# MODEL MS2005

## VEHICLE SECURITY / REMOTE STARTING SYSTEM

## INSTALLATION MANUAL

### Table of Contents

## Before You Begin

1. Read this manual thoroughly before beginning the installation to ensure a proper understanding of the MS2005 and its functions.

2. Verify the system contents:
   - Main Unit
   - Two 4-Button Remote Transmitters
   - Siren
   - Electronic Shock Sensor
   - Harnesses
     - 14-Pin Main harness
     - 2-Pin Status LED harness
     - 2-Pin Override Switch harness
     - 3-Pin Door Lock harness
     - 4-Pin Shock Sensor harness
     - 3-Pin Optional harness
     - 6 Individual 14 gauge wires with insulated female .250 connectors.

3. Discuss the location of the status LED and the Emergency Override Switch with the vehicle's owner.

4. Discuss the optional features of the MS2005 and the features that must be programmed during installation, with the vehicle's owner.

5. Check all of the vehicle's operating systems before and after the installation.

6. Verify the polarity jumper setting before plugging the control unit to the harness.

## Installation Tips

***DO NOT INSTALL THE MS2005 INTO A MANUAL TRANSMISSION VEHICLE AS IT COULD RESULT IN SERIOUS INJURY OR DEATH***.

1. Use a Digital Volt/Ohm meter to test all wires. ***Do not*** use a test light.

2. Good power and ground connections are essential for proper operation. Ground the alarm as close to the alarm main unit as possible.

3. Route all wires from the engine compartment to the interior of the vehicle through a grommet and use electrical tape and/or split loom tubing for protection.

4. When adding optional accessories such as door locks, window modules, etc., be sure to fuse each additional accessory power lead separately from the main power source. This will insure that the security system power is retained in the event that an accessory malfunctions.

5. Avoid extending the system's wires. The supplied wiring harnesses provide sufficient length to connect to the required vehicle circuits. If a wire must be extended, be sure to use the appropriate gauge wire in order to avoid a drop in current. Always use wire that is at least the same gauge as the wire you are extending.

6. ***Never*** bypass the fuses included in the MS2005 wiring harness. They are necessary safety items designed to protect both the system and the vehicle.

7. Be sure to perform a full function test of all of the systems components to verify proper operation. Also, be sure to check all of the vehicle's operating systems before and after the installation.

8. For maximum security, disguise all system wires with black electrical tape and/or split loom tubing to prevent a thief from being able to identify the system wiring.

## Mounting Components

### Main Unit

The main unit should be mounted in the interior of the vehicle. ***Do not*** mount the main unit in the engine compartment. For maximum security, avoid mounting the main unit where it will be easily accessible to a thief. Mount the unit with wire ties through the mounting tabs as high as possible in the dash where it will not interfere with the operation of the pedals .

Make all switch and jumper selections and perform a thorough function test of the system before securing the unit.

### Siren

Mount the siren away from sources of heat and face the opening downward to prevent water collection. Be sure that the wires are not easily accessible from underneath the vehicle.

### Extended Range Receiver

Mount the receiver in the upper inside corner of the windshield using the supplied double-sided tape. This area should be free from metallic tint or range may be reduced.

### Shock Sensor

The dual stage, electronic shock sensor must be mounted in the interior of the vehicle using a tie wrap or screws. Avoid mounting the sensor near sources of strong electrical interference such as cellular phone transceivers or the vehicle's engine computer. Suggested mounting locations are an air conditioning duct, or a dashboard or center console support brace.

### Override Switch

Mount the Override Switch in a location near the driver where it is easily accessible but not plainly visible. Plug the blue override switch connector into the blue 2-pin socket on the main unit. Be sure the switch cannot be accidentally pressed or damaged by movement of passengers or contents.

### LED Status Indicator

Mount the status LED so that it is visible from both sides of the vehicle. Plug the red LED connector into red 2-pin socket on the Main Unit. A 3/8" hole is necessary for the LED assembly.

## Wiring Description

### 14-Pin Main Harness

**Pin 1 - Red: Main Power (+12v) input. [15A fuse]**
Connect to constant +12 volt supply. A clean source of power is essential from either the battery or at the constant power supply wire to the ignition switch. If this wire must be lengthened, use the appropriate wire gauge to avoid a drop in current and install a fuse near the power connection. ***Do not*** remove or bypass the fuse holder included on the wire harness.

**Pin 2 - Brown: Siren (+12v) output. [3A]**
Connect to the Red siren wire. Connect the Black siren wire to chassis ground.

**Pin 3 - White: Parking Light (+/-) output. [7.5A built-in relay]**
Connect to the parking light circuit. For vehicles with independent left and right parking light circuits, the parking light wires must be connected using diodes to keep the circuits separate. *(See Jumper Settings.)*

**Pin 4 - Violet/White: Tachometer Input.**
Connect to the appropriate coil or negative fuel injector wire for RPM monitoring.

**Pin 5 - Blue/White: Passenger Unlock (-) output. [500mA]**
Provides a negative output (-) when Button 2 is pressed twice to unlock the passenger door.

