CMD-10k
COMMANDER SERIES REMOTE CONTROL ENTRY SYSTEM

INTRODUCTION

Thank you for purchasing the CMD-10k Commander from Dakota Digital. This, along with many other products that Dakota Digital has to offer, represents the latest in electronics technology for the street rod, classic car, sport truck, or custom vehicle.

The CMD-10k comes complete with receiver/controller, two key chain transmitters, one sealed emergency release switch, and three dual relay packs. The unit can be installed and configured to remotely release the driver's and passenger's door latches, provide up and down control of both the driver and passenger side window, as well as release the trunk latch or operate a trunk lift up and down. In addition to this, a pair of auxiliary outputs are provided for external relays. These auxiliary relays can be set up as momentarily on or as latch-on, latch-off. A “flash” output is available that is activated every time one of the latch outputs are activated. This can be used to disable an aftermarket alarm system or connected to a relay to flash the parking lights.

The system incorporates a self-resetting circuit protection device on the latch release outputs to protect against short circuits. A safety feature partially disables the system when the ignition is on to avoid the accidental opening of a door during vehicle operation. With the ignition on, the only functions that are allowed to work are the control of the power windows. An emergency release switch can be concealed on the underside of the vehicle to roll the driver's window down should the door ever be closed with the transmitter on the inside and you on the outside.

ADDITIONAL TRANSMITTERS

The transmitters supplied with your remote system have a unique serial number coded into each one for security. Each unit can “learn” up to 7 transmitters. Lost or stolen transmitters are easily erased by simply reprogramming the remaining transmitters into the system again. Transmitters from other manufacturers, such as car alarm systems, will not work with the CMD-10k.

RADIO FREQUENCY INTERFERENCE STATEMENT

FCC IDENTIFIER: KNF6TX

This device complies with part 15 of FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

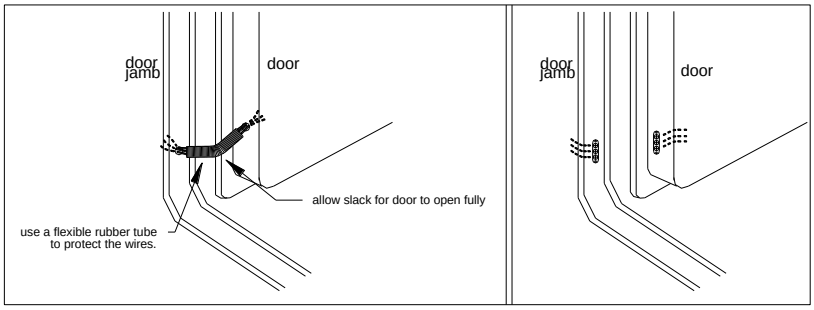
INSTALLATION

The receiver should be mounted on the interior of the vehicle so that it is not exposed to moisture. It can be secured using the four mounting holes or with a double sided adhesive tape, such as Velcro. The main harness plugs into one end of the unit with a 16 pin connector and the antenna plugs into the other end with a 3 pin connector. The antenna should be mounted away from any power wires or motors.

The color code for the main harness is listed below. The unit only needs the red and black wires connected to operate. The others should be hooked up according to your application. The CMD-10k should only be connected to a 12 volt battery for power and never solely to a battery charger.

RED	constant 12 volt battery source
BLACK	chassis ground
YELLOW	ignition key switched 12 volts
BROWN	driver's window emergency switch
BLUE	driver's door latch actuator
GREEN	passenger's door latch actuator
PURPLE	trunk release latch actuator
WHITE/RED	trunk lift motor raise relay
WHITE/BLUE	trunk lift motor lower relay
ORANGE	passenger's window up relay
PINK	passenger's window down relay
WHITE	driver's window up relay
GRAY	driver's window down relay
WHITE/GREEN	auxiliary relay output 1
WHITE/VIOLET	auxiliary relay output 2
WHITE/BLACK	"flash" output (parking light flash or alarm system disable)

The blue, green, and purple wires are connected to internal relays and can feed 12 volts out at up to 10 amps for the full pulse duration, 15 amps briefly. They are protected by an internal, self-resetting circuit breaker. The white, gray, orange, pink, white w/ green strip, white w/ violet strip, white w/ black strip, white w/ red strip, and white w/ blue strip are negative switched outputs designed to only turn on external relays. This combination of internal and external relays was used to reduce the number of wires going through the door jams to a minimum. To eliminate having any wires running through your door jams, use **DAKOTA DIGITAL MAGNUM SHOOTERS**. Refer to the following diagrams for connection to your particular actuators and power windows.



Wiring through door jamb Using MAGNUM SHOOTERS!

DOOR AND TRUNK LATCH WIRING.

Latches and latch actuators are not included in the base kit. These are available separately. If door motors or solenoids are already mounted in the vehicle, the remote entry system can connect directly to them. **For solenoids which require more than 10 amps, such as Dakota Digital's PDR-2, an external relay should be used for powering the solenoid.**

