CSM-2.5

Installation Instructions

Note: Do not install this system on a vehicle that is not equipped with the following:

- Automatic Transmission
- Fuel Injection
- Ignition / Shift Interlock

PROFESSIONAL INSTALLATION
STRONGLY RECOMMENDED

Installation Precautions:


Roll down window to avoid locking keys in vehicle during installation


Avoid mounting components or routing wires near hot surfaces


Avoid mounting components or routing wires near moving parts


Tape or loom wires under hood for protection and appearance


Use grommets when routing wires through metal surfaces


Use a voltmeter for testing and verifying circuits

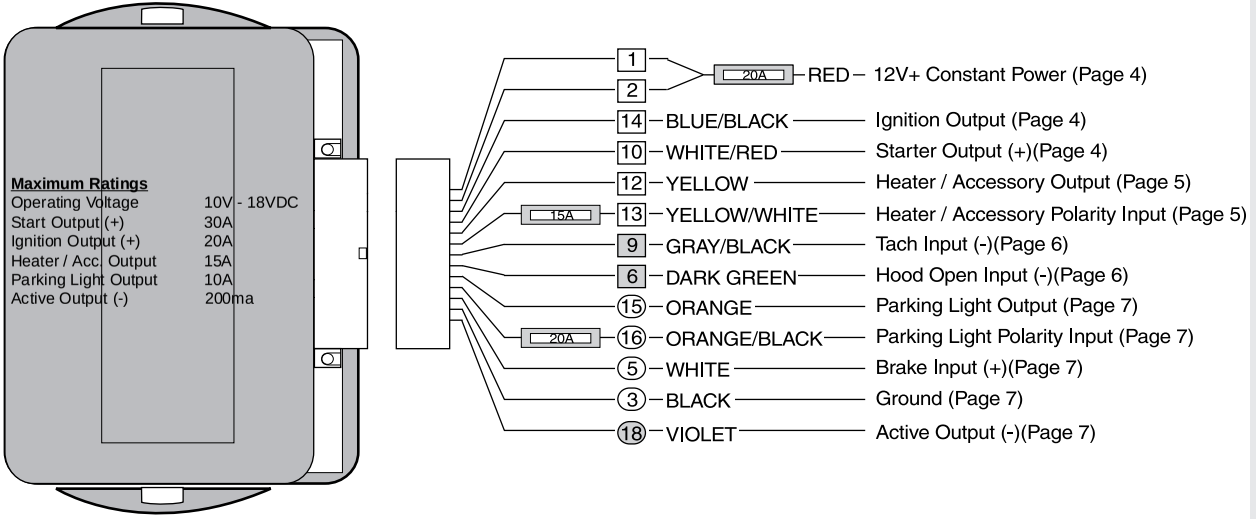
Technical Support

For Authorized Dealers - **(800) 421-3209**
Hours: **8:00 a.m. - 7:00 p.m. EST Monday thru Friday**
10:00 a.m. - 2:00 p.m. EST Saturday

INS0702
Rev.B
11/96

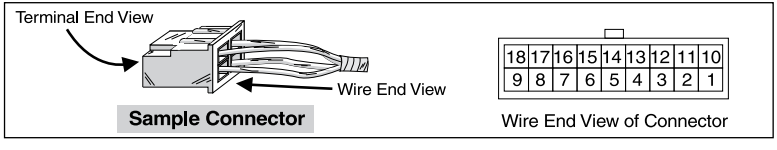
Remote Vehicle Starter

IMPORTANT!!!
The module MUST be programmed before it will operate.
Refer to the programming instructions on page 8.



Cavity Locations

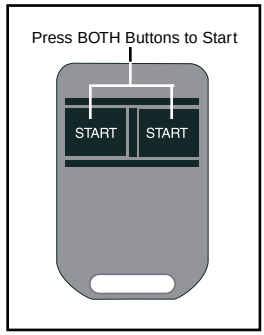
- Ignition Switch Connections
- Engine Compartment Connections
- Other Connections
- Optional Connections



Refer To Wire Color / Location Chart for specific wire color, location, and polarity information.

How the CSM-2.5 Works

Starting the Vehicle



The vehicle is started by pressing both buttons on the remote transmitter.

Start Sequence

1. Upon receiving start signal:
    - Active output turns on (negative signal)
    - Parking lights flash once to indicate start signal was received
2. Three (3) seconds after receiving start signal:
    - Ignition output turns on (positive signal)
3. Four (4) seconds after receiving start signal:
    - Start output turns on (positive signal)

The starter will crank for five (5) seconds or until the vehicle starts, at which time the start output will turn off. If the vehicle did not start, the unit will pause five (5) seconds, then attempt to start the vehicle again. If the vehicle never starts, the unit will attempt to start the vehicle a total of four (4) times before aborting the start sequence.

