

# Power Lock

## Installation Guide

### IMPORTANT

Although the basic installation only requires 3 wires, the Power Lock System will not function properly in the field after installation unless the following installation guidelines are met;

- **Red Positive Wires Must Be Soldered**
- **Ignition Wire Must Be Soldered**
- **Ground Wires Must Be Properly Secured To A Bare Metal Surface**
- **Red Positive Wires Must Have Constant 12 Volts**
- **Ground Wires Must Have Constant Ground**
- **Solenoid Module Must Be Mounted Directly Onto Starter Solenoid Ignition Terminal**

If these steps are not followed, the system will exhibit an Error Code after the vehicle has been driven for a period of time and will produce starting failures, and will void product warranties.

Installation Tools Required; Crimping tool, wire stripper, razor knife, computer-safe 12 volt test light, portable drill and bits, screwdrivers, flashlight, electrical tape, and soldering iron.

Please call technical support at 800-966-9578 with any questions.

## QUICK REFERENCE WIRING GUIDE

### SYSTEM CONTROL MODULE

REAR VIEW  
22 Pin Connector

22	21	20	19	18	17	16	15	14	13	12
11	10	9	8	7	6	5	4	3	2	1

1 – RED to Constant 12 volts

2 – BLACK to Ground

15 – YELLOW to Ignition 12 Volts Key ON and CRANK Positions

Extruding 4 Pin harness to Remote Reader

### SOLENOID MODULE



RED 12 volts to Positive Post on Starter Solenoid

BLACK Ground to Starter Mounting Bolt

WHITE to Ignition Initiate Wire

GRAY 6" Antennae Wire – Do Not Connect

## 1) Wire the System Control Module

In most cases, the 3 wires needed to install Power Lock will be located in the wiring harness coming from the steering column. Color codes and locations can be obtained by calling technical support, consulting the vehicle's wiring diagram, or 3<sup>rd</sup> party wiring references such as Wire Magic. **It is required that all electrical connections be soldered.**

REAR VIEW  
22 Pin Connector

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1 – RED to Constant 12 volts

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Extruding 4 Pin harness to Remote Reader

### A. Connect the Constant Power Red Wire

Locate a constant +12 volt wire that is “hot” in all key positions (ACCESSORY, OFF, ON and CRANKING). Many times these are a heavy gauge red, yellow or white wire but always test to confirm – see NOTE below. **Solder** and insulate Red wire to this wire.

## NOTE

On newer vehicles wires from ignition switch may be a smaller gauge. Use a heavy gauge wire as an alternative power source. **Solder** and insulate Red wire to this wire.

### B. Connect the Harness Ground **Black** Wire

Connect the harness wire to a solid metallic ground point using an existing screw or the self-tapping screw provided. **Check that the ground that you select is good. A good ground connection will measure less than 0.1 Ohm resistance.**

## NOTE

**Be sure to check resistance of the Ground connection.**

### C. Connect the Ignition **Yellow** Wire

Locate a +12 volt wire that is “cold” in the key OFF position but “hot” in both ON and CRANKING positions. **Solder** and insulate the yellow wire to this wire.

## 2) Install the Remote Reader / System Status LED



This may be installed in any convenient, visible location on the dash or panel. This should be decided with the vehicle

owner's input. Drill a 13mm hole for the Remote Reader / System Status LED in a location that is accessible from the back. Insert the Remote Reader / System Status LED connector first and route the wire to the back of the System Control Module. Plug the connector into the 4 pin adapter extruding from the System Control Module.

### **3) Install the Solenoid Module**

**CAUTION:** Although a simple and easy procedure, this is the most crucial part of the installation and must be done right the first time.

- **Be sure to use the proper Solenoid Module hardware ADAPTER.**
- **Be sure there is a FLUSH fit between the Solenoid Module and the starter solenoid body at the ignition initiate terminal area.**
- **Be sure there is no “play” or “jiggle” of the Solenoid Module when attached to the starter solenoid ignition initiate terminal.**

#### NOTE

On vehicles with high mileage, check starter motor for wear. If questionable, replace starter.

#### NOTE

On older GM vehicles, be sure the Solenoid Module is installed on the “S” terminal of the solenoid.

#### NOTE

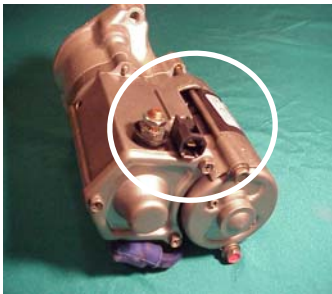
On older Ford vehicles with remote solenoid relays, a conversion kit is required. DO NOT install on the remote solenoid relay.

