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Operation & Installation Manual (Ver 45ms)

Keyless RFID Push Button Start & Security System

Keyless GT-Starter 3

Model # GTS–3 (without Remote Start)

For Automatic or Manual Transmission

DISCLAIMER:

This installation manual is designed for the professional installer with a good understanding of automotive electrical systems, and if the vehicle is so equipped, the ability to disable the steering column locking mechanism. To ease in proper installation, we recommend that the installer READ THIS MANUAL thoroughly before beginning the installation. This manual is provided as a GENERAL GUIDELINE and the information contained herein may differ from your vehicle. Gallo Technologies and its' vendors shall not be liable for any accident resulting from the misuse of this product. This product is designed to be professionally installed into a vehicle in which all systems and associated components are in perfect working condition. DAMAGE to the GTS-3 unit resulting from incorrect installation or failure to follow guidelines stated in this manual, will not be covered under warranty and will be subject to repair or replacement charges. Links to nation-wide Alarm installers can be found on our web site at www.GalloTech.com.

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1.1 INTRODUCTION ***IMPORTANT:*** READ ALL INSTRUCTIONS BEFORE INSTALLATION

GTS-3 has been designed to eliminate the need for an ignition key to unlock, start and stop the vehicle, and provide a high level of security. GTS-3 makes use of a sophisticated electronic technology called Passive RFID (Radio Frequency Identification). This technology allows all the same functions done by an ignition key but completely hands free. Example: just walk up to the vehicle with the RFID key FOB in your pocket or purse and the doors will unlock automatically. After sitting in the vehicle the driver can press the "Start Stop Engine" button one time momentarily and the accessories will turn ON, OR Press and hold the "Start Stop Engine" button and the Ignition will turn ON or will start if the brake is pressed. Put it in gear and drive away. To turn the vehicle off simple push the "Start Stop Engine" button for 1.5 sec. and the engine will stop. After opening the door and walking away from the vehicle, the doors will automatically lock and the accessories will turn OFF. Functions such as trunk release, car locating, an auxiliary channel, shock sensor, and other security functions are standard with GTS-3.

Installation Requirements for GTS-3:

1. **Automatic or manual transmission.**
2. ***If the vehicle is equipped with a locking steering column, the steering column lock must be disabled*. Mechanically locking steering columns can be disabled by removing the steering column shroud and key lock assembly and removing the column locking pin. A cut key blank method can also be used. Insert a cutoff key blank in the ignition and turn to the ON position. This method requires that all electrical connections to the ignition key be disabled.**
3. **Vehicle can be gasoline or diesel, Fuel injection or Carbureted engines.**
4. **If the vehicle is equipped with a factory security key system, a security by-pass module will be required (not included). The by-pass module will be activated when GTS-3 is in the start and engine running mode. Security by-pass modules are specific to each vehicle make, model, and year. These vehicle specific bypass modules can be supplied by the installer, or can be purchased through aftermarket by-pass module suppliers such as "Xpresskit" or "Fortin Electronic Systems". We do not recommend using "IDataLink" modules as they are not compatible with GTS-3.**
5. **Automatic transmission vehicles must have a properly functioning Park/neutral safety switch.**
6. **Manual trans. must have a properly functioning clutch peddle with a negative (-) switch.**
7. **Door pin switches (positive (+) or negative (-)) are optional but security will be limited.**
8. **Power door locks are optional but security & convenience will be limited.**

To ease and reduce installation time, we suggest you consider the following points before starting:

1. Check all vehicle manufacturer cautions and warnings regarding electrical service (AIR BAGS, ABS BRAKES, ENGINE / BODY COMPUTER AND BATTERY). Use extreme care and do not probe any wires of the SRS system.
2. Additional vehicle specific wiring diagrams and other helpful installation information can be found on our web site at www.gallotech.com/support.php
3. Determine the most suitable locations under the dash for all components to be placed. The Control module should not be placed near the heating and A/C ducts or in the engine compartment.
4. GTS-3 can be installed with or without the ignition switch. If the ignition switch is left functional then the vehicle can be started with either the key or the "Start Stop Engine" button. The column lock however, must be disabled. See **Figure 1 Option 1** (page-10).
5. Use a Digital Multi-Meter or 12-volt Test Probe (High-Impedance) to test and locate all connections. Conventional Test Lights can damage a vehicle's computer systems.
6. Record all color codes of vehicle wiring to be used for reference. This will save time by not having to re-test the same wires over again. Mark all vehicle wires with masking tape.
7. After locating and marking the appropriate wires, DISCONNECT the (+) POS terminal at the battery.
8. Determine the type of door locking system the vehicle has before connecting any wires. Incorrect connection can result in damage to the **GTS-3** and/or vehicle locking system. There are several types of door lock systems in vehicles today. Listed below are many types of common locking systems:
   - **Negative Trigger (-): Many Imports; Late model Ford & General Motors** (Figure 3 page 12)
     Negative trigger door lock systems send a Negative (Ground) pulse to existing factory relays to lock and unlock the vehicle doors.
   - **Positive Trigger (+): Many General Motors; Chrysler / Dodge / Plymouth** (Figure 4 page 13)
     Positive trigger door lock systems send a Positive (+12V) pulse to existing factory relays to lock and unlock the vehicle doors.
   - **Electric vacuum pump: Pre-'95 Mercedes-Benz and Audi** (Figure 5 page 13)