4. Two (2) seconds after the engine has started:
    - Parking lights turn on to indicate that the vehicle has started and is running.
5. Seven (7) seconds after the engine has started:
    - Heater / accessory output turns on

If the engine stalls, the heater / accessory output and parking light output will turn off. The unit will pause five (5) seconds, then attempt to re-start the vehicle.

The engine will run for a total of fifteen (15) minutes from the time it was originally started.

Stopping the Vehicle

The vehicle will shut off if:

- both buttons on the remote transmitter are pressed again
- the brake is pressed or the hood is opened while the vehicle is running
- the engine RPM reaches three (3) times its programmed idle speed

Shutdown Sequence:

1. Upon receiving shutdown signal:
    - Heater / accessory, parking light, ignition, and starter outputs will turn off
2. After receiving the shutdown signal:
    - Active output turns off

.

A. Ignition Switch Connections

IMPORTANT!!!

• Remove fuses from harness before installation.

• Solder and tape all connections at the ignition switch.

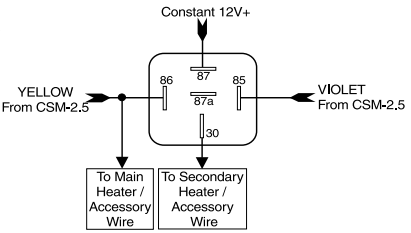
1. Main Power (+) (RED Wire)

▶ Connect the RED wire to the vehicle main power wire at the ignition switch.
Verification: This wire registers voltage at all times.

2. Ignition Output (+) (BLUE/BLACK Wire)

▶ Connect the BLUE/BLACK wire to the vehicle switched ignition wire at the ignition switch.
Verification: This wire registers voltage when the key is in the ON position, and continues to register voltage when the key is in the START position.

Connecting To More Than One Ignition Wire
Some vehicles may require connection to more than one ignition wire. If so, use a 30-amp SPST or SPDT relay (not supplied), and connect as shown in the diagram (right).
Note: Never "jump" ignition wires together! Always add a relay to connect to two or more wires.



3. Starter Output (+) (WHITE/RED Wire)

▶ Connect the WHITE/RED wire to the vehicle starter wire at the ignition switch. If an alarm system is installed, connect the CSM-2.5 wire between the alarm starter interrupt connection and the starter solenoid or starter relay.
Verification: This wire registers only when the key is in the START position.

Connecting to More than One Starter Wire
Some vehicles may require connection to more than one starter wire. If so, splice a second 14 gauge wire into the CSM-2.5 WHITE/RED wire. Connect the WHITE/RED wire to one starter wire, and the second wire to the other starter wire.

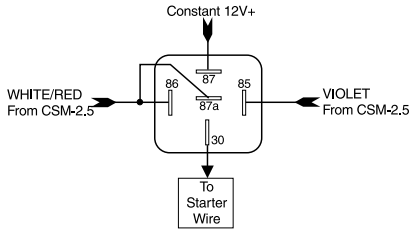
Note: If the vehicle is equipped with a VATS or similar start prevention system, please see the **Starter Prevention Override** section on page 10 of this manual.

3. Starter Output (+) (WHITE/RED Wire - cont.)

Connecting To A Wire With More Than 20 Amps Current Draw*

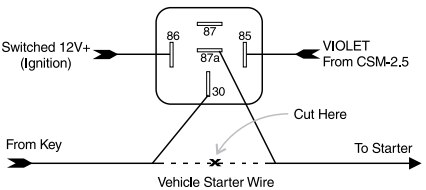
Some vehicles (such as large trucks) may draw more than 20 amps through the starter wire. If so, use a 30-amp SPDT relay (not supplied), and connect as shown in the diagram (right).

*Refer to the **Current Draw Test Procedure (page 10)** if you are unsure of the amount of current this circuit draws on this vehicle.



Adding an Optional Starter Safety Relay

Adding a starter safety relay will prevent the customer from accidentally "grinding" the starter if the vehicle is running via the remote starter and the key is inadvertently turned to the START position. Use a 30-amp SPDT relay (not supplied), and connect as shown in the diagram (right).