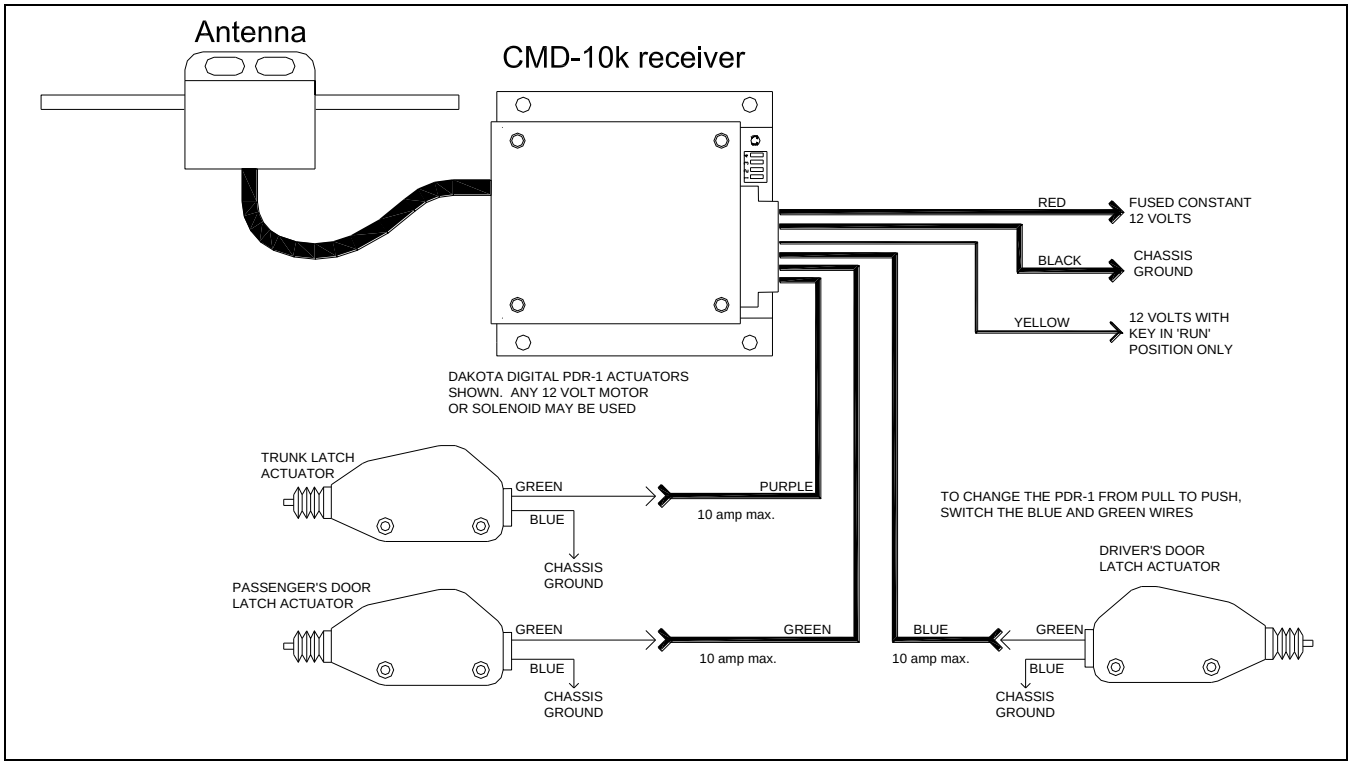


Figure 1. Door and trunk latch wiring diagram.

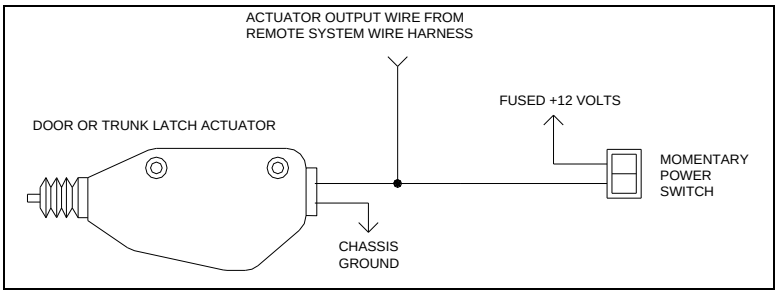


Figure 2. Wiring to control actuator with the remote and an inside switch.

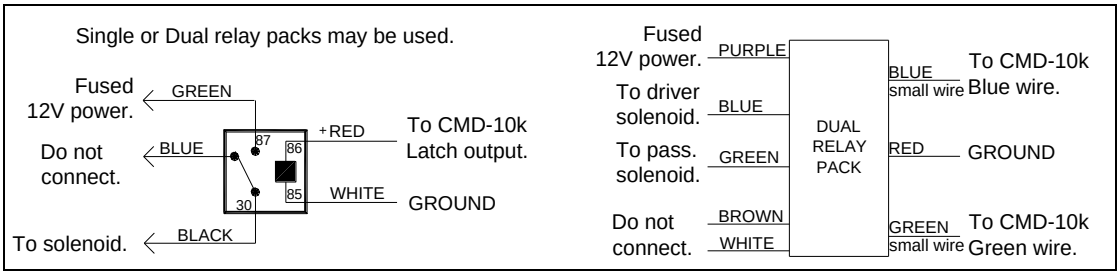


Figure 3. Wiring a high current relay for 10 amp or larger solenoids.

POWER WINDOW WIRING

Power window regulators are not included with the remote system base kit. They are available separately from Dakota Digital. This remote system is designed to wire into existing power windows or installed at the same time as power windows are added to the vehicle. Use the diagram which matches the way your power windows are connected. The relays are designed to duplicate the function of the power window switch you are using.

Because the switch pin-out varies with different switch types and between different manufacturers, refer to your power window wiring instructions for window regulator and switch color code and pin location. The diagram below shows how to hook up the remote system to an existing power window harness. It is recommended that the power windows be first wired up to its own switches and wiring harness without the remote system. Once the power windows are working correctly with the supplied switches, then connect the remote system relay packs up to the harness. This will simplify correcting any wiring problems that may show up.