- **Reverse Polarity: Many Ford/Lincoln/Mercury/Dodge/Chrysler/Plymouth and early 90's GM Trucks (**Figure 6 page 13.)
  The door lock/unlock motors are controlled directly from the lock and unlock switches in the door. The lock and unlock wires rest at Negative Ground when not in use. When the lock or unlock button is pressed, one of the circuits is "Lifted" and replaced with +12V causing a lock or unlock to occur.

- **Single Wire (Dual Voltage): Late model Chrysler/Dodge/Plymouth Vehicles, some year 2000 and newer GM vehicles** (not shown)
  Dual Voltage systems have lock/unlock switches that send varying levels of Positive voltage OR Negative ground current to the SAME wire for both lock and unlock. When the vehicle's Body Computer Module (BCM) or door lock module senses different voltages on this wire, the system will either lock or unlock. Single wire door lock systems require relays and resistors. This type system requires that you have a good working knowledge of their operation before attempting installation of **GTS-3**.
- **Data bus Systems 2003 and newer.** (not shown)
  Data bus systems send low current "Data messages" to the door lock controllers in order to lock and unlock the vehicle. To install aftermarket systems in these vehicles, an interface module can be used to convert the regular lock/unlock pulses into "Data messages". This type system requires that you have a good working knowledge of their operation before attempting installation of **GTS-3**

1.2 KEY FOB OPERATION:

When approaching the vehicle with the RFID FOB in the pocket or purse, the presence of the RFID FOB will be recognized by the control module. The doors will then unlock and the vehicle will be ready to start using the **"Start Stop Engine"** button. The green LED on the **"Start Stop Engine"** button will flash rapidly. An ignition key is not required. After turning the engine OFF using the **"Start Stop Engine"** button and the driver leaves the vehicle with the RFID FOB in his/her pocket/purse, the accessories will turn OFF (equivalent to turning the key off) the doors will lock and the ARMED mode will be activated. The Red LED on the **"Start Stop Engine"** button will flash continuously while in the armed mode. *The small LED on the key FOB will flash green when the FOB is within detection range of the vehicle. When the small LED flashes red, the key FOB battery should be replaced.* The four buttons on the RFID FOB can be used to activate/deactivate other functions:

(Lock Button): Arm/Remote- Lock/Panic/Siren-Stop

a.) Arms the system and locks the doors with one press
- Siren will chirp 1X and parking lights flash 1X, doors will lock. The Red LED on the **"Start Stop Engine"** button will flash slowly.
- Shock Sensor will become active after 15 sec.
- The alarm will chirp and parking lights will flash 3X if all the doors are not closed during arming.
- If the alarm siren has been triggered, pressing this button one time will silence the siren and keep the system in the **armed** mode.

b.) Panic:
- Holding this button for over 2 seconds will cause the siren to sound for 10 seconds and the system will remain in the **armed** mode.

c.) Lock only (when vehicle occupied)
- When the ignition is **ON**, and the system is **disarmed**, pressing this button will lock the doors. The system will stay in the **disarmed** mode.

NOTE: Siren chirp off/on is user programmable. See Table 1 option 3.

. **(Unlock Button): Disarm/Remote-Unlock/Trunk release.**

a.) Disarm the system and unlock the doors with one press
- Siren will chirp twice and the parking lights will flash twice. The doors will unlock and the system will be in the **disarmed** mode.
- Within 5 seconds after pressing the button, if a door is not opened or the ignition is not **ON**, the system will automatically rearm and relock the doors.
- If the system has been triggered while in the **armed** mode, the siren will chirp and the parking lights will flash four times, when the unlock button is pressed.

b.) Unlock only (when vehicle occupied)
- When the ignition is **ON**, and the system is **disarmed**, pressing button will unlock the doors. The system will stay in the **disarmed** mode.

c.) Trunk Release:

- Press and hold button for 2 sec. the lamps will flash 4 times the doors will unlock and the trunk will open and the system will be in the **disarmed** mode. The system will not re-arm unless the lock button is pressed 1X.

NOTE: Siren chirp off/on is user programmable. See Table 1 option 3.

(**Auxiliary Button): Auxiliary output**

a.) When Function Option 7 is set to default (unlock doors):

- Press and hold button for 2sec, the doors will unlock and the Auxiliary output will activate. The system will disarm. Pressing the button will rearm the system.

b.) When Function Option 7 is set to optional (do not unlock doors):

- Press and hold button for 2sec, the doors will not unlock and the Auxiliary output will activate. The system will disarm. Pressing the button will rearm the system.