**Pin 6 - Brown/White: Horn Honk (-) output. [500mA]**
Connect to a relay to honk the vehicle horn.

**Pin 7 - Brown/Red: Brake (+) input.**
Connect to the output from the brake pedal switch.

**Pin 8 - Blue: Hood/Trunk Trigger (-) input.**
Connect to a negative output from the hood and trunk pin switches.

**Pin 9 - Black/White: Dome Light (-) output. [500mA]**
Connect to a relay to turn on the vehicle's dome light with disarm/unlock. *(See Dome Light Section)*

**Pin 10 - Yellow/White: Auxiliary (-) output. [500mA]**
Provides a negative (-) momentary output when button 3 is pressed.

**Pin 11 - Blue/Black: (-) Output while remotely started and/or armed. [500mA]**
Connect to an optional relay as shown to disable the vehicle's starter circuit or to interface OEM security features.

**Pin 12 - Black: Ground.**
Connect to a solid, clean chassis ground using a ring connector and star washer.

**Pin 13 - Violet: Door Trigger (+12v) input.**
Connect to positive door switch circuit that has (+12v) when the door is open.

**Pin 14 - Green: Door Trigger (-) input.**
Connect to negative door switch circuit that has (-) when the door is open.

### 3-Pin Door Lock Harness **white connector**

**Pin 1 - Green: (-) LOCK output [500mA] / (+) UNLOCK output [250 mA]**

**Pin 2 - Red: Not used**

**Pin 3 - Blue: (-) UNLOCK output [500mA] / (+) LOCK output [250 mA]**

### 3-Pin Optional Harness **red connector**

**Pin 1 - Yellow: (-) Vacuum switch input.**
Connect to an optional vacuum switch if needed. *(see Vacuum Switch Installation)*

**Pin 2 - Green/Black: (-) Factory alarm disarm output. [500mA]**
Provides a 1 second pulse when remote start is activated and/or when unlock is pressed on remote transmitter.

**Pin 3 - Gray/Black: (-) Glow plug (wait-to-start) input.**
For use with diesel engines only. Connect to the vehicle's negative glow plug wire. *(see Glow Plug Input)*

