.** Stretch this wire out and as high as possible for the best operating range.

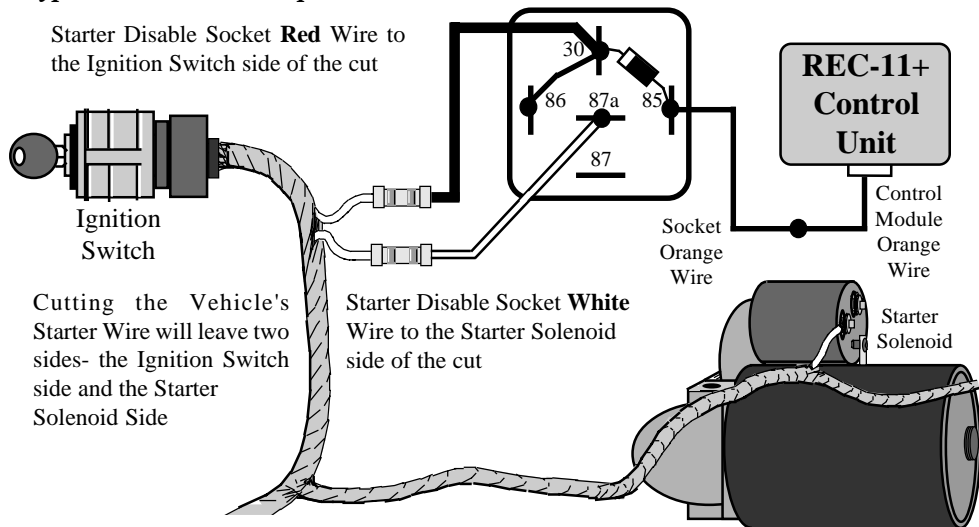
RED WIRE: (+) 12 Volt Constant Power- This wire supplies constant (+) 12 volts for the unit's operation. This wire must have (+) 12 volts at all times. The recommended connection for the Red wire is to the constant (+) 12 volt wire at the ignition switch harness.

YELLOW WIRE: (+) Ignition Power- This wire supplies (+) 12 volts to the unit whenever the ignition switch is turned "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 12 volts in the "Run" and "Start" positions.

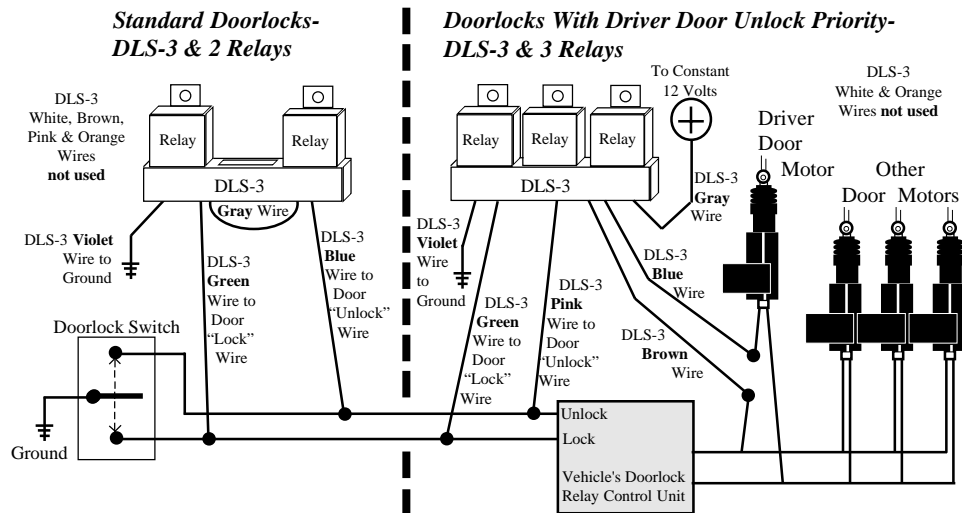
GRAY WIRE: (-) Optional Output- This wire will have a 1 second Negative (-) output whenever the transmitter's button II is held pressed for 3 seconds. Use a relay for trunk release and other options, or, in many cases this wire may be connected directly to the activation circuit of other devices, such as a Remote Starter unit.

ORANGE WIRE (-) Starter Interrupt Output- The Orange wire is an output for an optional starter disable socket and relay. The starter interrupt prevents the vehicle from starting only if the transmitter has been used to lock the doors, or if any automatic starter interrupt options have been programmed to operate.