NOTE: Auxiliary output duration time is user programmable (2sec or 15sec.). See Table 1 option 6.

(**Locating/Function Button): Car-Locating/ Auto Door Lock**

a.) Car Locating:

- When the system is **armed**, holding this button for more than 2 seconds, the siren will chirp and the parking lights will flash five times.

b.) Auto Door Lock enable or disable: (doors will or will not auto lock when walking away from the car)

- When the system is in the disarmed mode, pressing and holding for 2 sec will enable or disable the RFID auto door lock function. (parking lights flash 1 time when disabled or parking lights will flash 3 times when enabled)

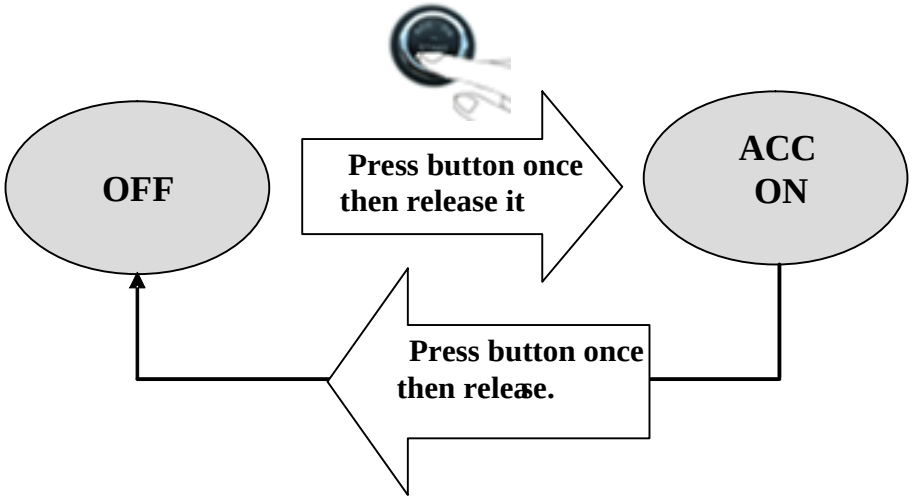
1.3 "PUSH START STOP" Button Operation

Turning ACC, IGN1, IGN2 ON/OFF and Starting the Engine:

When in Disarm mode and the RFID key FOB is in detection range.

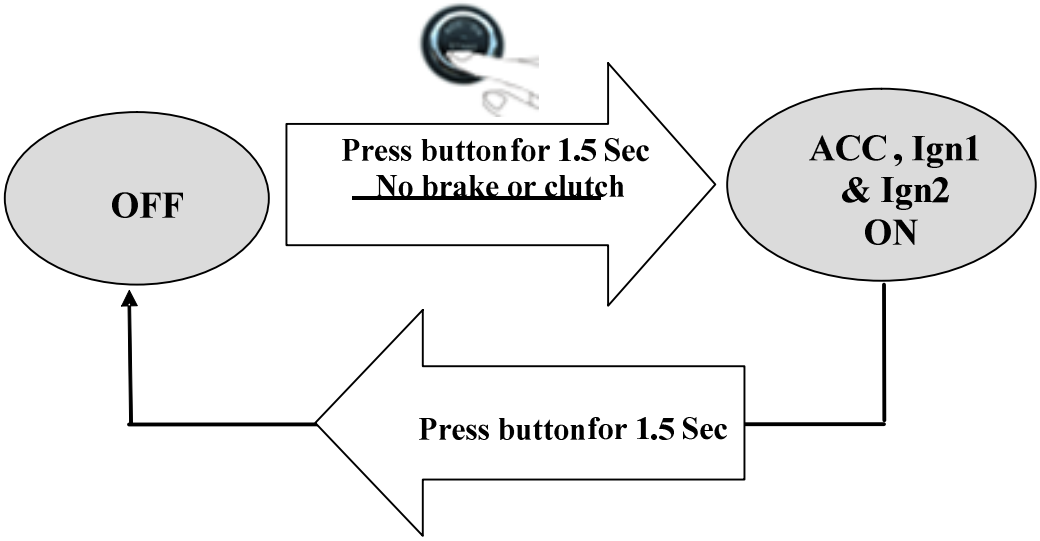
To Turn ACC ON/OFF

Press **"Start Stop Engine"** button 1X then release, ACC will turn ON; press **"Start Stop Engine"** button 1X again then release, ACC will turn OFF.



To Turn ACC, IGN 1and IGN 2 ON/OFF with no engine start.