### 6 Individual 14 gauge wires with connectors

**Pin 1 - Violet: (+) Starter output**

**Pin 2 - Orange: (+) Accessory output**

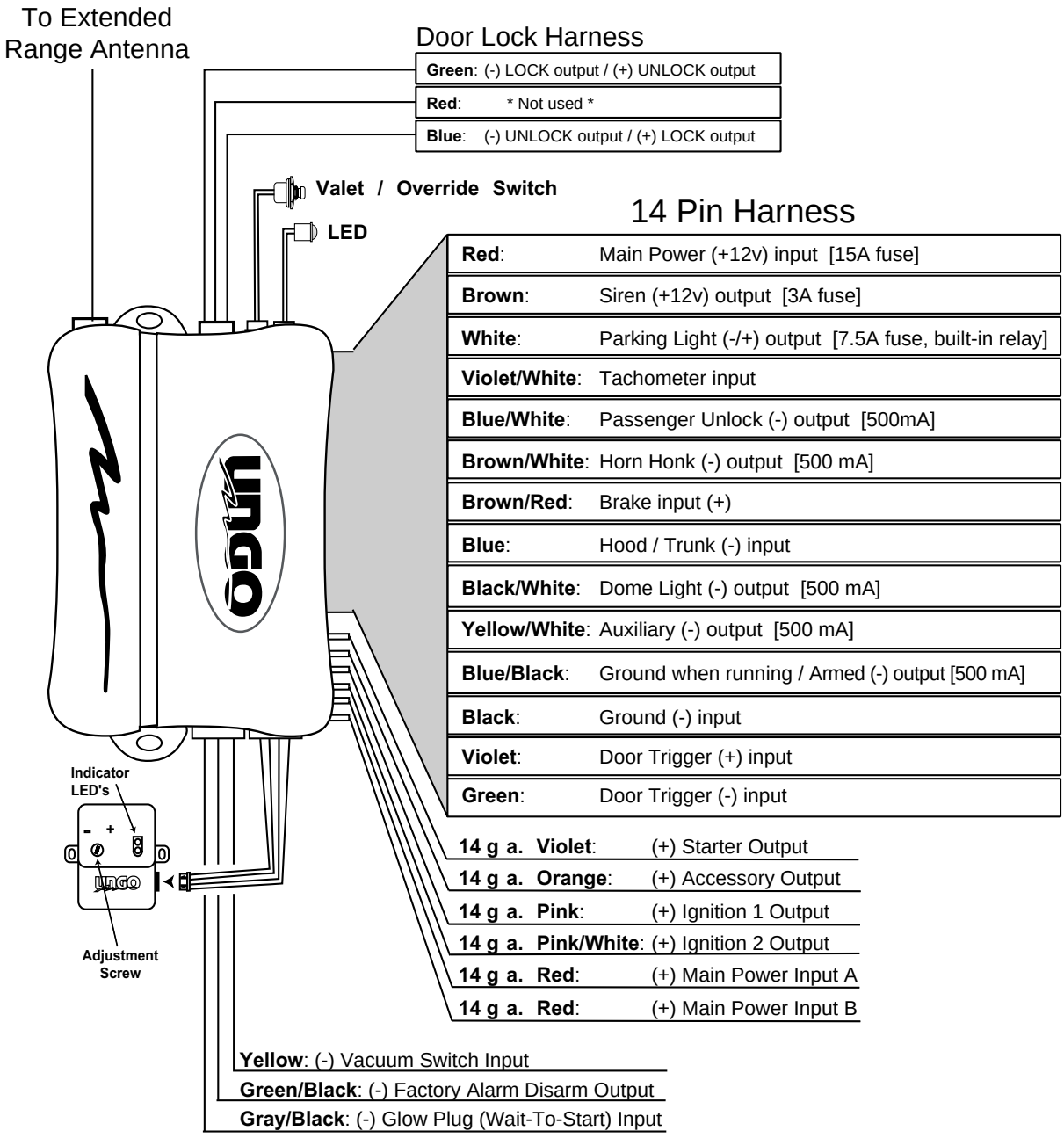
**Pin 3 - Pink: (+) Ignition 1 output**

**Pin 4 - Pink/White: (+) Ignition 2 output**

**Pin 5 - Red: (+) Main power input A**

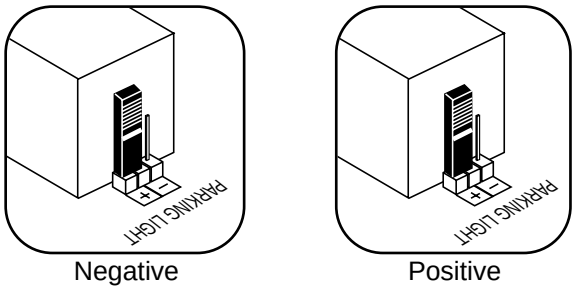
**Pin 6 - Red: (+) Main power input B**

## Wiring Diagram




## Parking Light Jumper Settings

The Parking Light Polarity Jumper is inside the control unit, next to the on-board parking light relay.
Select the polarity (+/-) for the output of the Parking Light relay by placing the jumper across the correct pins.

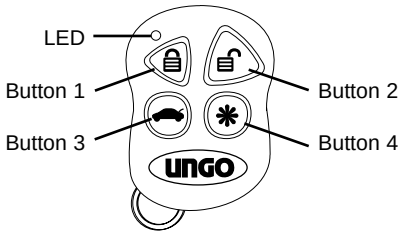



Negative Positive

**Pin 1 + Pin 2 = Negative**
**Pin 2 + Pin 3 = Positive (default)**

## Basic Operation

### Remote Transmitter Layout:




Each system comes with 2 Remote Transmitters, pre-programmed to Arm and Disarm the system *with* chirp confirmation.

**Button 1** Arms the system and locks the doors. Also locks the doors while the system is in Valet Mode.

**Button 2** Disarms the system and unlocks the doors. Also unlocks the doors while the system is in Valet Mode.

**Button 3** Activates the system's auxiliary output (i.e., trunk release) with a **3-second** press. Silently arms/disarms the system with a **1-second** press .

**Button 4** Activates the system's remote start feature.

### Optional Driver Door Priority Feature*

Adds the security of unlocking only the driver's door when the system is Disarmed. Pressing the Disarm button again unlocks all remaining doors.

**Button 1** Arms the system and locks the doors when the system is in Valet Mode.

**Button 2** Disarms the system and unlocks the doors. Also unlocks the doors while the system is in Valet Mode.

If the system is Armed, pressing Button 2 will Disarm the system and unlock the driver's door only.

If the system is Disarmed, pressing Button 2 will unlock all remaining doors.

If the system is in Valet and the doors are locked, pressing Button 2 will unlock the driver's door. Pressing Button 2 again will unlock all remaining doors.

*Extra parts and/or labor may be required to properly utilize this feature.

### Remote Arming

When Armed, the system monitors and protects 3 independent areas or ***zones***, including the doors, hood/trunk and shock sensor.

To Arm the System:

1. Turn off the ignition.
2. Press Button 1.
   - The siren/horn will chirp once.*
   - The doors will lock.
   - The parking lights will flash once.
   - The LED will turn on red, indicating the doors, hood and trunk inputs are activated.

   * The siren chirps during Arming will alert you the condition of the system and vehicle when the system is armed.

   1 chirp = Normal arming
   1 + 4 chirps = Fault detected (door, hood or trunk open)

   If the system detects a faulty sensor or an open zone during arming, the system will ignore that input, but keep all other areas/zones protected.

3. After 10 seconds the LED will begin blinking, indicating that the sensor inputs are activated.

## (Remote Arming, cont.)

While the system is **Armed**, the alarm will trigger if:

- The doors are opened.
- The shock sensor detects an impact to the vehicle.
- The hood or trunk is opened.

When the alarm is triggered, the siren will sound and the parking lights will flash (and the horn will honk if connected). If the system is triggered by the doors, hood, or trunk, the system will sound alarm for 40 seconds.

If triggered by a sensor, the system will sound alarm for 20 seconds.

If the same input triggers the system 3 times during a single arming cycle, the system will bypass that input keeping the other zones protected until the next time the system is armed.

If the shock sensor detects a light impact to the car or a connected optional sensor triggers the system's Warn Away input, the siren will sound 5 chirps to warn away the potential intruder.