**A. Disconnect the battery**

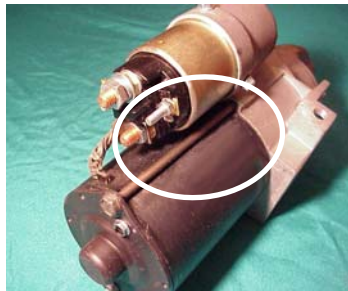
**CRITICAL:** Be sure no power feeds to the starter. (Note: Radio station and other programming may be lost from memory. Please take appropriate measures to record data or inform customer).

**B. Determine the type of starter solenoid or starter motor ignition initiate electrical connection**

There are 2 common types of starter initiate connectors: "spade" connectors and "threaded" connectors. They are each shown below.



Spade Initiate Terminal



Threaded Initiate Terminal

**NOTE**

On certain Denso Starter Motors (Chrysler and Mitsubishi vehicles), there is a Deutsche type connector housing that needs to be discarded as shown below. For certain Mercedes Benz, Infiniti and Nissan vehicles, refer to the end of the installation guide for installation instructions.



Denso Starter Motors Deutsche Type Ignition Initiate Terminal with Connector Housing Removed.

C. Disconnect Ignition Initiate wire from Solenoid

1. **Spade ignition initiate connection:** If you have a "spade" connector, unplug the connector from the solenoid.

2. **Threaded ignition initiate connection:** If you have a "threaded" terminal, loosen retaining nut and remove wire and ring connector.

**IMPORTANT:** Be sure to save the terminal retaining nut as it may be needed as an adapter "lock-nut" on solenoids with extra long threaded initiate terminals.

D. Clean terminal area

If necessary, use appropriate solvent to remove grease, oil and dirt from terminal and surrounding area. USSC recommends BräKleen or equivalent non-flammable cleaning solvent.

E. Install the Solenoid Module Ignition Initiate Adapter

Using the proper Solenoid Module Adapter provided, push the spade adapter onto the male spade terminal, or screw

the threaded adapter onto the threaded terminal of the starter solenoid.



Examples of proper adapter on the ignition initiate terminal to achieve a **FLUSH** fit between the Solenoid Module and the Starter Solenoid (below).





Example of using “lock nut” for extra long ignition initiate terminals (above).



**CRITICAL:** Be sure that the Solenoid Module does not come in contact with any “hot” connections on the solenoid when it is fully seated.

On longer threaded terminals such as Ford starters, the retainer nut removed in Step C should be used as a “lock nut” (as shown ABOVE in middle picture). Use the longer Spade Adapter on Toyotas or as needed on other vehicles with deep factory initiate plugs.

## NOTE

On certain Denso Starter Motors (Chrysler and Mitsubishi vehicles), there is a Deutsche type connector housing that needs to be discarded as shown above in B. Use the 1/8-inch spade adapter for this application. Prepare and pack finishing epoxy inside and around the **Spade Ignition Initiate Connector and Cavity on the starter solenoid or starter motor, and inside and around the spade-ended adapter and Solenoid Module Collet Cavity**. Then install the Solenoid Module.

## NOTE

For Jeep Starter Solenoids with the configuration shown below, modify the solenoid by removing the spade assembly and replace it with the ring terminal adapter provided. This entire area will need to be covered with epoxy (below).





Jeep Solenoid Configuration with  
Ring Terminal Adapter

**NOTE**

On any vehicle that is fitted with an OEM starter motor solenoid heat shield or starter motor heat shield, that heat shield must be re-installed.

**NOTE**

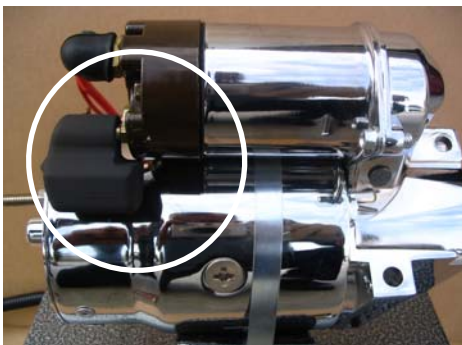
If installing on vehicles with after-market exhaust headers, it is recommended to add a heat shield blanket as shown below.



#### F. Install the Solenoid Module

Push the Solenoid Module firmly onto the solenoid adapter and initiate terminal until it is firmly seated. Once seated, PULL backwards on the Solenoid Module to LOCK the Locking Ring firmly against the adapter.