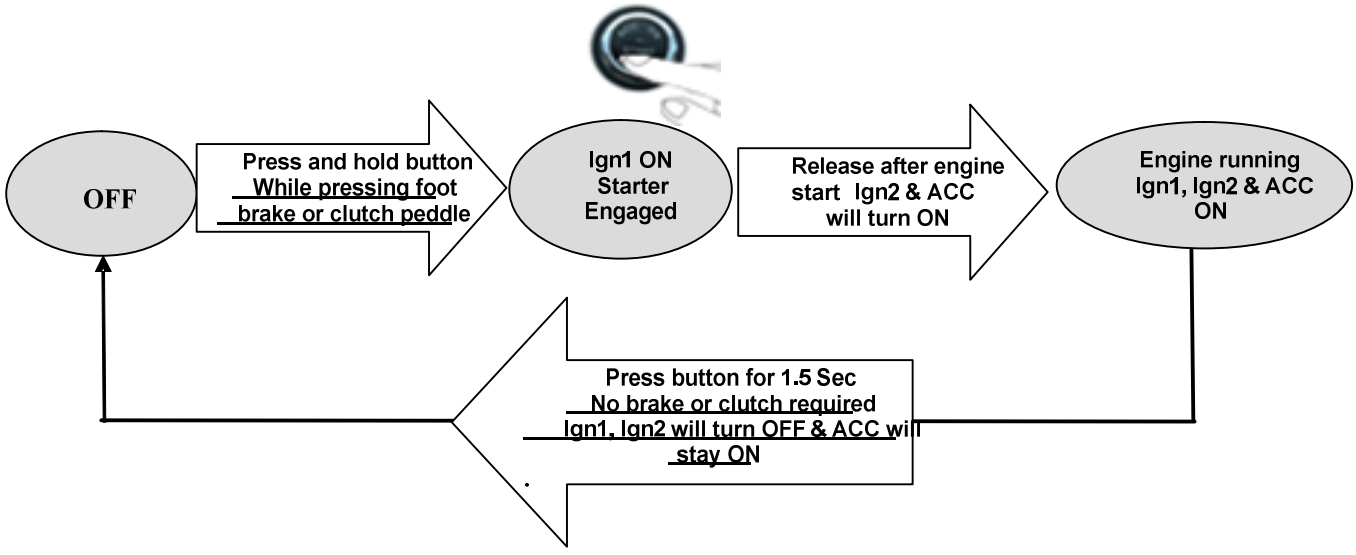
Press **"Start Stop Engine"** button and hold for 1.5 sec. without pressing the brake/clutch peddle, ACC, IGN 1 and IGN2 will turn ON and the engine will not start. To turn ACC, IGN1 and IGN2 OFF, press and hold for 1.5 sec. "**Start Stop Engine"** button, or when the RFID key FOB is taken out of range, ACC, IGN1 and IGN2 will turn OFF automatically.



To Start / Stop Engine.

To Start Engine: While pressing the brake/clutch peddle, Press **"Start Stop Engine"** button and hold until the engine starts. IGN 1 will turn ON, the starter will engage and the engine will start. After the engine has started, release the "**Start Stop Engine"** button, ACC, IGN1 and IGN2 will turn ON.

To Stop Engine: press "**Start Stop Engine"** button for 1.5 sec. IGN 1 and IGN 2 will turn OFF and the engine will stop. ACC will remain ON until (a.) the "**Start Stop Engine"** button is pressed one time, or, (b.) the key FOB is moved out side the vehicle and is out of range.



1.4 FUNCTION OPTIONS

GTS-3 has numerous user configurable features that can be enabled or modified according to user's preferences. This section explains each of the user configurable functions. See Sec. 1.5 **"Key FOB & Programming Function Set-Up Options"** for details on how to modify configurable features.

Valet Mode: In DISARM mode, Pressing valet switch for over 5 seconds will activate valet mode. Siren will chirp 2 times and the green LED will stay ON (not flashing).

To deactivate valet mode (normal status), press the valet switch for over 5 seconds. The siren will chirp one time and the green LED will flash slowly.

In Valet mode all alarm function and auto door locking will be disabled. The key FOB buttons can lock and unlock doors, but not the auxiliary output. **"Start Stop Engine"** button functions will continue as in Normal status. If the key FOB is in range, the vehicle can be started with the **"Start Stop Engine"** button.

See Table 1 "Function Option Chart" (page-8)

1. Automatic / Manual Transmission:
Automatic Transmission (default):
Manual Transmission (optional):
See **Figure 1. Option 3** for wiring requirements.

2. Ignition 2 output Enable/Disable during Engine start:
Disabled (default): IGN2 output is OFF during the engine start sequence and ON after the engine is started. (Duplicates the action of ACC).
Enabled: IGN2 output is ON during the engine start sequence and stays ON after the engine is started. (Duplicates the action of IGN1).

3. Silent Arm/Disarm:
ON (default): Siren does not chirp when locking / unlocking the doors.
OFF: Siren chirps when locking / unlocking the doors.

4. Foot-Brake lock/unlock:
ON (default): 15 seconds after starting the engine the doors will automatically lock when the foot brake is pressed. Doors will automatically unlock when the engine is turned OFF.
OFF: After starting the engine the doors will not automatically lock.