## Remote Sensor Bypass

In case of extreme weather conditions such as high winds, the sensors can be temporarily bypassed from the Remote Transmitter while the system is armed to prevent the system from false alarming.

To Bypass the sensors after arming the system, press Button 3 on the Remote Transmitter within 5 seconds.

- The siren will chirp 5 times, indicating the sensors have been bypassed.
- The sensors will remain bypassed until the next time the system is armed.

## Remote Disarming

To Disarm the System press Button 2:

- The siren/horn will chirp twice.*
- The parking lights will flash twice.*
- The doors will unlock.**
- The LED will turn off.

* The siren chirps / light flashes during disarming will alert you if the system had been triggered while armed.

2 chirps / 2 flashes = Normal disarming
3 chirps / 3 flashes = Tamper Alert - the system was triggered

** If the Passenger Unlock Feature is installed, pressing Button 2 will unlock only the driver's door. Pressing Button 2 again unlocks all doors.

## Tamper Alert

The system will respond with three chirps upon disarming to indicate the system was triggered while armed. The LED will begin flashing for 60 seconds to indicate the zone that triggered the system.

**LED Flashes**

1 flash = door
2 flashes = shock sensor
3 flashes = trunk

Example: "Flash-flash-pause-flash-flash-pause..." indicates the shock sensor was activated

Note: Turn on the ignition to cancel the Tamper Alert zone indications.

## Silent Arming / Disarming

Each Remote Transmitter can be individually set to always Arm and Disarm the system with or without chirp confirmation at the time they are programmed into the system (See *Adding a New Transmitter into the System* Page 9). To temporarily cancel the Arming and Disarming confirmation chirps, briefly press Button 3.

Note: The confirmation chirps will be cancelled only if the system status is normal. The chirp indications for Tamper Alert and the open zone warning will not be cancelled when the system is Armed or Disarmed silently.

## Arming Mode Selection

The system can be set in one of the following Arming Modes:

- Passive (automatic) Arming *with* chirp confirmation
- Active Arming (by Remote Only)
- Passive (automatic) Arming *without* chirp confirmation

To set the Arming Mode:

1. Turn the ignition on.
2. Within 4 seconds, press the corresponding button to change the setting:

   Button 1 = Active Arming
   Button 2 = Passive Arming with chirp
   Button 3 = Passive without chirp

   The siren will chirp the corresponding number of times to indicate the new setting.
3. Turn the ignition off to save your selection.

## Passive Arming

When the Arming Mode has been set for Passive Arming, the system arms itself automatically, each time the ignition is turned off and all of the doors, hood and trunk are closed. *The ignition must have be on for at least 10 seconds or Passive Arming will be cancelled.*

To start the Passive Arming Process:

1. Turn off the ignition.
   - The status LED will begin to flash quickly.
2. Open the door and exit the vehicle.
   - Once all doors are closed and the dome light is turned off, the LED will turn off.
3. After 20 seconds,
   - The siren will chirp (if Passive Arming with chirp is selected).
   - The parking lights will flash.
   - The doors will lock.*
   - The status LED will flash red, indicating the system is armed.
4. The system is now armed.

* If the Passive Locking feature is selected.

To temporarily disable Passive Arming, turn the ignition key on then off within 10 seconds. The status LED will stop flashing, and the system will not passively arm until the next time the key is on for more than 10 seconds. This feature is useful for turning off passive arming for a single cycle when refueling or washing the car.

## Panic Mode

Panic mode instantly triggers the alarm via the Remote Transmitter in an emergency situation .

To enter Panic Mode:

1. Press and hold Button 1 for 3 seconds.
   - The siren will sound.
   - The doors will unlock.
2. Press Button 1 again to stop panic and place system into the Armed state.
3. Press Button 2 to stop panic and place system into the Disarmed state.
   - If Panic Mode is not stopped by the Remote, it will automatically time out after 40 seconds and return the system to the prior Armed/Disarmed state.

## Automatic System Rearming

Automatic System Reaming maintains the security of the system in case of an accidental disarm by rearming within one minute if no other activity is detected. It is independent of Passive Arming and only takes place if the system was Armed (actively or passively) for at least 10 seconds and then Disarmed by the Remote Transmitter.

- One minute after Remote Disarming, the system will emit a series of chirps before arming.
- If the Passive Door Locking feature is selected during the installation, the system will also relock the doors.

Each of the following cancels Automatic System Rearming:

- Turning on the ignition.
- Opening the Trunk or Hood.
- Activating Auxiliary Function 1.

## Valet Mode

Temporarily disables the security system for vehicle service or if turned over to a parking attendant.

To turn Valet Mode on or off:

1. Turn on the ignition.
2. Press and hold the override switch.
3. While holding the override switch, turn off the ignition.
   - The siren will chirp once to indicate you have turned Valet Mode on.
   - The siren will chirp twice to indicate you have turned Valet Mode off.
4. Release the override switch.

While in Valet Mode, the LED will light solid and the Remote Transmitters will continue to lock and unlock your doors and operate the Auxiliary Functions.

For added protection, when the doors are locked using the Remote Transmitter the Optional Starter Disable circuit will activate, and the LED will emit double flashes until the system is unlocked by the Remote.