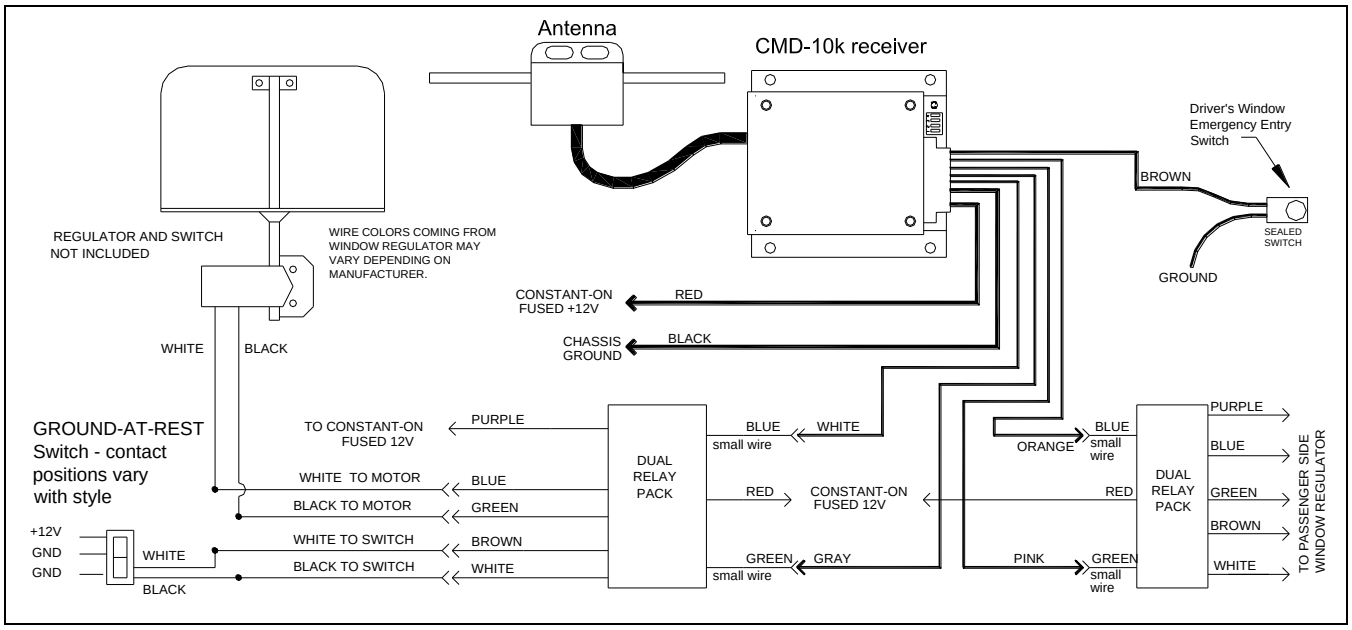


Figure 4. Connection to Specialty, Downs, Balls, GM, and other power window regulators using a 5-wire or center-position grounding switch.

This wiring diagram can be used with most power window and switch combinations. The existing switch (or in some cases relays) keep the two wires to the motor grounded when the window is at rest. To move the window up, the “up” wire is switched to 12 volts while the “down” wire remains grounded. To move the window down, the opposite occurs. For both the existing switch and the remote system to be able to move the window, the wires between the switch and the window regulator need to be cut and separated. These wires are then connected to the supplied dual relay pack. One relay in the pack will roll the window up, the other down.

While the remote system itself should not be mounted in the door, the relays can be. Mount them so the wires are going out the bottom. This will prevent water from catching in it.

The wiring for the passenger side is identical to the driver’s side.

POWER WINDOW WIRING

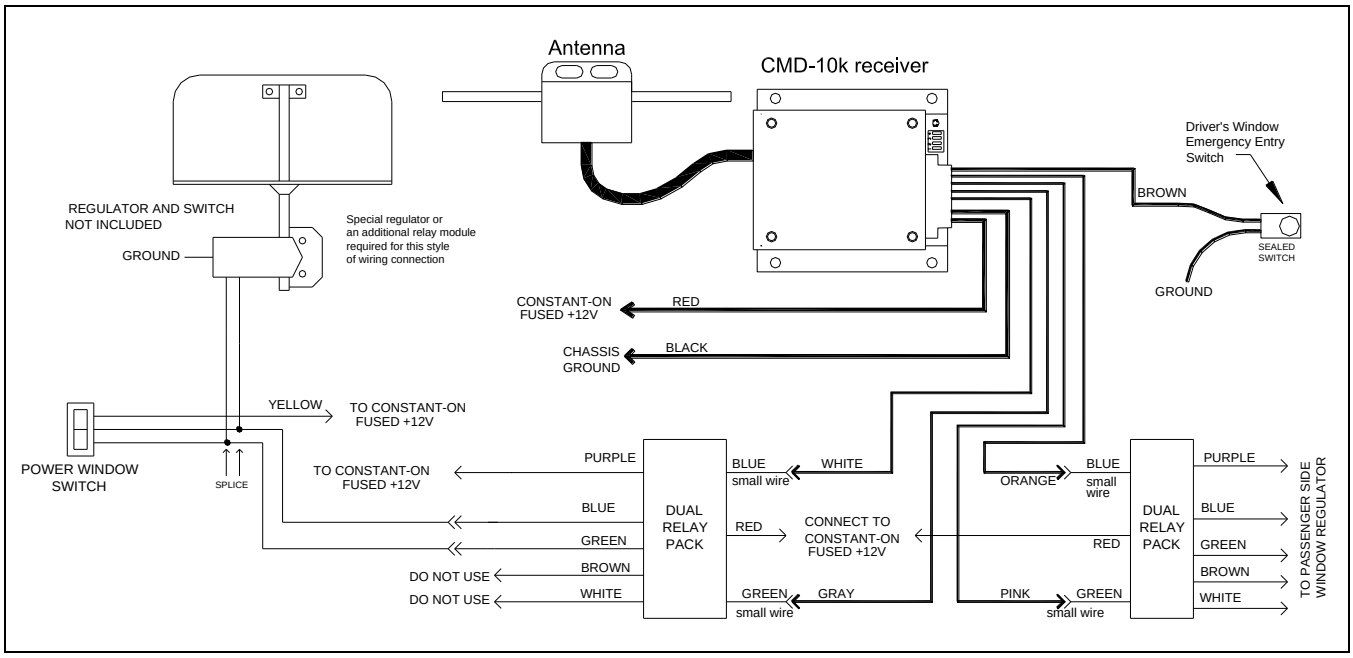


Figure 5. Connection to power window regulators with a three wire 12 volt switch.