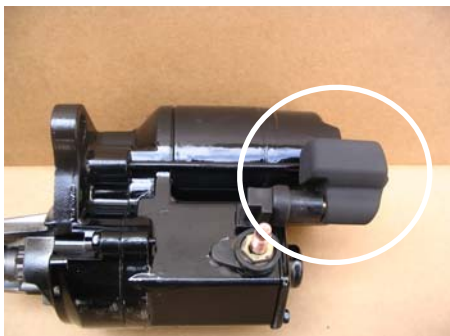
- **Be sure there is a FLUSH fit between the Solenoid Module and the starter solenoid body at the ignition initiate terminal area.**
- **Be sure there is no “play” or “jiggle” of the Solenoid Module when attached to the starter solenoid ignition initiate terminal.**



Threaded Type Ignition Initiate Terminal  
with Solenoid Module Attached.



Spade Type Ignition Initiate Terminal  
with Solenoid Module Attached.



Denso Starter Motors Deutsche Type  
Ignition Initiate Terminal with Solenoid  
Module Attached.

G. Connect the Solenoid Module Wires

Cut the original connector (spade or ring) off the vehicle's initiate wire and strip off 3/8" of insulation. Solder the vehicle's initiate wire to the Solenoid Module White initiate wire. It is recommended that the connection be sealed with shrink tubing (provided).

RED 12 volts to Positive Post on Starter Solenoid

BLACK Ground to Starter Mounting Bolt

WHITE to Ignition Initiate Wire

GRAY 6" Antennae Wire – Do Not Connect

H. Seal the Solenoid Module with Finishing Epoxy

Use the provided epoxy to prevent rotating movement of the Solenoid Module. Wet hands with water or use latex gloves, then thoroughly knead a portion of the epoxy compound roll (usually about 2/3 of the roll) mixing epoxy together until a uniform color is achieved. Working time is under 5 minutes, so work quickly.

Apply epoxy around the area where the Solenoid Module and the Starter Solenoid or Starter Motor initiate post terminal come together, re-moistening hands as needed. Mold to fit and smooth the surface for a clean and professional looking job. Brace the Solenoid Module so it does not move while epoxy is hardening (about 10 minutes). Wash hands immediately after using epoxy.



Solenoid Module with Epoxy

#### **4) Plug in the 22 Pin Connectors and Power-up the System**

Before reconnecting the vehicle's battery, plug in both the 1) 22 Pin connector and the 2) Remote Reader / System Status LED into the back of the System Control Module securely. Reconnect vehicle's battery and test the system using BOTH Touch Keys in all four modes: (disarming, manual arming, passive arming, and valet mode). Properly secure the System Control Module under the dash away from any moving parts.

## **5) Customer Orientation**

Apply Power Lock window stickers (obtain customer approval), show and explain ALL modes of operation to the customer. Explain the importance of keeping the Power Lock Touch Keys in separate locations. Explain warranty and fill out paperwork – giving the customer the pink copy and mailing the white copy to Power Lock.

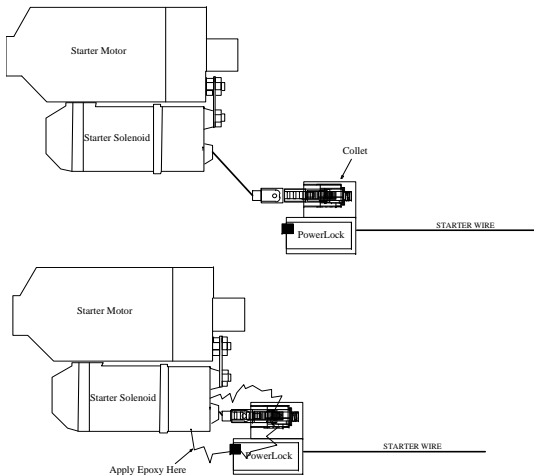
## Miscellaneous Technical Tips

- Inspect the vehicle for any pre-existing electrical defects, (such as burnt wiring, loose connections, etc.) Problems must be repaired before installation. Dealers: notify your customer immediately of any existing defects.
- Be sure to make all system connections before powering up the system.
- Run wires along the factory looms and cables whenever possible. This gives your installation a “factory” appearance.
- Secure wires to prevent damage from hot or moving parts and in a way that will prevent a change in position.
- A digital voltmeter or high impedance logic probe is the safest way to test vehicle circuits to avoid damage to sensitive vehicle computers or passive restraint systems such as airbags.
- Test each wire connection and circuit before moving to the next step.
- Use caution when locating wires. Never tap into wires coming from a “black box.” This may be a sensitive computerized device – such as an engine computer.