Typical Starter Interrupt Connections

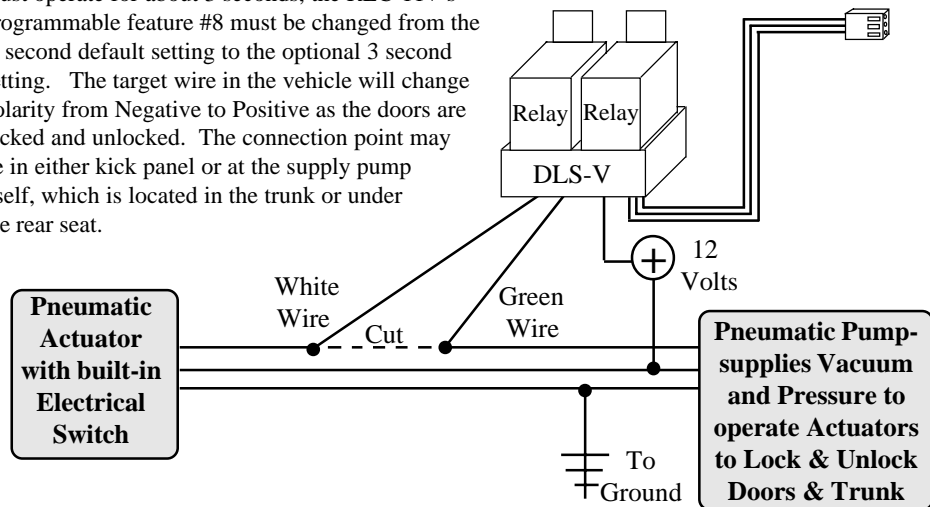


The optional **DLS -3 And 2 Or 3 SPDT Relays** is the most universal doorlock interface available. The DLS-3 with 2 relays can lock and unlock all doors (most doorlock system types); when used with 3 relays the **"Driver Door Unlock Priority"** may be configured. Diagrams are shown for all three of the common vehicle doorlocking systems (the driver's door motor unlock wire will always be 5 wire reversal system, regardless of the system type).



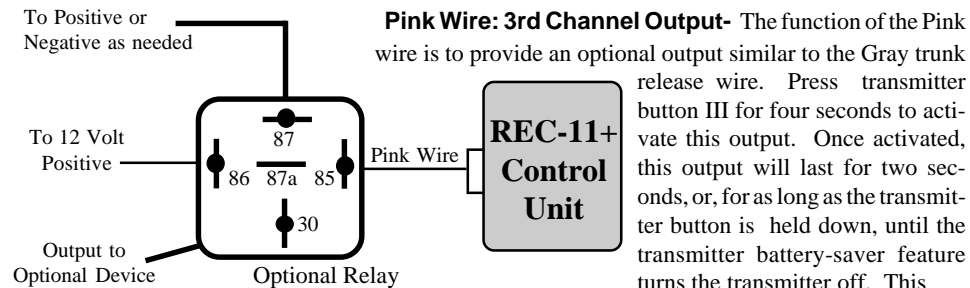
The DLS-3 with 3 Wire Negative Systems-Standard or Driver Door Priority

Older Mercedes Benz and other European vehicles have **Pneumatic Doorlocks** which will require the optional DLS-V and 2 SPDT Relays. This system consists of electrical switches (built into pneumatic actuators) which supply 12 volts or ground to a pneumatic pump, which in turn operates all of the actuators. The switches in the actuators are operated when the doors are locked or unlocked by the inside doorlock knob or the key in the exterior doorlock cylinders. The polarity supplied by the switch determines if the pump sends vacuum or pressure through hoses to the actuator. Since the pump must operate for about 3 seconds, the REC-11+'s programmable feature #8 must be changed from the .8 second default setting to the optional 3 second setting. The target wire in the vehicle will change polarity from Negative to Positive as the doors are locked and unlocked. The connection point may be in either kick panel or at the supply pump itself, which is located in the trunk or under the rear seat.



To interrupt the vehicle's starter circuit, the starter wire must be located and cut. This connection should be done 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 optional starter disable socket's Red wire to the ignition switch side, and its White wire to the starter solenoid side. Be sure that good, solid electrical connections are made as this generally is a high amperage circuit. Connect the module's Orange wire to the Orange wire of the starter disable socket.