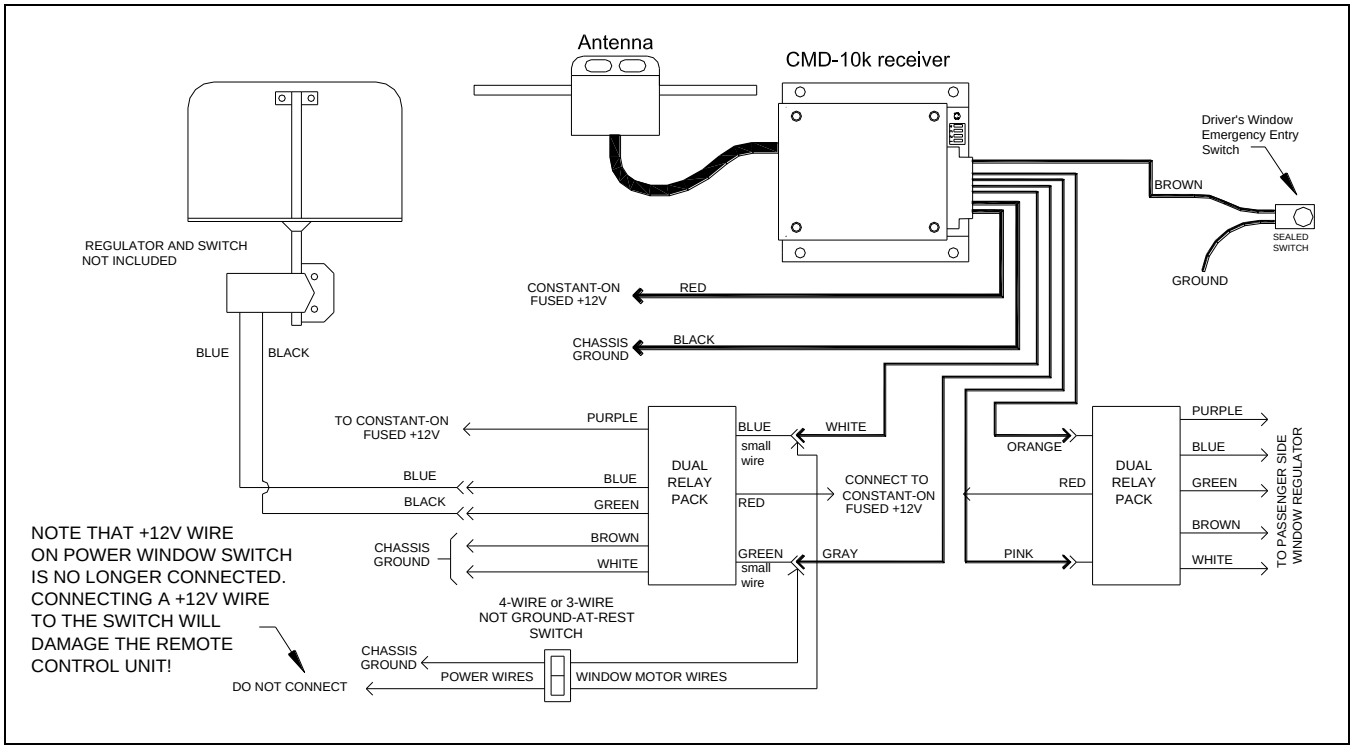


Figure 6. Connection to power windows with 4-wire switch (not center position grounding).

POWER TRUNK LIFT WIRING

The trunk lift motor is not included in the base package. These are available from Dakota Digital separately.

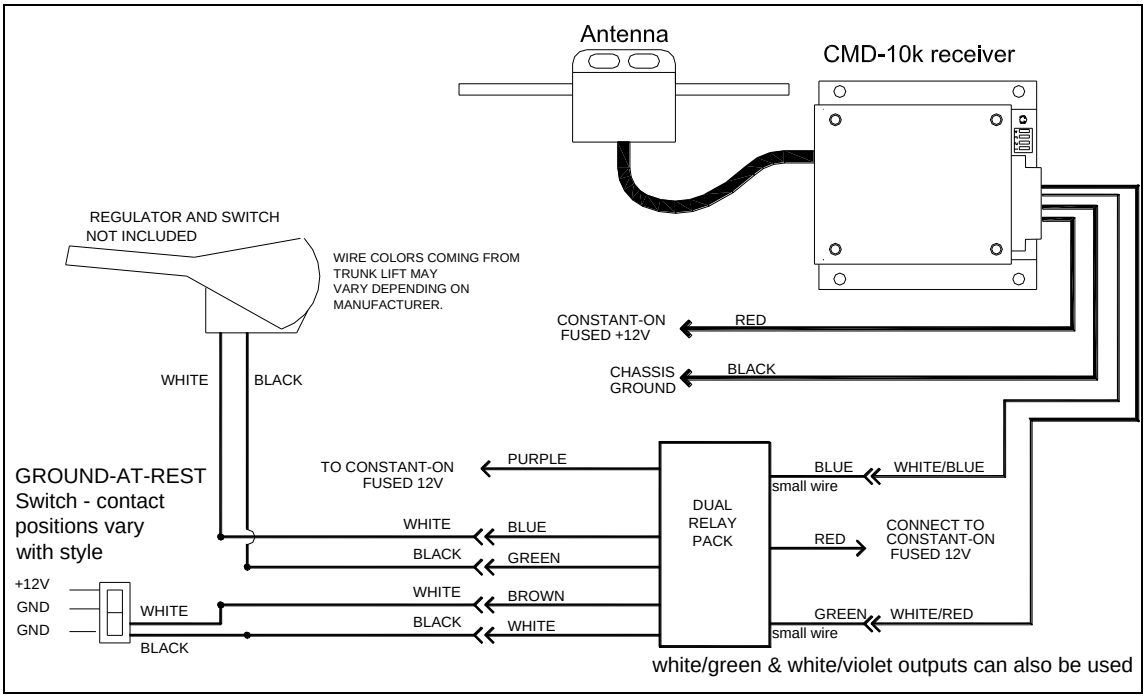


Figure 7. Connection to power trunk lift motor.

SINGLE RELAY WIRING FOR AUXILIARY OUTPUTS

The single relay shown is not included in the base kit. These are available from Dakota Digital (RLY-1), however any 12 volt, automotive relay will work.

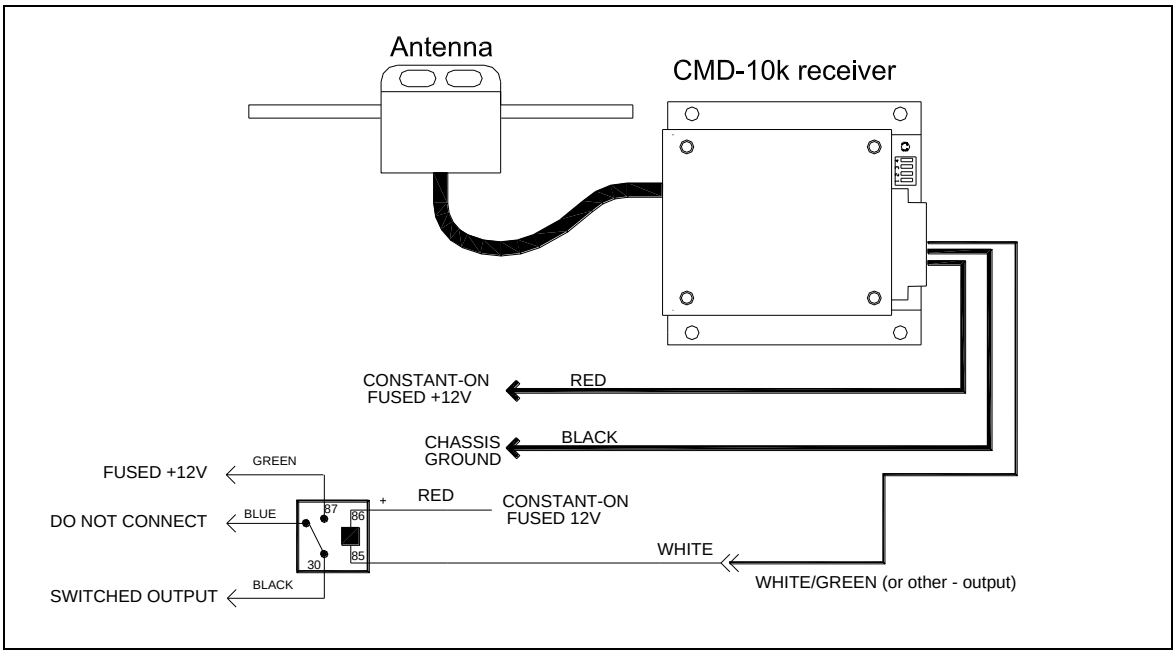


Figure 8. Connection to relays for operating accessories with auxiliary outputs.