## MERCEDES, INFINITI AND NISSAN INSTALLATION NOTES

Most of these Solenoids will have a Wire *coming from what would usually be the initiate stud (S terminal)*. Installation is performed by:

1. Cut the solenoid initiate wire to about 3" and crimp a (male) spade connector on it.
2. Plug the male spade into the short – brass spade adapter supplied in the Power Lock kit.
3. Push or Thread the brass spade adapter into the Solenoid Module collet and then pack it with some epoxy. At this point you have a solenoid module hanging from the vehicle solenoid attached by the initiate wire.
4. Mix up all of the remaining epoxy and *literally epoxy the module to the solenoid*. Refer to the diagram below.



## Optional Features Wiring Installation

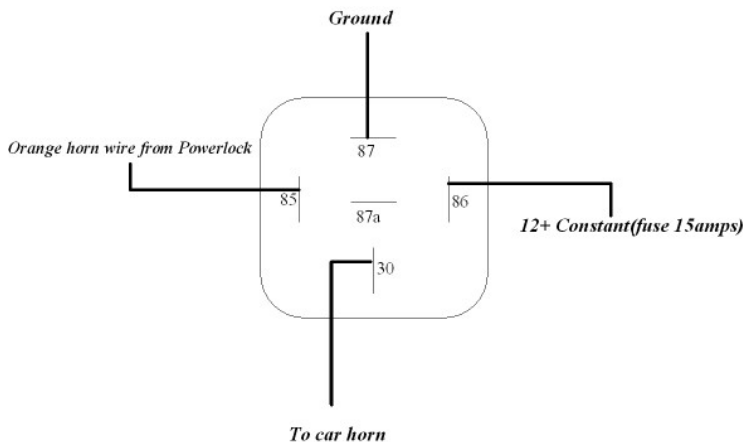
### **Connecting the Vehicle Horn Wire – Optional**

#### D. Connect the Horn Orange Wire

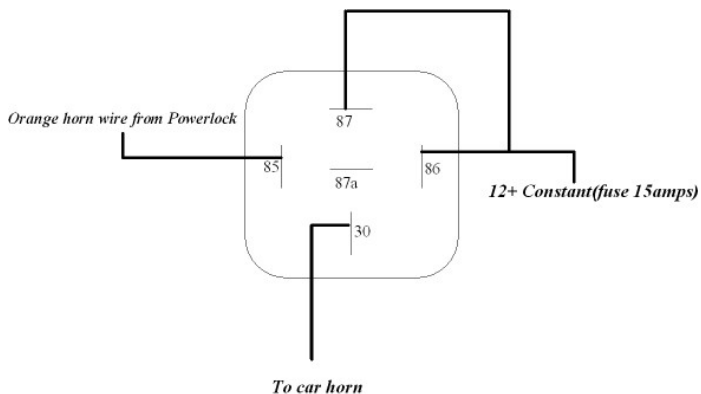
Locate the **negative polarity** horn wire. A negative horn wire will sound the horn when the wire is probed with a securely grounded test light. **Solder** and insulate the Orange wire to this wire.

Note; For older vehicles with high-current horns or no OEM horn relay, and Positive Polarity horns, a relay is required. See below.

#### **NEGATIVE HORN RELAY WIRING**



## POSITIVE HORN RELAY WIRING



### Connecting the Vehicle Intrusion Circuit – Optional

The Power Lock System provides for an optional circuit to be connected, which will sound the vehicle's horn in the event that a door (or any doors) is opened and the system has not read a valid Touch Key code.

- A. To enable this feature for **Positive** door pin trigger or dome light. Locate positive pin trigger wire or dome light wire. Solder and insulate VIOLET wire to this wire AND GREEN wire to ground.
- B. To enable this feature for **Negative** door pin trigger or dome light. Locate negative pin trigger wire or dome light wire. Solder and insulate GREEN wire to this wire AND VIOLET wire to constant 12Volts.

System Control Module  
22 Pin Connector Harness

Pin	Description
1	+12V (Input) RED
2	GND (Input) BLACK
3	Horn Confirmation Output (Open Drain) BROWN
4	
5	Door Lock Output (Open Drain) Negative Pulse GREEN / WHITE
6	
7	
8	Horn Output (Open Drain) ORANGE
9	Touch Key Red LED Output REMOTE READER
10	Touch Key Green LED Output REMOTE READER
11	
12	
13	GND (Input) REMOTE READER
14	Parking Light Flash (Open Drain) WHITE
15	Ignition Input YELLOW
16	Door Unlock Output (Open Drain) Negative Pulse BLUE
17	Door Pin Input – Negative GREEN
18	Door Pin Input – Positive VIOLET
19	Relay Output (Open Drain) GRAY
20	
21	Touch Key Signal REMOTE READER
22	Antenna 6 INCH BLACK WIRE