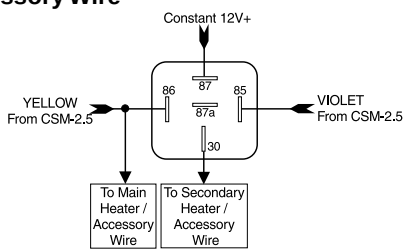
4. Heater / Accessory Output (YELLOW Wire)
Heater / Accessory Polarity Input (YELLOW/WHITE Wire)

- Connect the YELLOW wire to the vehicle heater / accessory wire at the ignition switch.
  Verification: This wire registers voltage when the key is turned to the ON position, but not the ACC (Accessory) position. The voltage drops when the key is turned to the START position.
- Connect the YELLOW/WHITE to a main power wire at the ignition switch, preferably to a wire other than the CSM-2.5 main power connection.
  Verification: This wire registers voltage at all times.

Connecting To More Than One Heater / Accessory Wire

Some vehicles may require connection to more than one heater / accessory wire. If so, use a 30-amp SPST or SPDT relay (not supplied), and connect as shown in the diagram (right).

Note: Never "jump" heater / accessory wires together! Always add a relay to connect to two or more wires.



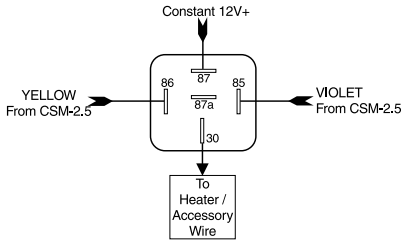
A. Ignition Switch Connections (cont.)

4. Heater / Accessory Output (YELLOW Wire - cont.)

Connecting To A Wire With More Than 15 Amps Current Draw*

Some vehicles (such as large trucks) may draw more than 15 amps through the heater / accessory wire. If so, use a 30-amp SPST or SPDT relay (not supplied), and connect as shown in the diagram (right).

*Refer to the **Current Draw Test Procedure (page 10)** if you are unsure of the amount of current this circuit draws on this vehicle.

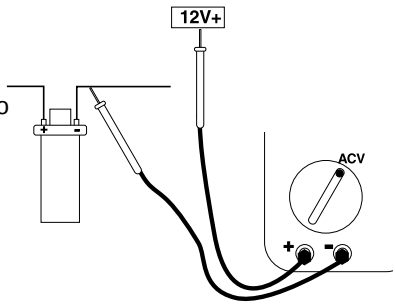


B. Engine Compartment Connections

1. Tach Input (-) (GRAY/BLACK Wire)

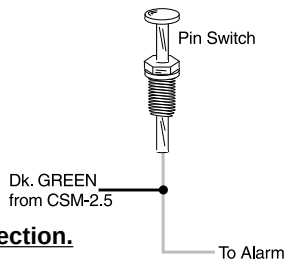
▶ Connect the GRAY/BLACK wire to the negative side of the vehicle ignition coil.
Verification: Refer to the Wire Color / Location chart for the wire color and location, or test for the wire using the following procedure:

1. Set your voltmeter to AC VOLTS.
2. Attach the positive lead of the voltmeter to a constant 12-volt source.
3. Attach the negative lead of the voltmeter to the wire to be tested.
4. Start the engine.
5. Have someone press on the gas pedal slightly as you monitor the voltmeter. If you are connected to the correct wire, the voltage reading will increase as the engine's RPM increases.



2. Hood Open Input (-) (DARK GREEN Wire)

▶ Connect the DARK GREEN wire to the wire of an existing hood pin switch or mercury tilt switch (if an alarm is installed), or install a switch and attach the DARK GREEN wire.
Verification: This wire will register ground when the vehicle hood is opened.
Note: If the vehicle is not equipped with a hood pin switch or tilt switch, install a switch and connect to the CSM-2.5 as shown. **<u>This is not an optional connection.</u>**



C. Other Connections

1. Parking Light Output (ORANGE Wire) Parking Light Polarity Input (ORANGE/BLACK Wire)

- Connect the ORANGE wire to the vehicle parking light wire.
  Verification: This wire will register either positive voltage or ground when the parking lights are turned on. Refer to the Wire Color / Location Chart for the wire color, polarity, and location.
- Connect the ORANGE/BLACK wire as follows:
  - If the vehicle parking light wire registers voltage when the lights are turned on, connect the ORANGE/BLACK wire to a constant +12-volt source.
  - If the parking light wire registers ground when the lights are turned on, connect the ORANGE/BLACK wire to chassis ground.

2. Brake Input (+) (WHITE Wire)

- Connect the WHITE wire to the vehicle brake light wire.
  Verification: This wire registers positive voltage when the brake pedal is pressed.