The White/Red, White/Blue, White/Green, White/Violet, and White/Black wires can be connected to single relays in this same way.

POWER DOOR LOCK WIRING

The trunk raise/lower channels can also be used for power door locks to add more security to the vehicle. The door lock actuators are not included with the base package. These are sold separately if they are needed for your application.

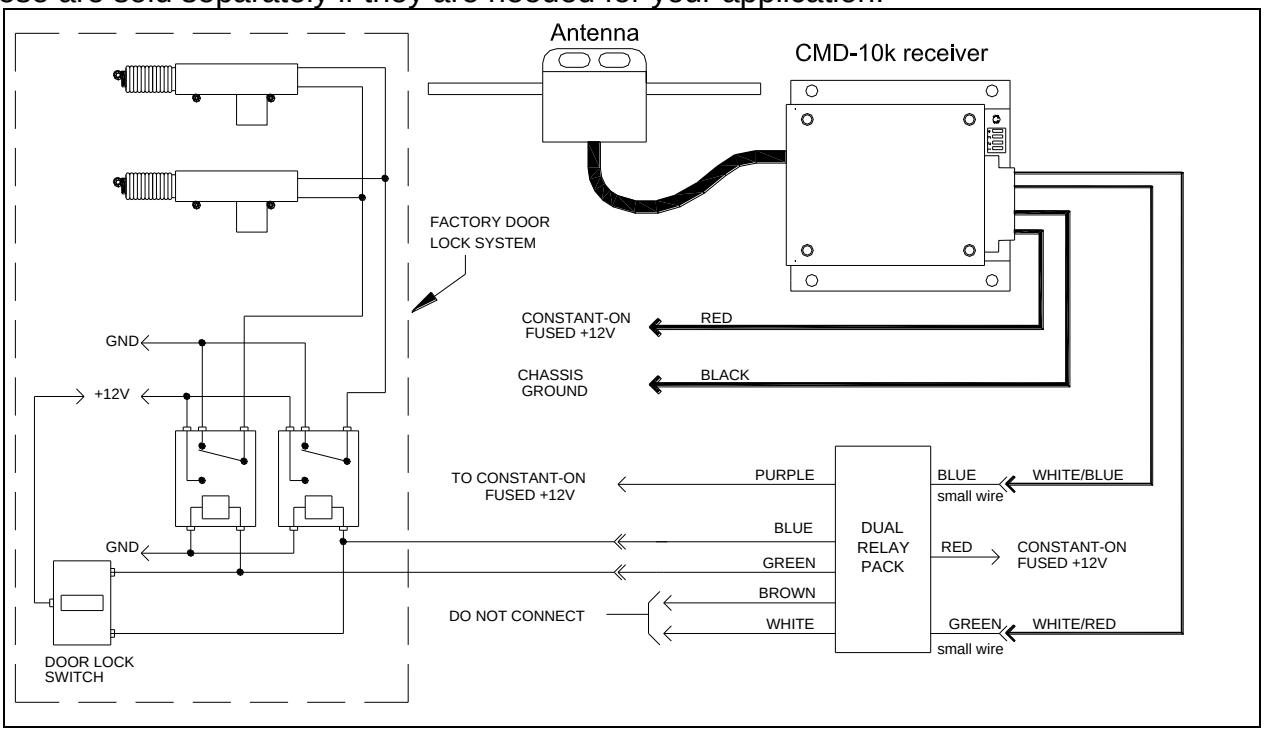


Figure 9. Connection to power door locks with 3-wire, +12V switch.

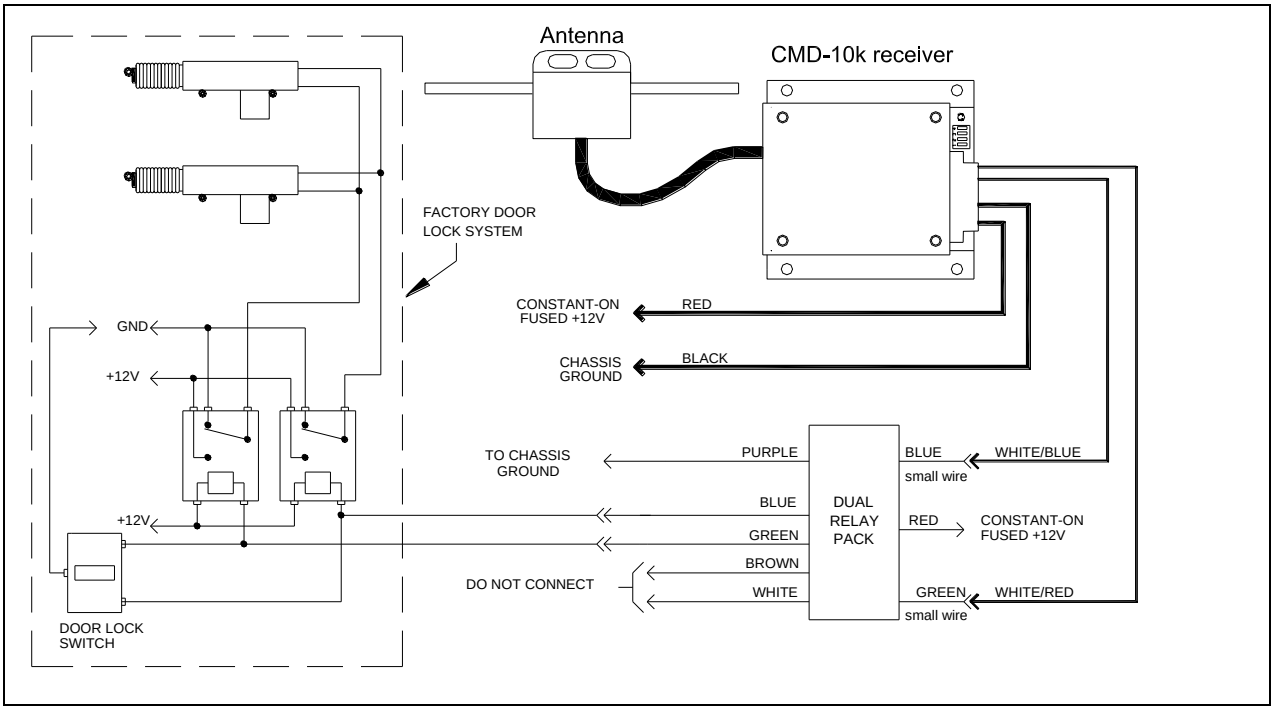


Figure 10. Connection to power door locks with 3-wire grounding switch.