5. Auto Rearm:
OFF (default): The system will not automatically rearm and relock itself after the system is **disarmed** by pressing🔓, if the door is open and then closed.
ON: The system will automatically rearm and relock itself after the system is **disarmed** by pressing 🔓, if the door is open and then closed.

6. Auxiliary output Time:
2 Sec (default) Auxiliary output pulse length set to 2 sec. Use this setting if unlocking passenger shaved doors.
15 Sec (optional) Auxiliary output pulse length set to 15 sec. Use this setting for a window close operation.

7. Auxiliary Output (Door unlock Option):
Unlock Doors (default) When the Auxiliary output is activated the central doors will also unlock.
Do Not Unlock Doors (optional) When the Auxiliary output is activated the central doors will not unlock.
NOTE: The Auxiliary Output is a low current output (125ma max. neg. (-) 12V). A relay must be used to activate devices such as door poppers, trunk release or window close modules.

8. Electrical Siren/ Horn:
Electrical Siren (default): Set if the 6 tone siren (included) is used.
Horn: Set if the vehicle's horn is to be used instead of the 6 tone siren. An additional relay may be required. The control module siren output is a low current output (125ma max +12V.) and must go through a relay to operate a vehicle's horn.

9. Central Locking Time: When pressing 🔒 or 🔓 the electrical pulse sent to the door locking/unlocking mechanism can be set at either 0.8 seconds or 4 seconds. Most cars will function properly when this option is set to the factory default of 0.8 seconds.
(Default): 0.8 sec pulse duration.
(Option): 4 second pulse duration.

10. Door Unlock Pulses: Some vehicles require 1 unlock pulse to unlock the driver's door only and a second pulse to unlock all doors. Most vehicles only require 1 unlock pulse (Default setting) to unlock all doors.
1 Pulse (Default): 1 unlock pulse. Set to unlock drivers door only in 2 pulse vehicles then press 🔓 again to unlock all doors. Also use for vehicles requiring only 1 pulse to unlock all doors.
2 Pulses (option): 2 unlock pulses. Set to unlock all doors in vehicles requiring 2 pulses. **Central Locking Time #9** must be set to default (0.8 sec) for 2 pulse operation to function.

11. Return Factory Default: Resets all Function Options to factory default settings.

1.5 Key FOB & PROGRAM FUNCTION SET UP

A. Code learning (for replacement transmitters only)

Transmitter (Key FOB) Code learning: The Key FOBs have been matched to the control module at the factory. If replacement key FOBs are used they must first be learned to the Control Module before they will function.

1. System must be in Disarm mode (green "Start/Stop Engine" button LED flashing). Both key FOBs should be in the vehicle.
2. Press the valet switch 3 times; on the 3rd press hold the valet switch for over 5 seconds, it will enter the code learning mode. The green "Start/Stop Engine" button LED will light solid green, and the parking lights will flash 2 times.
3. Immediately (within 5 seconds) press the 🔒 button on the first key FOB. The parking lights will flash 4 times. Then press the 🔒 button on the second FOB within 5 sec. The parking lights will again flash 4 times. Code learning is now complete.

B. Function Programming:

1. System must be in Disarm mode (green "Start/Stop Engine" button LED flashing).
2. Press valet switch 5 times, hold on the 5th press for over 5 seconds, parking lights will flash 2 times.
3. According to the "Function Option Chart" below, you can set up the required function by pressing the Valet Switch the number of times indicated in Table 1 page 8.
4. Immediately after pressing the valet switch the number of time indicated, press the 🔒 button on the key FOB. If the parking lights flash 3 times, the default setting for that function has been set. If the parking lights flash 1 time, the alternate setting has been set.

Note: After entering the "Function Programming" mode, the 🔒 button must be pressed on the key FOB within 5 seconds. If not, the system will exit the "Function Programming" mode and the parking lights will flash 4 times. Repeat steps 1 thru 4 for each additional programming function.

Table 1: FUNCTION OPTION CHART

Press Valet Switch # of Times	Programmable Function	Function Default Lights flash 3 times	Function Alternate Lights flash 1 time
1	Automatic/Manual Trans	**Automatic**	Manual
2	Ignition 2 output Enable/Disable during engine start	**Ignition 2 OFF during Engine Start**	Ignition 2 ON during Engine Start
3	Silent arm/Disarm	**ON**	OFF
4	Foot-Brake lock/unlock	**ON**	OFF
5	Auto Rearm	**OFF**	ON
6	Auxiliary output time	**2 sec duration**	15 sec duration
7	Aux output door unlock	**Unlock Doors**	Do not Unlock Doors
8	Electric siren/horn	**Siren**	Horn
9	Central Door lock Time (for 1 Pulse only)	**0.8sec.**	4sec
10	Door unlock Pulses	**1 Pulse**	2 Pulses(0.8sec*2)
11	Return all to factory default	Lights flash 3 times	Lights flash 1 time