If the Remote Transmitter is lost, stolen, or becomes inoperable while the car is locked in Valet Mode, exit Valet Mode to deactivate the Starter Disable circuit.

## Adding a New Transmitter into the System

Have all desired transmitters ready (up to 3 transmitters).

1. Turn on the ignition.
2. Press and hold the Override switch.
   - The status LED will turn on red.
   - The siren will chirp 3 times.
3. Within 5 seconds follow the steps below for each transmitter:

   Continue holding the Override switch and Press Transmitter Button 1 for arming with chirp confirmation

   - OR -

   Release the Override switch and Press Transmitter Button 1 for remote arming without chirp confirmation.
   - The status LED will flash once quickly to confirm that the new Remote Transmitter has been added.
4. Wait 5 seconds for the system to exit programming
   - The LED will turn off
5. Turn off the ignition.
   - The siren will chirp 3 times to confirm that the new Remote Transmitters have been added.

**NOTE: Programming transmitters automatically deletes all stored transmitter codes.**

## Remote Start Operation

### Remote Starting

To Remote Start the vehicle:

1. Be sure the system is not in Valet Mode.
2. Press Transmitter Button 4.
    - The factory alarm disarm output will pulse.
    - The parking lights will turn on.
    - If the alarm is armed, the siren will chirp 3 times and the shock sensor will be turned off.
    - The ground output while running will turn on.
    - The ignition will turn on.
    - If diesel mode is programmed, the engine will wait until the wait-to-start input wire is grounded.
    - The engine will start and run for the duration of its programmed Run Timer.*
    - The LED will double flash.
    - The heater or air conditioner will turn on (if turned on prior to exiting the vehicle).

    *If the engine fails to start on the first attempt, it will repeat the starting procedure 2 more times. After a total of 3 attempts, the parking lights will flash 4 times and the doors will lock (if installed).

Turning on the ignition key then pressing the brake pedal will disengage the MS2005 allowing normal operation.

### Shut Down

The following will shut down the engine when it is under Remote Start control:

- Pressing Button 4 for three seconds.
- Pressing the Brake Pedal.
- Opening the Hood or trunk.
- Remote Start Time-Out (completion of the timed run cycle).

When the remote start shuts down:

- The ignition will turn off.
- The door lock output will pulse (if programmed).
- The parking lights will turn off.
- The ground when running output will turn off.
- The LED will turn off (or flash slowly if the alarm is armed).
- If the alarm is armed, the siren will chirp once and the shock sensor will turn on 2 seconds after shut down.

### Stop and Go Feature

Allows for removal of the ignition key while keeping the engine running during short stops.

To leave the vehicle running:

1. Press and hold the Brake Pedal.
2. While pressing the Brake Pedal, push Button 4 on the Remote Transmitter.
    - The LED will double flash.
    - The parking lights will flash four times.
3. Release the Brake Pedal.
4. Remove the key from the ignition switch.
5. Exit the vehicle and lock the doors manually or using the Remote Transmitter.

To re-enter the vehicle and resume driver control:

1. Unlock the doors manually or by pressing Button 2 on the Remote Transmitter
2. Turn on the ignition.
3. Press the Brake Pedal to disengage the remote start.
    - The LED will turn off.

## Automatic Cold Start Feature

The Automatic Cold Starting Feature allows the vehicle to automatically start and run the preset Run Time every two hours for a period of 48 hours (starts car maximum of 24 times).

To enter Cold Start Mode:

1. Press and hold the Valet Switch.
2. Continue holding the Valet switch and press Transmitter Button 3 for 5 seconds then release both buttons.
   - The parking lights will flash 5 times.
   - The engine will start and run for 30 seconds.
   - The LED will emit double flashes.
3. The system will remain in Cold Start Mode until the vehicle is started using the transmitter, the Cold Start Feature has completed all run cycles, or the brake pedal is pressed.

# Programming Switches

## Accessing the DIP Switches

Open the control unit enclosure by lifting off the rear panel. Snap the rear panel back in place after the desired settings are made.

## Switch Functions and Selections

**1. Gasoline vs. Diesel Engine Mode.** Diesel Mode allows the glow plugs to warm up for up to 20 seconds before cranking the starter. The starter output will activate when the Wait-to-Start input (GRAY/BLACK wire) receives a ground input. *(see Glow Plug Diagram p. 14)*

**Switch ON = Gasoline Mode *(default)***
**Switch OFF = Diesel Mode**

**2. Vacuum Switch.** Select between normal operation or optional vacuum switch operation with either Gasoline or Diesel engines. DIP Switch #4 is ignored when Vacuum Switch operation is selected. *(see Vacuum Switch Diagram, p. 14)*

**Switch ON = *Smart Sense or RPM monitoring (default)***
**Switch OFF = Vacuum switch operation**

**3. Starter Cranking Duration.** Extend the cranking duration if the engine does not start successfully with the normal crank duration. In the extended crank setting, the starter will engage for a longer duration on remote start-up. Normal setting selects standard crank duration.

**Switch ON = Normal crank duration *(default)***
**Switch OFF = Extended crank duration**

**4. Tach/Spark sense vs. Smart Sensing.** Select Smart sensing (tach-less) or Tach/Spark sensing operation. Smart Sensing detects engine condition through the system's power wire. Tach sensing will detect engine condition through the *VIOLET/WHITE wire* input connected to coil, fuel injector or other pulsing signal that transmits engine RPM data.