POWER DOOR LOCK WIRING

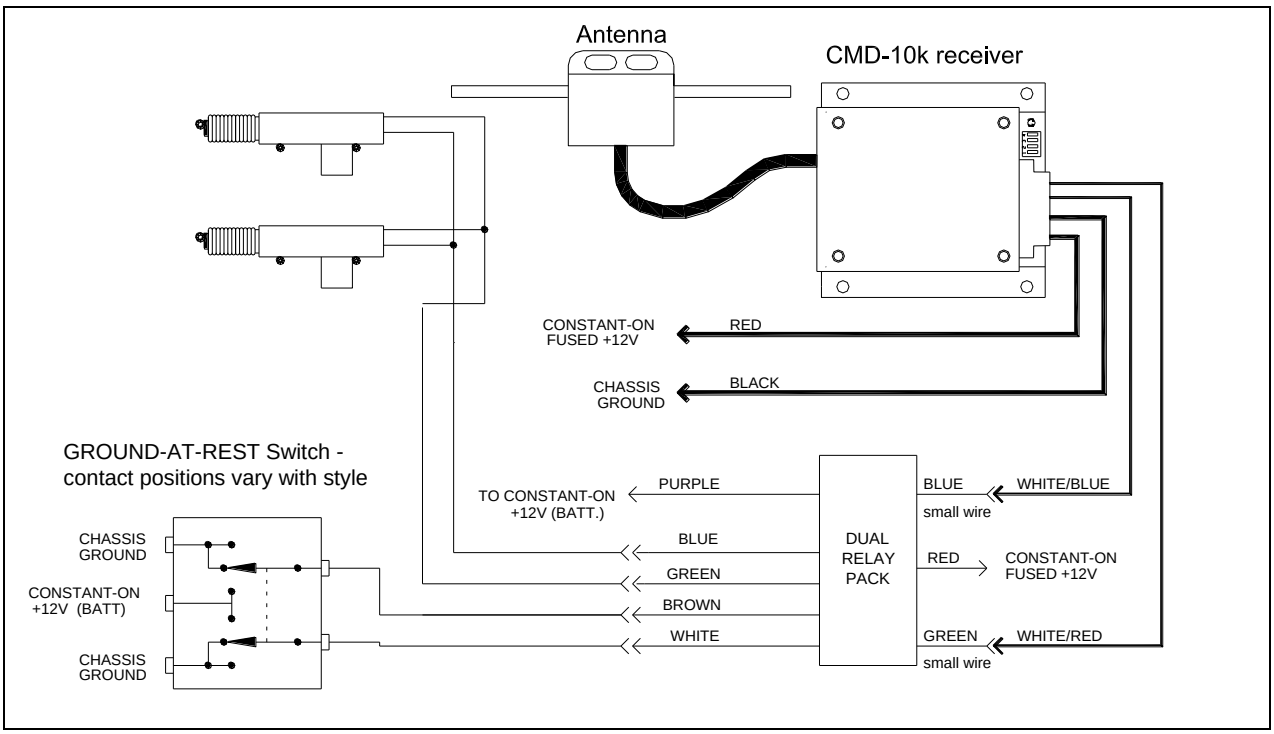


Figure 11. Connection to power door locks with a 5-wire switch.

WIRING TO RELEASE 4 DOOR LATCHES

Buttons III, IV, V, and VI will operate door latch releases. For solenoids which require more than 10 amps, such as Dakota Digital's PDR-2, an external relay should be used for powering the solenoids on outputs III, IV and V. (see figure 3.) DIP switches #1 and #2 should both be off.

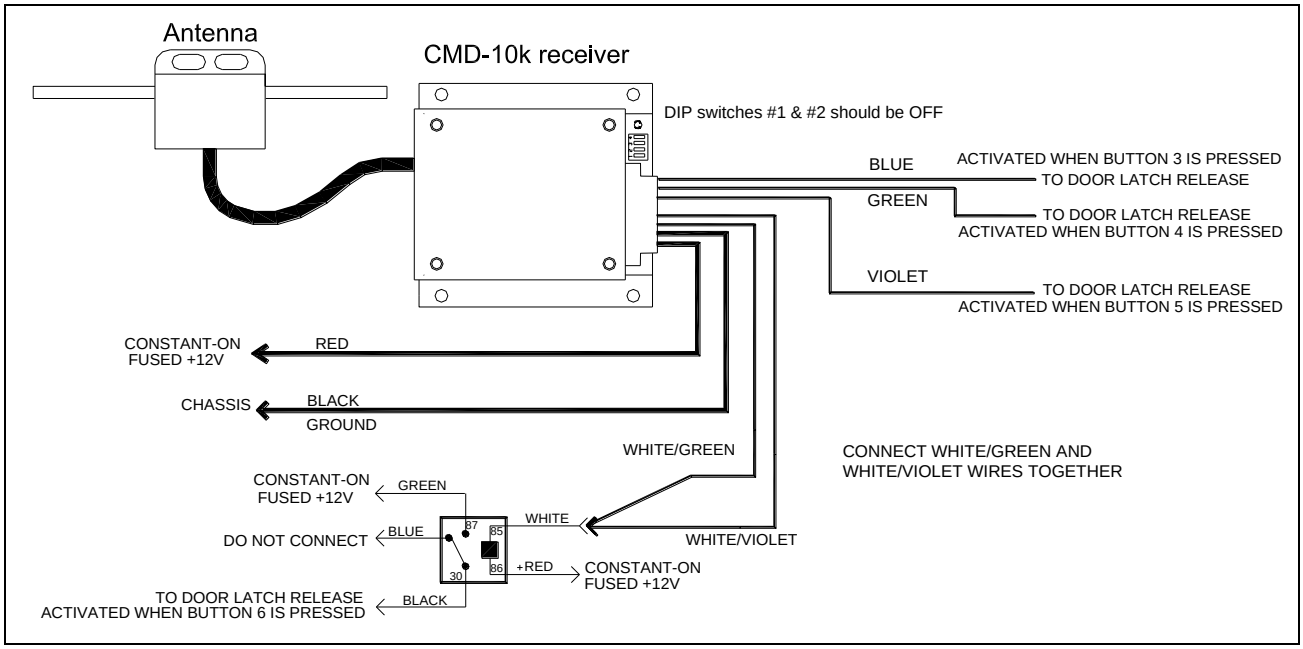
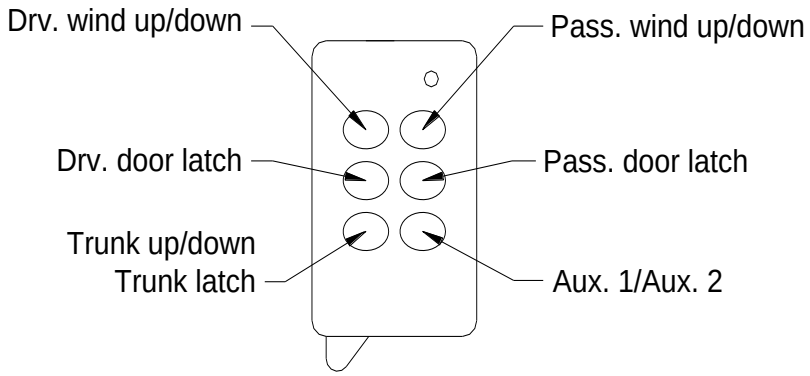