Wiring Connections - Secondary Harness



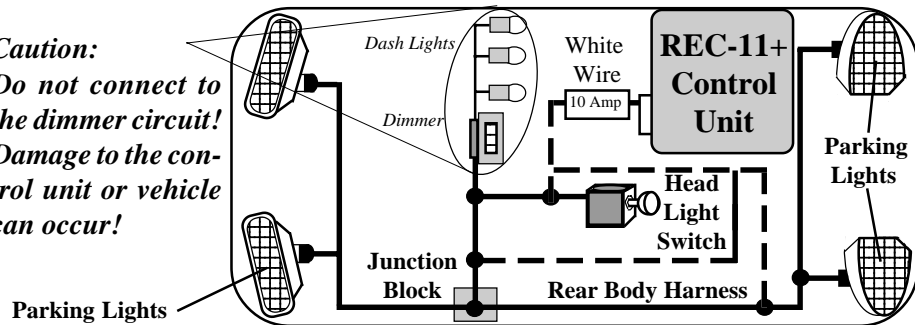
feature can be used to activate other optional modules (Example: car starting equipment or power window roll up units).

White Wire: Positive Flashing Light Output- This is a Positive 12 Volt output for exterior flashing light confirmation and to attract attention to the vehicle if the optional Anti-Carjacking feature is utilized and activated. Also, upon unlocking, this circuit will flash twice then stay on for 30 seconds to confirm unlocking and to illuminate the way to the vehicle. This feature gives added security when approaching the vehicle at night.

Connect this wire to the vehicle's Positive 12 Volt parking light circuit. This wire 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 Toyotas, have a parking light relay which is

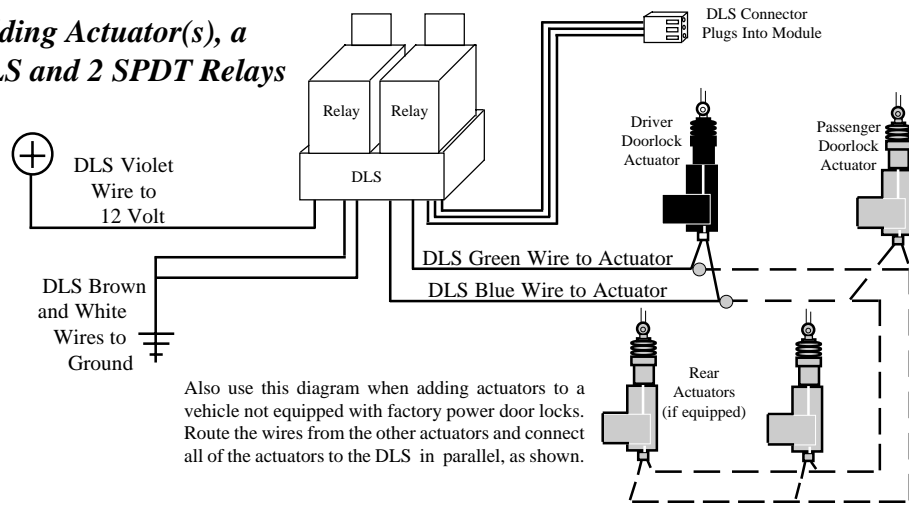
3 Suggested Parking Light Connections

Caution:
Do not connect to the dimmer circuit! Damage to the control unit or vehicle can occur!



The second situation is a vehicle which lacks power doorlocks; adding an actuator to each door allows remote locking and unlocking via the REC-11+. Or, an alternative is the addition of a complete power doorlocking kit instead, which provides in-vehicle power control of the doorlocks, in addition to remote operation by the REC-11+.

Adding Actuator(s), a DLS and 2 SPDT Relays



Also use this diagram when adding actuators to a vehicle not equipped with factory power door locks. Route the wires from the other actuators and connect all of the actuators to the DLS in parallel, as shown.

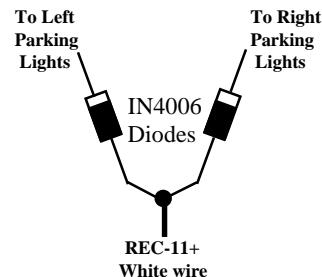
2 SPDT relays. The important thing to remember is that the wires in this system *rest at ground*, which means that the wires must be "opened", or cut, to make the connections.