**Switch ON = Smart sensing *(default)***
**Switch OFF = Tach/Spark sensing**

## Programming

### Entering System Programming

To enter System Programming:

1. Turn on ignition.
2. Within 5 seconds, press the valet switch 5 times.
   - The siren will emit a buzzing sound, indicating that you have entered Programming.
3. Press the valet switch the number times equal to the System Parameter you want to change.
   - The siren will chirp each time the valet switch is pressed.
4. Within 5 seconds, press the transmitter button corresponding to the desired operating mode for that System Parameter.
   - The siren will chirp to indicate the setting.

     1 chirp = Button 1
     2 chirps = Button 2
     3 chirps = Button 3
5. When finished, turn the ignition key off to save the changes. Turn the key off at any time during programming and the changes that were made will be saved.

### System Initialization and Default Reset

To reset ALL System Programming Parameters to factory default settings.

1. Enter System Programming.
2. Press Transmitter Button 3.
   - The siren will chirp 6 times indicating that the reset signal was received.
   - All System Programming parameters are now set to factory default settings.
   - The Arming Mode is set to Remote Arming only.
   - The Valet Mode is off.
3. Turn ignition off.

## Programmable System Parameters

| Feature | Button 1 (default) | Button 2 |
|---|---|---|
| 1. Ignition Controlled Door Locking | On | Off |
| 2. Ignition Controlled Door Unlocking | On | Off |
| 3. Door Unlock Pulse | Single | Double |
| 4. Door Lock/Unlock Pulse Width | 1 second | 4 seconds |
| 5. Passive Locking | Off | On |
| 6. Auto Rearm | Off | On |
| 7. Ignore Dome Light Delay | Off | On |
| 8. Trunk Disarm Feature | Off | On |
| 9. Door Entry Delay with Passive Arming | Off | On |
| 10. Engine Run Time | 12 minutes | 24 minutes |
| 11. Auto-Lock when Remote Starting | Off | On |
| 12. Auto-Lock after Remote Start Shutdown | Off | On |
| 13.Cold Start Enable | Off | On |

1 **Ignition Controlled Door Locking.** Selects whether or not the system automatically locks the doors 10 seconds after the ignition key is turned on. To prevent the keys from being locked inside the vehicle when Ignition Controlled Door Locking is on the system will not lock the doors if any door is open when the ignition is turned on or during the 10 second countdown.

2. **Ignition Controlled Door Unlocking.** Selects whether or not the system automatically unlocks the doors when the ignition is turned off.

3. **Door Unlock Pulse - Single/Double.** Selects between a *single* or *double* pulse door unlock output. Many late model vehicles require two pulses to unlock the doors.

4. **Door Lock Pulse Width.** Selects between a 1-second and a 4-second output for door locking and unlocking. Set to 4 seconds when interfacing into vehicles equipped with vacuum door locking systems.

5. **Passive Locking.** Selects whether or not the system will automatically lock the doors with Auto Rearm and Passive Arming.

6. **Auto System Rearm.** When selected, the system will automatically rearm if no other activity is detected within one minute of Remote Disarming. One minute after Remote Disarming, the system will emit a 10 second series of chirps, then arm. (This may include Passive Door Locking feature, if selected.)

   Each of the following will cancel Automatic System Rearming:
   - Turn on the ignition.
   - Activation of the Auxiliary Function.
   - Open the Trunk or Hood.

   Automatic System Rearming is independent of Passive Arming and only takes place if the system was Armed (actively or passively) for at least 15 seconds and then Disarmed by the Remote Transmitter.

7. **Ignore Dome Light Delay.** For use with vehicles equipped with a timed dome light circuit that stays on after the door(s) are closed. When programmed ON, the open zone indication function will ignore the door zone.

8. **Trunk Disarm Feature.** When selected, this feature will automatically disarm the alarm when the auxiliary 1 function (trunk) is activated.

9. **Door Entry Delay with Passive Arming.** When selected, the door input trigger will be delayed for 15 seconds, allowing access to the emergency override switch. The delay is active only when the system armed passively. The doors will trigger the alarm instantly if the alarm was manually armed.

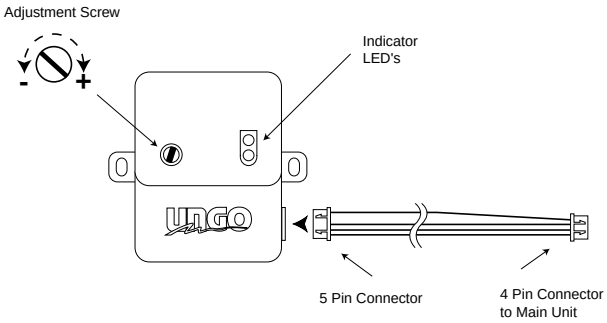
10. **Engine Run Time.** Selects between a 12-minute or 24-minute run cycle.

11. **Auto-lock when remote starting.** Automatically locks the doors after successfully remote starting.

12. **Auto-lock after remote start shutdown.** Automatically locks the doors 5 seconds after the remote start is shut down.