Figure 12. Connection for operating four door latch releases.



OPERATION FOR MODE 1, DIP switch #1 OFF

The key chain transmitter has six buttons. They are labeled with roman numerals I, II, III, IV, V, and VI. The red light next to the programming switches will flash once briefly each time a button is pressed to verify the command has been received.

Button I controls the driver's window. The first time it is pressed it will roll the window down until the button is released. The next time it is pressed it will roll the driver's window up until it is released. Button II controls the passenger's window. It works the same as button I, reversing the window direction each time it is pressed.

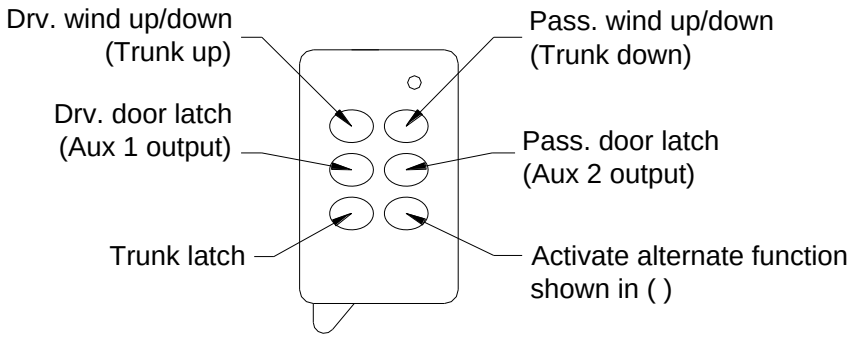
Button III releases the driver's door latch. It will send 12 volts to the actuator for about one second. The relay is turned off automatically to prevent burning out the latch release actuator. Button IV releases the passenger's door latch. It will send 12 volts for approximately one second. The "flash" output on the white/black wire will be activated for about ½ second each time a latch output is activated. This can be used to disable an alarm system or connected to a relay to flash parking lights.

Button V Trunk latch application: Pressing button V will activate the third internal relay for about one second. The white w/blue and white w/red wires should not be used.

Button V Trunk lift, lock/unlock, or similar: The first time the button is pressed it will raise the trunk (or unlock doors) until it is released. The next time it is pressed it will lower the trunk, (or lock doors) until it is released. The purple wire should not be used.

Button VI will activate an auxiliary relay which can be used to operate almost any accessory. When DIP switch #2 is off: the first time the button is pressed it will activate Aux 1 output until it is released, the next time it is pressed it will activate Aux 2 output until it is released. When DIP switch #2 is on, the Aux 1 relay output will turn on and remain on the first time the button is pressed. The next time the button is pressed the relay will turn off.

When the ignition key is on, the only buttons that will work are I and II (VI will also work if switch #2 is on). Buttons III, IV, V, and VI are disabled. This safety feature will not allow the doors or trunk to accidentally release while the vehicle is in motion. This disables the key chain transmitter only. The emergency release switch will not be disabled.



OPERATION FOR MODE 2, DIP switch #1 ON

The key chain transmitter has six buttons. They are labeled with roman numerals I, II, III, IV, V, and VI. The red light next to the programming switches will flash once briefly each time a button is pressed to verify the command has been received.

Button I controls the driver's window. The first time it is pressed it will roll the window down until the button is released. The next time it is pressed it will roll the driver's window up until it is released. Button II controls the passenger's window. It works the same as button I, reversing the window direction each time it is pressed.

Button III releases the driver's door latch. It will send 12 volts to the actuator for about one second. The relay is turned off automatically to prevent burning out the latch release actuator. Button IV releases the passenger's door latch. It will send 12 volts for approximately one second. Button V will activate the trunk latch. It send 12 volts for approximately one second. The "flash" output on the white/black wire will be activated for about ½ second each time a latch output is activated. This can be used to disable an alarm system or connected to a relay to flash parking lights.

Button VI activates the alternate functions for each button. Press and release button VI and then press one of the other buttons for the functions listed below.

Pressing button VI, and then button I will activate an external relay to raise a trunk lift, unlock doors, or any other function. It will remain on until the button is released.

Pressing button VI, and then button II will activate an external relay to lower a trunk lift, lock doors, or any other function. It will remain on until the button is released.

Pressing button VI, and then button III will operate Aux. 1. If DIP switch #2 is off then it will turn on and remain on until the button is released. If DIP switch #2 is on then it will latch the output on the first time it is activated and latch the output off the second time it is activated.

Pressing button VI, and then button IV will operate Aux. 2. If DIP switch #2 is off then it will turn on and remain on until the button is released. If DIP switch #2 is on then it will latch the output on the first time it is activated and latch the output off the second time it is activated.

When the ignition key is on, the only buttons that will work are I and II (Aux1 & Aux2 will also work if switch #2 is on). Buttons III, IV, V, and VI are disabled. This safety feature will not allow the doors or trunk to accidentally release while the vehicle is in motion. This disables the key chain transmitter only. The emergency release switch will not be disabled.