1.6 INSTALLATION INSTRUCTIONS

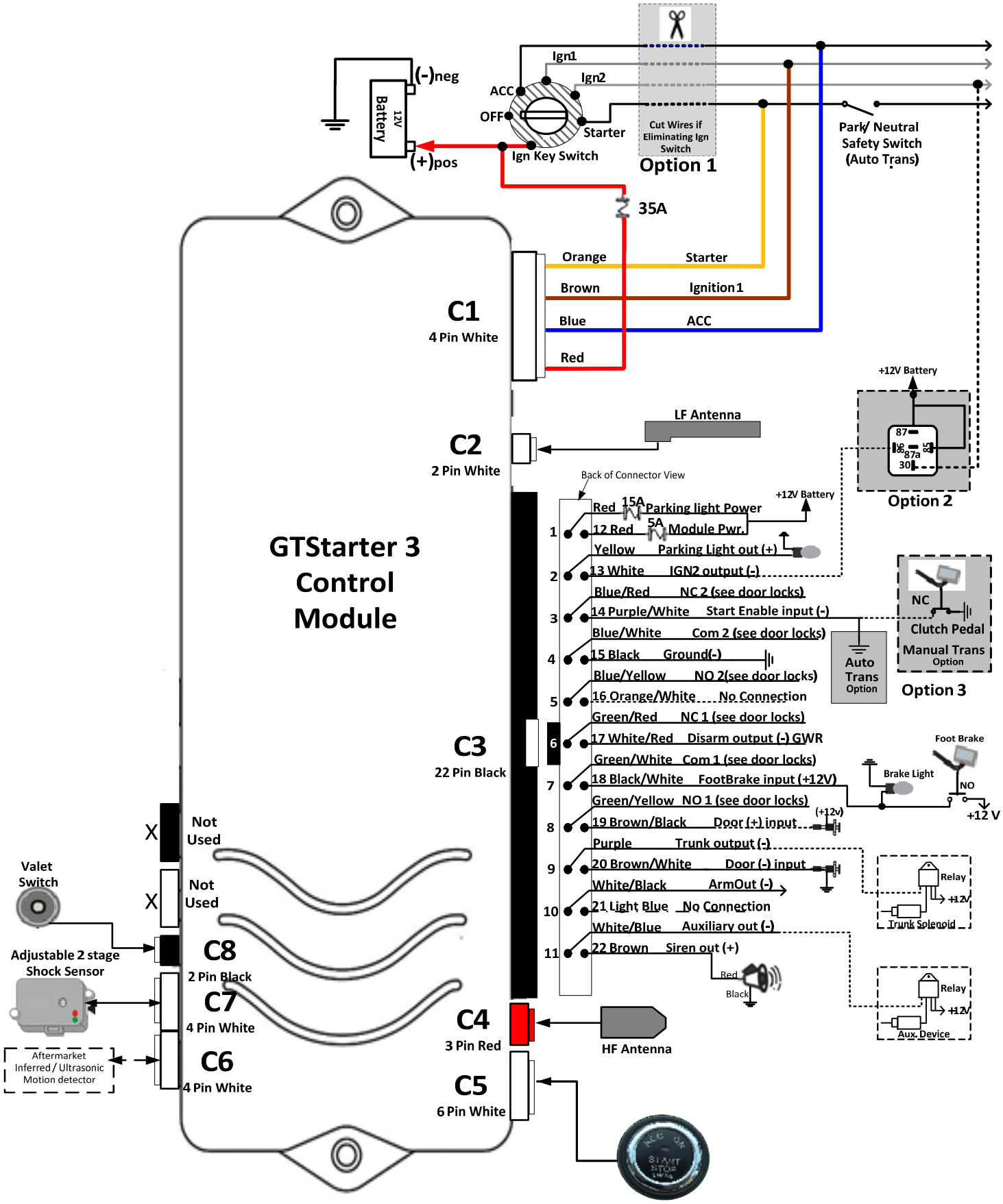


Figure 1

Figure 1 Option 1 – The user has the option of keeping the original ignition switch or completely removing it. If the ignition switch is kept operational, do not cut the wires and the vehicle can be started with either the "Start/Stop Engine" button or the ignition key. If eliminating the Ignition Switch, cut all wires as shown. The vehicle can then only be started using the "Start Stop Engine" button.
Figure 1 Option 2 - Use this wiring to energize (Max 125 ma) an optional relay when your vehicle uses both an IGN 1 & IGN 2 circuits during starting, running and accessories. The relay AMP rating (typically 30 A) will need to be high enough to carry the load for your vehicle's IGN 2 circuit.
Figure 1 Option 3 – For Automatic transmission connect "Start Enable Input" (Purple/White pin 14) wire to chassis ground (-). Engine will only start when brake peddle is pressed. For Manual Transmission connect "Start Enable Input" (Purple/White pin 14) wire to the clutch peddle switch that grounds (-) when the clutch is depressed. Set Function Option 1 to Manual Transmission. Engine will only start when the clutch peddle is pressed.