13. **Cold Start Enable.** Allows Cold Start Feature activation via the remote transmitter.

## Shock sensor




### Sensor Test Mode

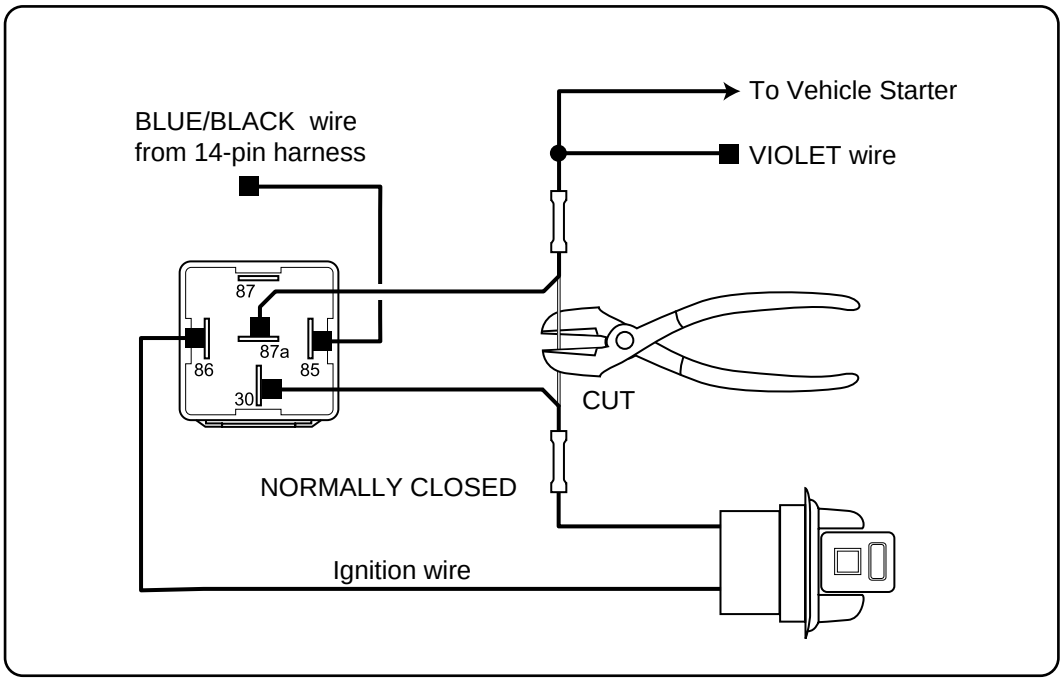
The Sensor Test Mode allows active testing and adjustment of the shock sensor without arming the alarm. The sensor must be securely mounted to the vehicle before entering the Sensor Test mode.

To enter Sensor Test mode:

1. Turn the ignition on.
2. Within 4 seconds, press Button 1.
   - The siren will chirp 4 times, indicating that the sensor is ready to be tested.
3. Test the sensitivity.
   - The siren will respond with a short chirp each time an impact is detected.
   - The green led on the sensor will turn on when a light (warn away) impact is detected.
   - The red led on the sensor will turn on when a heavy (trigger) impact is detected.
4. To make adjustments:
   - Turn the adjustment screw on the sensor clockwise to increase the sensitivity.
   - Turn the adjustment screw on the sensor counter clockwise to decrease the sensitivity.
5. When you are satisfied with the sensitivity, turn off the ignition.

## Starter Defeat / Anti-Grind Option

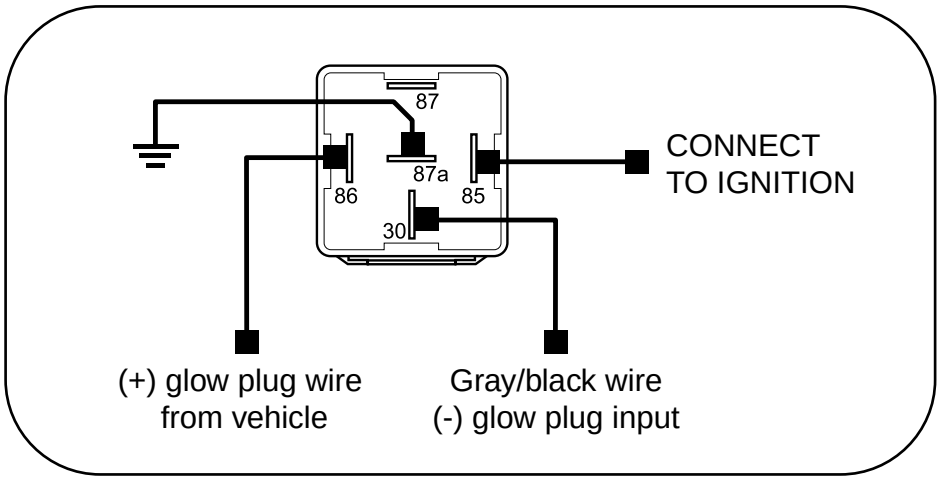
When the remote starter is activated or the alarm is armed, the ground when running output becomes active and stays active. This output will remain on until the alarm is disarmed and the remote starter is disengaged. If the Starter Defeat option is installed, the system will have the added benefit of an Anti-Grind circuit. When the vehicle is remote started, turning the key to the start position will not grind the starter. Connect the Blue/Black wire and 14ga. Violet wire to an optional relay as shown.