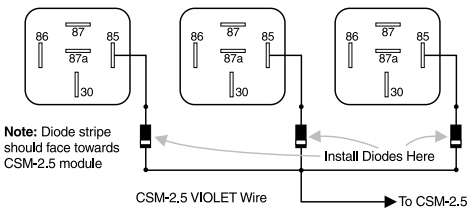
3. Ground Input (BLACK Wire)

- Connect the BLACK wire to a **solid chassis ground point.**
  Note: Do not ground the BLACK wire with any other vehicle components.

D. Optional Connections

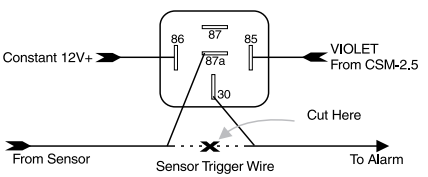
1. Active Output (-) (WHITE/BLACK Wire)

- Connect the WHITE/BLACK wire to add-on relays as described in this manual, or to an optional component requiring a ground signal when the vehicle is running via remote start.
  Note: If you are connecting the WHITE/BLACK wire to more than one relay, install 1-amp blocking diodes (1N4001 or equivalent) as shown in the diagram (right).



2. Interrupting a Sensor or Component while the Vehicle is Running via Remote Start

- Use an SPDT relay (not supplied) and connect as shown in the diagram (right).



Programming the CSM-2.5 Module

1. Make sure the vehicle hood is closed. Do not press the brake pedal until directed in the following steps.
2. Insert the fuses into the CSM-2.5 wiring harness. Make sure the 15-amp fuse goes into the YELLOW/WHITE wire harness.

Programming the Tach Signal

1. Press and hold the brake pedal. Turn the ignition on and off **two (2) times**, then release the brake pedal.
   If done correctly, the unit will respond by flashing the parking lights two (2) times. (From inside the vehicle, you will hear two (2) 'clicks' from the module.) This indicates that the unit has entered the programming mode.
2. After entering the program mode, start the vehicle without pressing the brake pedal.
   The unit will respond by flashing the parking lights once as soon as the vehicle has started. This indicates that it has learned the start speed.
3. Allow the engine to come to a normal idle.
   The unit will flash the parking lights every five (5) seconds to indicate that it has learned the current idle speed.
4. After the engine has dropped to a normal idle, press and release the brake pedal.
5. Turn the engine off to exit the programming mode.

Programming the Remote Transmitters

Note: Each system module has four "slots", or memory locations, to store transmitter codes, giving it the ability to operate from up to four transmitters. For proper operation, a transmitter code must be stored into each memory slot. When using less than four transmitters, follow the suggested programming parameters:

- **One Remote Transmitter -** Program four (4) times
- **Two Remote Transmitters -** Program each transmitter two (2) times
- **Three Remote Transmitters -** Program one transmitter twice, and each remaining transmitter once.

1. Press and hold the brake pedal. Turn the ignition on and off **three (3) times**, then release the brake pedal.
   If done correctly, the unit will respond by flashing the parking lights three (3) times. (From inside the vehicle, you will hear three (3) 'clicks' from the module.) This indicates that the unit has entered the programming mode.
2. Without pressing the brake pedal, press the LOCK button (button 1) on the remote transmitter to be programmed.
   The parking lights will flash once (one click from the module), indicating that the system has "learned" that remote transmitter.
3. Repeat step 2 for any additional transmitters or transmitter codes.
4. Press and release the brake pedal to exit the programming mode. Test all remote transmitters to ensure that they work properly.

System Test

Before beginning the System Test, make sure that the vehicle hood is closed, and apply the emergency brake.

IMPORTANT!!!
Be Prepared to Apply Brake At All Times During the System Test!

Instruction	What Should Happen	If This Does Not Happen...
1. While sitting in the driver's seat, press both buttons on the remote transmitter to start the vehicle.	• Lights flash once • Engine starts • Lights stay on • Heater/AC operates	• Check start trigger programming • Make sure you are using the correct start trigger wire
2. Press the brake pedal.	• Vehicle shuts down • Lights / accessories off	• Check WHITE wire connection at brake switch
3. Start the vehicle with the remote transmitter. Press the gas pedal to increase engine speed.	• Vehicle shuts down when RPM reaches 3X idle	• Re-program Tach Signal

Refer to Troubleshooting Tips (page 11) if you have additional problems with the System Test.