Examine the wires on the back of the switch; normally 5 wires will be found. Of the wires, one will be constant Positive 12 Volt, 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 Positive 12 Volt when the switch is pushed to "lock", and the other will show Positive 12 Volt when the switch is pushed to "unlock". When the correct wires are found, they must be cut. Notice in the diagram 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.

There are two situations in which the installer must **Add an Optional “DS” Actuator, DLS, and 2 Relays**. The first of these situations is a vehicle having a “partial” power doorlock system. In this type of system, mechanically locking and unlocking the driver's door will operate an electrical switch in that door which supplies voltage to actuators in the other doors. There is no actuator in the driver's door, only a switch. An indication of this type of power doorlock system is when the driver door key will operate the passenger door, but the passenger side will not operate the driver door. The only way to remotely operate all of the doors is add a single actuator to the driver's door, which thus operates all of the doors.

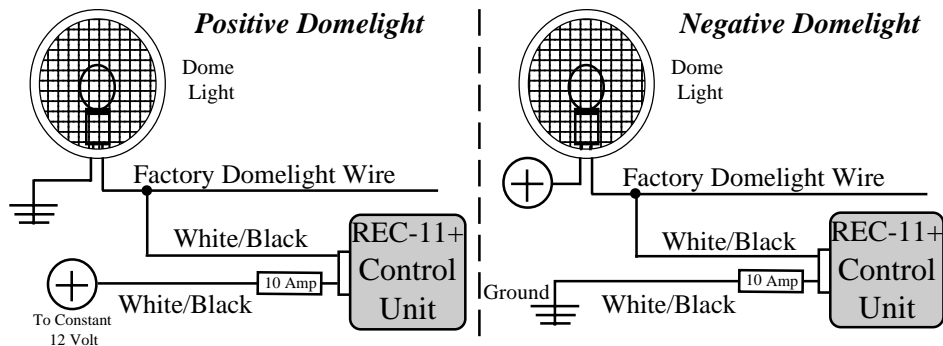
triggered by a Negative Ground circuit from the headlight switch. These cars can still be connected directly to the White wire by finding the parking light circuit after the relay, usually at the Fuse/Junction Block. The correct wire will show Positive 12 Volts when the headlight switch is in the "Parking Light" and "Head Light" positions. When such a wire is located, be sure to also test 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 attempt to flash the parking lights by connecting 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 REC-11+ control unit. Also, if the White wire touches chassis ground, the Printed Circuit Board and on-board relay may be damaged. ***Flashing the headlights is not recommended***

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 (see diagram at right). Otherwise, another option would be to use the REC-11+'s Black/White Domelight Illumination wires for the second parking light circuit, instead of domelight supervision.

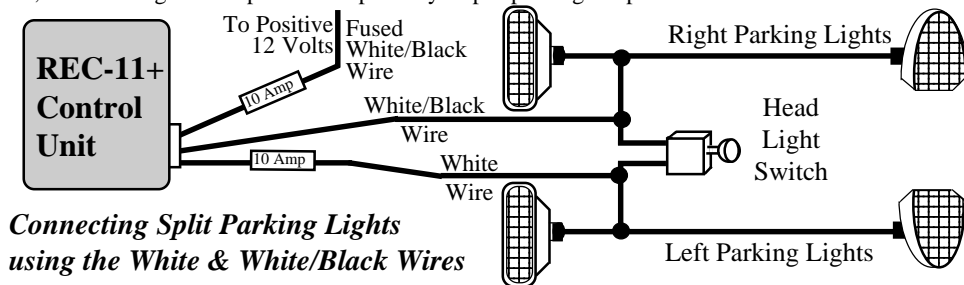


Pair of White/Black Wires: Domelight Supervision- The two White/Black wires are for domelight supervision. This feature will illuminate the interior lights of the vehicle upon unlocking and also flash to confirm locking. This output is very similar to the White Parking Light Output wire, except the polarity is selectable to be Positive or Negative. To properly use these wires for domelight supervision, connect the non-fused White/Black wires to the vehicle's domelight wire. The fused

White/Black wire is connected to (-) Ground or Positive 12 Volts as needed:



Or, use this diagram to operate European-style split parking lamp circuits:

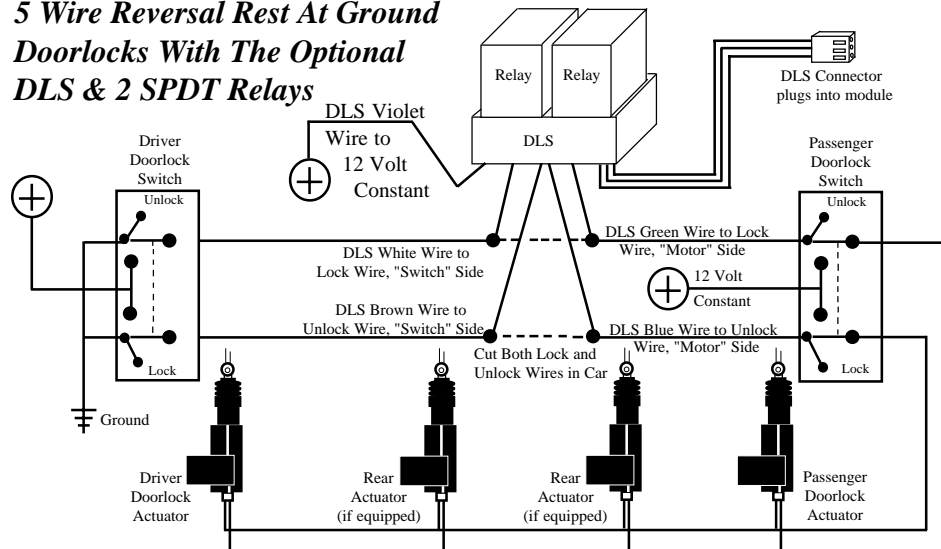


Connecting Split Parking Lights using the White & White/Black Wires

5 Wire Reversal Rest At Ground power doorlock systems differ from the negative and positive pulse systems because 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, just as important, provide the return ground path. The correct doorlock interface for this type of system is the optional DLS and

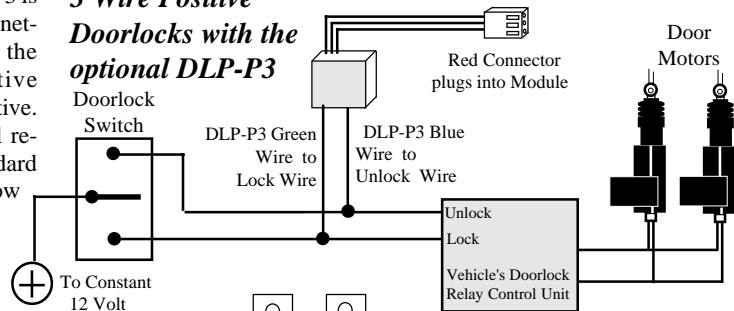
Text continued next page

5 Wire Reversal Rest At Ground Doorlocks With The Optional DLS & 2 SPDT Relays

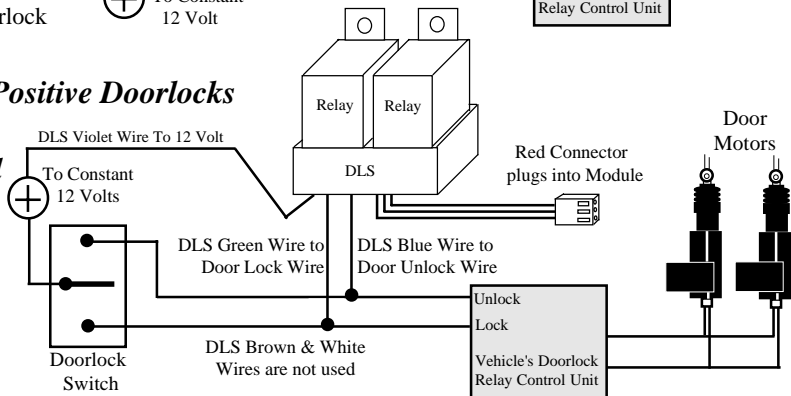


The optional DLP-P3 is a transistor converter network which changes the REC-11+'s negative doorlock outputs to positive. The optional DLS dual relay socket and two standard single pole, double throw (SPDT) automotive relays, while doing the same, is a more universal doorlock interface.