REMOTE SYSTEM TRANSMITTER LOCK FUNCTION

Due to the long range of this system, some customers may wish to avoid accidentally pressing a button and opening a door when they are out of sight of the vehicle. Turning Switch #3 on will enable a transmitter lock function. Pressing buttons V and VI at the same time will lock the receiver from activating any of the outputs. It will remain locked until buttons V and VI are pressed again.

When DIP switch #3 is off, this feature is disabled.

To lock the system:

1. Press and release buttons V and VI at the same time.
2. Press one of the other buttons to verify that the system is locked.

To unlock the system:

1. Press and release buttons V and VI at the same time.
2. Press one of the other buttons to verify that the system is operating normally.

PROGRAMMING SWITCHES

There are four programming switches located next to the main harness connector. They are used to set up the operation of the remote system.

Switch #1 Select operation mode. (changes what button VI does)
Switch #2 Select auxiliary output type. (momentary on or latch on/latch off)
Switch #3 Enable or disable transmitter lock function.
Switch #4 Enter testing and programming mode.

BATTERY REPLACEMENT

Should the transmitter function become weak or erratic, the battery in the key chain transmitter may be weak. An indication of a weak battery is that the green indicator may have a dim glow to it when any button is pressed. The battery is replaced in the following manner:

1. Use a small, straight screwdriver to pry the two halves apart at the key ring attachment.
2. Carefully separate the two case halves.
3. Remove the battery, noting the (+) and (-) position.
4. Replace the battery with a new 12 volt type GP23A battery which is available at most electronic stores (Radio Shack, battery stores, etc.).
5. Carefully replace the top cover and snap the two pieces together.

INSTRUCTIONS FOR TESTING AND PROGRAMMING TRANSMITTERS

All of the transmitters to be programmed into the system should be available. This sequence will erase any previously programmed transmitters. If a transmitter is lost or stolen, go through the programming sequence with the remaining transmitters and the lost one will be erased. The programming light is located next to the four programming switches. The yellow keyed power wire must be connected to enter the programming/testing mode.

Placing receiver into programming/testing mode.

1. Turn Switch #4 on.
2. Turn on the ignition switch.
3. The red programming light should come on and remain on steady.

Testing the transmitters.

4. Press button V. The programming light should flash as long as the button is held.
5. Press button I. The programming light will flash if the transmitter is currently programmed in. This will also resyncronize the transmitter with the decoder. The number of flashes will indicate the transmitter number.

Programming the transmitters.

6. Turn Switch #4 off. The programming light should go off.
7. Press and release button number III. The programming light should come on.
8. Press and release button number III again. The programming light should flash and then go out. It will flash once for the first transmitter, twice for the second, etc.
9. The transmitter is now stored. If you have more transmitters, take the next transmitter and go back to step 7.
10. When you are finished, turn the ignition key off to exit the programming mode and restart the system.

TROUBLE SHOOTING GUIDE

Symptom	Possible Problem	Solution
System will not operate doors or windows.	Receiver is not getting power.	Check 12 volt connection. Check ground connection. Check fuses.
	Transmitter is locked.	Press V and VI at the same time.
	Antenna is not plugged in.	Check antenna connection.
	System is in test/program mode	Check Switch #4
Door latch actuators 'jump' or 'chatter'.	Weak or poor 12 volt connection.	Check 12 volt connection. Move to new terminal point.
Door latch actuators are weak, red light flashes rapidly.	The door solenoid is drawing too much current and is tripping the circuit breaker.	Wire a relay between the CMD system and the solenoid as shown in figure 3.
Windows change direction in mid-travel.	Over loaded 12 volt power circuit.	Place receiver and windows on separate circuits. Check for loose connections. Increase wire size on power.
	Weak car battery.	Recharge or replace car battery.
	Transmitter signal is being disrupted.	Move antenna away from power wires.
Windows work, but doors and trunk will not	Ignition key is on.	Turn off ignition key.
	Yellow wire has 12 volts at all times.	Move yellow wire to a terminal that is powered only when the key is on.
Transmitter has very short range on all functions.	Transmitter battery is weak.	See Battery Replacement.
	Antenna needs repositioning	Move antenna out away from any high current wires.
Button VI will not work	Incorrect operation mode.	Check Switch #1.
Emergency Entry button will not work.	Switch not hooked up correctly.	Check ground connection. Check wiring connection.
Emergency Entry button rolls the window up instead of down.	Window up/down wires reversed	Switch gray and white wires from CMD-10k.

If none of these solutions solve the problem, or the problem occurring is not listed here, please call the Dakota Digital technical assistance line at (605) 332-6513 for further assistance or email to dakotasupport@dakotadigital.com.

SERVICE AND REPAIR

DAKOTA DIGITAL offers complete service and repair of its product line. In addition, technical consultation is available to help you work through any questions or problems you may be having installing one of our products. Please read through the Troubleshooting Guide. There, you will find the solution to most problems.

Should you ever need to send the unit back for repairs, please call our technical support line, (605) 332-6513, to request a Return Merchandise Authorization number. Package the product in a good quality box along with plenty of packing material. Ship the product by UPS or insured Parcel Post. Be sure to include the RMA number on the package, and include a complete description of the problem with RMA number, your full name and address (street address preferred), and a telephone number where you can be reached during the day. Any returns for warranty work must include a copy of the dated sales receipt from your place of purchase. Send no money. We will bill you after repair.

Dakota Digital Limited Lifetime Warranty

DAKOTA DIGITAL warrants to the ORIGINAL PURCHASER of this product that should it, under normal use and condition, be proven defective in material or workmanship for the lifetime of the original vehicle it was installed in, such defect(s) will be repaired or replaced at Dakota Digital's option.

This warranty does not cover nor extend to damage to the vehicle's systems, and does not cover diagnosis, removal or reinstallation of the product. This Warranty does not apply to any product or part thereof which in the opinion of the Company has been damaged through alteration, improper installation, mishandling, misuse, neglect, or accident. Dakota Digital assumes no responsibility for loss of time, vehicle use, owner inconvenience nor related expenses. Dakota Digital will cover the return standard freight once the product has been evaluated for warranty consideration, however the incoming transportation is to be covered by the owner.

This Warranty is in lieu of all other expressed warranties or liabilities. Any implied warranties, including any implied warranty of merchantability, shall be limited to the duration of this written warranty. No person or representative is authorized to assume, for Dakota Digital, any liability other than expressed herein in connection with the sale of this product.

⚠**WARNING:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

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