Installing Connector C1: 4 Pin (White) Wire Harness (Battery, Ign1, Starter, ACC)

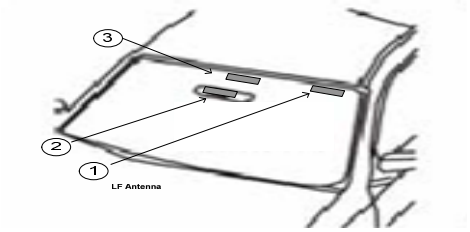
IMPORTANT: See Figure 1 Option 1 above before cutting any ignition switch wires.

C1: RED – Battery Supply Power from Ignition Switch.
The RED wire is used to power the GTS-3 starting circuitry, Ign1, and ACC. Before connecting this wire you must first find the **BAT** wire coming from the ignition switch or it can be connected directly to the + (pos) terminal on the battery. The **BAT** wire is used to supply +12v battery power to the entire vehicle. Solder connect the C1 RED wire (w/ 35amp fuse) to the **BAT** wire coming from the Ignition switch or battery. At the same time that you connect the C1: RED wire, also solder connect the 2 small RED fused wires from connector **C3**. (Pin 1 & 12)
C1: ORANGE – Starter Output.
Before connecting this wire you must first find the **START** wire coming from the ignition switch. The **START** wire is used to send +12v (15A max) through the Park/Neutral safety switch (automatic transmission) to the starter solenoid. Insure that you DO NOT by-pass the Park / Neutral switch; otherwise the engine could be started while in Drive or Reverse.
C1: BLUE – ACC Power Output
The C1: BLUE wire applies +12 v (30A max) from the Control Module to power the Accessory (ACC) circuits. The ACC circuit has power applied to it only when the ignition key is in the ACC position or when the "Start Stop Engine" button is in the ACC mode. No power is applied during the engine starting cycle.
Solder connect the C1: BLUE wire to the **ACC** wire coming from the ignition switch.
C1: BROWN – IGN 1 Power Output
The **IGN 1** wire is used to send +12v (30A max) to the ignition system and engine computer when the ignition key or "Start Stop Engine" button is in the **ON** and **START** position. Solder connect the C1 BROWN wire to the **IGN 1** (ignition/computer) wire coming from the Ignition switch.

Installing Connector C2: 2 Pin (White) Low Frequency (LF) Antenna Wire Harness.

The LF antenna is used for the RFID circuitry. The antenna must not be placed directly on any metal surface. **The antenna must be mounted in a horizontal position.** Plug in the White 2 pin LF antenna into the Control Module as indicated in **Figure 1**.
The best location is usually on the top of the windshield glass on the driver's side. To optimize the RFID range other locations on a glass surface can be tested. Before permanently attaching the antenna, experiment with different locations that may further optimize the key FOB range.

LF Antenna
Optional Mounting Locations



LF Antenna mounting requirements:
* LF Antenna must be mounted in a **Horizontal** position
* LF Antenna must not be mounted to metal. Glass mounting surface only!
* Mount LF Antenna at least ½" away from metal surfaces.

Location Options:
1. Preferred location. Mount ½ " below top windshield rail and 1" from "A" pillar.

2. Mount ½" below top windshield rail and in the center of the windshield.

3.Back side of rear view mirror. Do not mount to mirror if the mirror material is metal. Plastic mirror housing only.

Installing Connector C3: 22 Pin (Black) Wire Harness (Main Harness)

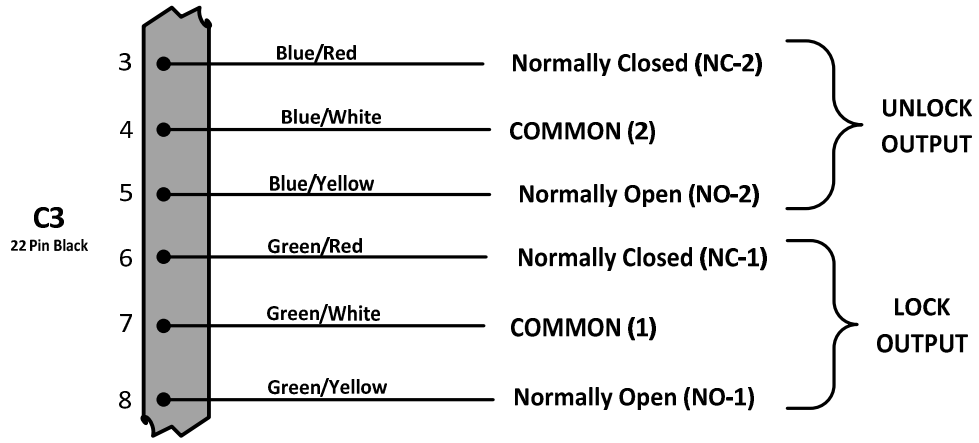
See Figure 1 for pin number and location.