3 Wire Positive Doorlocks with the optional DLP-P3



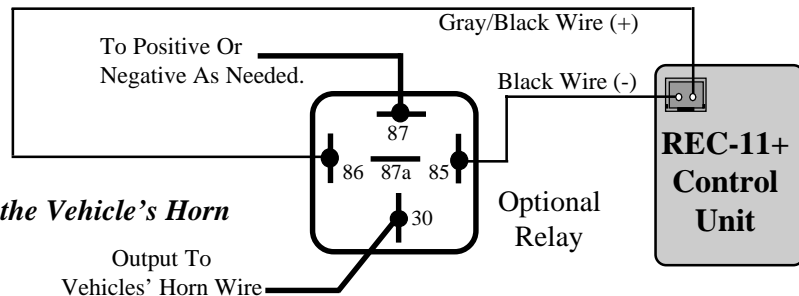
3 Wire Positive Doorlocks with the optional DLS and two SPDT Relays



Audible Output Options

The **Remote Piezo Speaker Port** offers several options for adding audible operation to the REC-11+. These include chirp confirmation of received transmissions, indications when programming feature or transmitters, the addition the safety feature of remote panic, and optional Anti-Carjacking features. The included piezo speaker, or buzzer, may be plugged in temporarily, such as for programming, or it can be permanent (example: tie-wrap it out of sight behind the lower dash).

The best utilization of this output is cut off the piezo and use an additional SPDT relay to connect the REC-11+ to the vehicles' horn, as shown in this diagram :



Using the Vehicle's Horn

The *Gray/Black Wire* has (+) 12 volt output, to drive the piezo speaker or a relay coil only. Do not attempt to connect this wire to anything other than these two components, as it will damage the unit's control module.

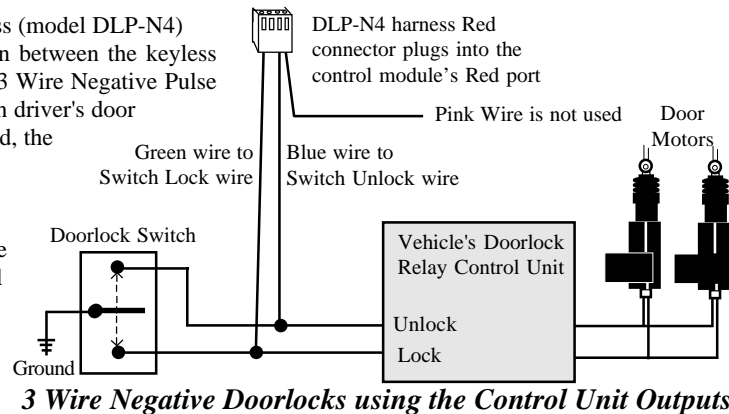
Connecting The Power Doorlocks

The REC-11+ has a plug-in **doorlock output port**; this 4 pin port produces a negative pulse for locking the doors (inside pin), a constant 12 volt pin *for the optional relay coils only* (second pin from the inside), a first negative pulse for driver door or all door unlock (second pin from the outside), and a second negative pulse for optionally unlocking all other doors (outside pin). The doorlock interface needed will depend upon the type of power doorlocks the vehicle has. The vehicle must have existing power doorlocks. A vehicle that does not have power doorlocks may be equipped for remote keyless entry operation by adding an Omega electric doorlock actuator to each of the doors and an optional DLS or DLS-3 and relays (this will allow the REC-11+ only to operate the doorlocks).

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 most 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. The following sections describe the types of doorlock systems found and the available optional interfaces.

A **3 Wire Negative Pulse** system is 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 or control unit.

The included harness (model DLP-N4) allows direct connection between the keyless entry system and most 3 Wire Negative Pulse doorlock systems. When driver's door unlock priority is desired, the correct interface is the DLS-3 (see page 19-21). Should more than 500ma ground output be needed, use the optional model DLS and two relays (connect the DLS Violet wire to Ground).



The **3 Wire Positive Pulse** system is very similar to the 3 Wire Negative Pulse system except the vehicle's doorlock switches use Positive 12 Volt pulses to operate the vehicle's doorlock relays. Examine the wires on the back of the switch. Of the three wires, one will be constant Positive 12 Volt, regardless of the switch's position. Of the two remaining wires, one will show Positive 12 Volt when the switch is pushed to "lock", and the other will show Positive 12 Volt when the switch is pushed to "unlock". Since the keyless entry system's output polarity must be reversed from negative ground to 12 volts positive, an optional doorlock interface must be used. Three interfaces are available - the models DLP-P3, the DLS and the DLS-3 with optional SPDT relays. The DLP-P3 and DLS diagrams are shown on the following page, and the DLS-3 is described in detail on page 19-21.