**Starter Defeat / Anti-Grind**

## Glow Plug (Wait to Start) input for Diesel Engines

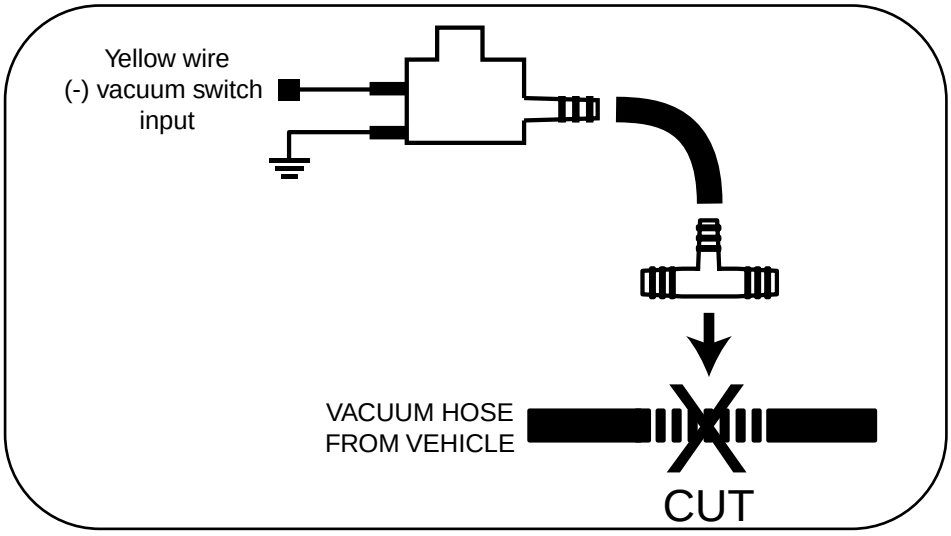
When programmed for diesel operation, the starter will not crank until the GRAY/BLACK wire sees a ground (-) signal from the vehicle's glow plug wire. This allows time for the glow plugs to warm up before the engine starts. For vehicle's equipped with a negative glow plug wire, connect the Gray/black wire directly to the glow plug wire in the vehicle. For vehicle's equipped with a positive glow plug wire, connect as shown in the diagram below




Polarity Inverter for Positive Glow Plug Circuits

## Vacuum Switch Installation

For vehicle's without a proper tach wire, an optional vacuum switch may be installed. See the diagram below.



## Trouble Shooting

| Symptom | Cause | Solution |
|---|---|---|
| Keyless Entry features operate but vehicle will not start. | Remote Start in Valet Mode. LED is on solid. | Turn ignition key to on position, press and hold service switch for 5 seconds. LED will go out. |
| Vehicle will not remote start. | Safety inputs are triggered. | Check Brake Switch Input (+) (Brown / Red Wire) or Hood Input (-) (Blue Wire) shorted to ground. |
| Engine cranks but not long enough to allow vehicle to start. | Crank time must be increased. | Set programming switch #3 to ON. |
| MS2005 will not go into Code Learning or Programming Mode. | Ignition #1 (Pink Wire ) is on wrong connector- Ignition / Accessory #2. | Connect the main ignition input / output to the Ignition 1 connector on the board. |
| Car horn honks and vehicle will not start. | Vehicle has a factory alarm system. | Connect red wire on accessory plug (red plug) to factory alarm disarm wire. |
| Vehicle starts without pressing Remote Transmitter. | System in Automatic Cold Start Activation Mode. | To Exit: 1.Press brake pedal, or 2. Remote start the vehicle using the transmitter. |
| Vehicle cranks and begins to run then shuts off. | Voltage sense is not working. Use the Tach / Spark sense. | Connect the Violet / White wire. Set programming switch 1 to ON. |
| Vehicle cranks and begins to run then shuts off. | Vehicle has a theft deterrent system that prevents starting w/o key in ignition. | Install factory security bypass module. |

## Reference Chart

Use this chart to quickly identify and interpret the system diagnostic and alert chirp indications and LED flashes.

| Output | When | Status |
|---|---|---|
| 1 chirp | arming | normal arming |
| 1 + 4 chirps | arming | door, hood, or trunk is open |
| | | |
| no chirps | arming | Valet Mode is on |
| LED double flashes | Valet Mode | Starter Defeat is activated |
| | | |
| 2 chirps | disarming | normal disarming |
| 3 chirps | disarming | Tamper Alert - system was triggered |
| 1 LED flash | after Tamper Alert | door |
| 2 LED flashes | after Tamper Alert | shock sensor |
| 3 LED flashes | after Tamper Alert | hood or trunk |
| | | |
| 5 chirps | while armed | Warn Away |
| continuous chirps | while armed & door open | System Triggered (Passive Arming Entry Delay) |
| | | |
| 4 chirps | with ignition key on | Sensor Test Mode is on |
| 1 chirps | in Sensor Test Mode | impact detected |
| | | |
| multiple chirps for 10 seconds | 1 minute after disarming | Automatic Rearming |
| | | |
| LED flashing quickly | ignition key off | Passive Arming sequence started |