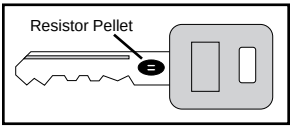
Mounting the Module / Finishing the Installation

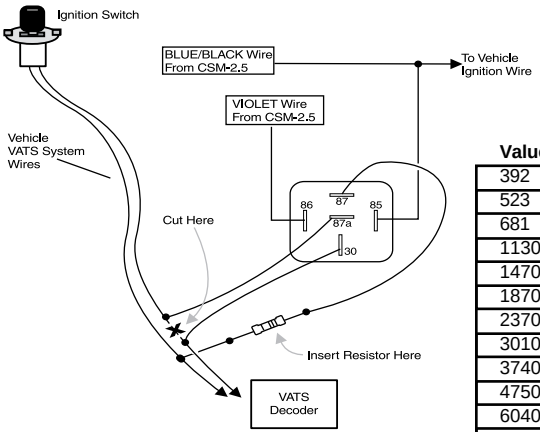
1. Use the supplied long tie wraps to mount the module to a brace or wire harness under the dash. Make sure that the module and harnesses are clear of moving parts.
2. Completely uncoil the antenna and route up the nearest front window pillar to the headliner. Be careful not to pinch the antenna under vehicle panels, or route near moving parts. For optimum performance, allow the clear plastic portion of the antenna to remain exposed, in the corner of the window or behind the rear-view mirror.

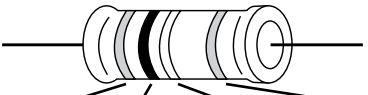
Starter Prevention Override

This section describes the override procedure for the VATS system, found on many GM vehicles. If you are installing this system in a vehicle with a different type of starter prevention system, contact Technical Support.

1. Measure the resistance of the resistor pellet on the key.
2. Select a resistor value from the chart below that most closely matches the key pellet resistance.
3. Acquire this resistor and wire, with a SPDT relay, as shown in the diagram.





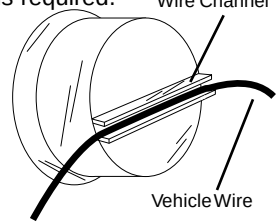


Value	Band 1	Band 2	Band 3	Band 4
392	Orange	White	Red	Black
523	Green	Red	Orange	Black
681	Blue	Gray	Brown	Black
1130	Brown	Brown	Orange	Brown
1470	Brown	Yellow	Violet	Brown
1870	Brown	Gray	Violet	Brown
2370	Red	Orange	Violet	Brown
3010	Orange	Black	Brown	Brown
3740	Orange	Violet	Yellow	Brown
4750	Yellow	Violet	Green	Brown
6040	Blue	Black	Yellow	Brown
7500	Violet	Green	Black	Brown
9530	White	Green	Orange	Brown
11200	Brown	Brown	Gray	Red

Current Draw Test Procedure

On some vehicles, the current draw of a circuit may be higher than the CSM-2.5 can supply. In these cases, a load reduction relay must be installed, as shown throughout this manual. To test for current draw, an Alternator Current Indicator is required.

1. Separate the wire you are testing away from other wires in the loom or harness.
2. Place the Alternator Current Indicator over the target wire. Make sure the wire is running through the channel on the back of the tester.
3. Observe the indicator when the circuit is active (i.e. if you are testing the heater wire, turn the blower to its highest setting). If the reading is higher than the recommended ratings, install a load reduction relay.



Back of Alternator Current Indicator

Remote Start Troubleshooting Tips

Problem	*Cause or Remedy*
Starting the Vehicle	
Parking lights flash, but vehicle doesn't start	• Check for correct starter wire
System doesn't respond to start signal	• Remote transmitter out of range • Wrong trigger input wire • Check fuse in RED wire
Parking lights flash 4 times when trying to start	• Tach signal not yet programmed
Engine starts, but shuts down	• Faulty hood switch or connection • Possible engine idle problem
Vehicle starts, but heater / AC doesn't work	• Check heater / A/C connection • Check fuse in YEL/WHT wire
Vehicle over-cranks when starting	• Re-program tach signal
Vehicle starts with hood open or brake pedal pressed	• Check connections at hood switch or brake
Vehicle cranks, but doesn't start	• Check for correct ignition wire
Stopping the Vehicle	
System doesn't shut off when brake is pressed or hood is opened	• Check connections at hood switch or brake
System doesn't shut off when engine "over-revs"	• Re-program tach signal
Programming	
System does not enter programming mode	• Check YELLOW, WHITE, and RED wires for correct connection
System will not acknowledge tach signal	• Check GRAY/BLACK wire for correct connection