Pin 1. (RED) Parking Light Pwr. w/15A fuse Used to power the parking lights. Connect this wire to Bat + 12v.
Pin 2. (Yellow) Parking Lights Out (+). Connect to the vehicles parking light circuit. If parking lights require more than 10 amps (not normal) use an external 30 Amp relay.
Pin 3. (Blue/red) NC-2 Used for central door locks. See Figure 2, 3, 4, 5, 6 for your vehicle's door lock system.
Pin 4. (Blue/White) Com-2 Used for central door locks. See Figure 2, 3, 4, 5, 6 for your vehicle's door lock system.
Pin 5. (Blue/Yellow) NO-2 Used for central door locks. See Figure 2, 3, 4, 5, 6 for your vehicle's door lock system.
Pin 6. (Green/Red NC-1 Used for central door locks. See Figure 2, 3, 4, 5, 6 for your vehicle's door lock system.
Pin 7. (Green/White) Com-1 Used for central door locks. See Figure 2, 3, 4, 5, 6 for your vehicle's door lock system.
Pin 8. (Green/Yellow) NO-1 Used for central door locks. See Figure 2, 3, 4, 5, 6 for your vehicle's door lock system.
Pin 9. (Purple) Trunk output (-). Trunk Release Output Neg. (-). Connect to the trunk release Neg. (-) trigger wire on the vehicle's trunk release relay. In the event that a trunk release is to be added to the vehicle, an additional relay and trunk release solenoid will be required.
Pin 10. (White/Black) Arm Output (-) is a neg. (-) output when the alarm is triggered. Can be used to activate other alarm triggered devices. (125 ma max.)
Pin 11. (White/Blue) Auxiliary output (-) this is a low current (-) output (125ma max). It can be used to activate the (-) neg side of a relay that may be used for operating the passenger door of a shaved door vehicle, an extra trunk release or an electric window close operation. Connect to a window close module (not included) with a Neg. (-) input. Follow the window close module instructions for wiring to window motors. Do not connect this wire directly to the vehicle's window close switch. The output duration can be either 2 sec or 15 sec per Table #1 option 6.
Pin 12. (RED) Module Power. w/5A fuse Used to power the GTS-3 Control Module. Connect this wire to Bat + 12v.
Pin 13. (White) Ignition 2 output (-) Used to activate an additional relay so that an IGN 2 circuit may be used when the vehicle requires its use. Not all vehicles require an IGN 2 circuit. Pin 13 must be connected to the (-) neg terminal of the relay. See Figure 1, option 2.
Pin 14. (Purple/White) Start Enable input (-) input.
For Automatic Transmission: Connect to a good chassis ground (-).
For Manual Transmission: Connect to a clutch peddle switch that has a neg. (-) output when the clutch peddle is depressed. Then change Function Option 1 to Manual Transmission. Do not bypass this wire the engine can start while it is in gear.
Pin 15. (Black) Ground (-) Connect to a good chassis ground (-).
Pin 16. (Orange/White) This wire is not used. The end of this wire should be taped or wire nutted.
Pin 17. (White/Red) Disarm Output (-) Ground While Running (GWR). Connect to the Neg (-) input of a security bypass device. These devices are used in the event that the vehicle has an OEM security system that prevents starting the vehicle without the security key. The proper security by-pass module for the specific vehicle can be found at www.gallotech.com/support. Follow the instruction that came with the by-pass module. This wire is activated only during engine starting and running. When the engine is turned OFF there will be no GWR output.
Pin 18. (Black/White) Foot Brake input (+) (+12v) Foot Brake Switch Input Used for auto door lock function and Starter enable input. Connect to Foot brake switch terminal that has +12v only when foot brake is depressed.
Pin 19. (Brown/Black) Door (+) input. Pos. (+) Door Switch Input. Connect to a Pos. (+) Door Trigger switch. If the vehicle has "-" Neg. Door Trigger use the (Brown/White, Pin 20) wire instead. Tape or wire nut wire if not used.
Pin 20. (Brown/White) Door (-) input. Neg. (-) Door Trigger switch Input. Connect to the Neg. (-) Door Trigger switch. If the vehicle has "+" Pos Door Trigger, use the (Brown/Black), Pin 19) wire instead. Tape or wire nut wire if not used.
Pin 21. (Light Blue) No Connection. This wire is not used. The end of this wire should be taped or wire nutted.
Pin 22. (Brown) Siren/Horn output (+). +12v Output. Connect to the RED Siren wire. Connect the second siren (Black) wire to a good chassis ground. If the vehicle's horn is used connect Pin 22 (Brown) wire to the (+) pos terminal on the horn relay. Do not connect directly to the horn. Table #1 option 8 must be changed to either Siren or Horn.

Power Door Connections:

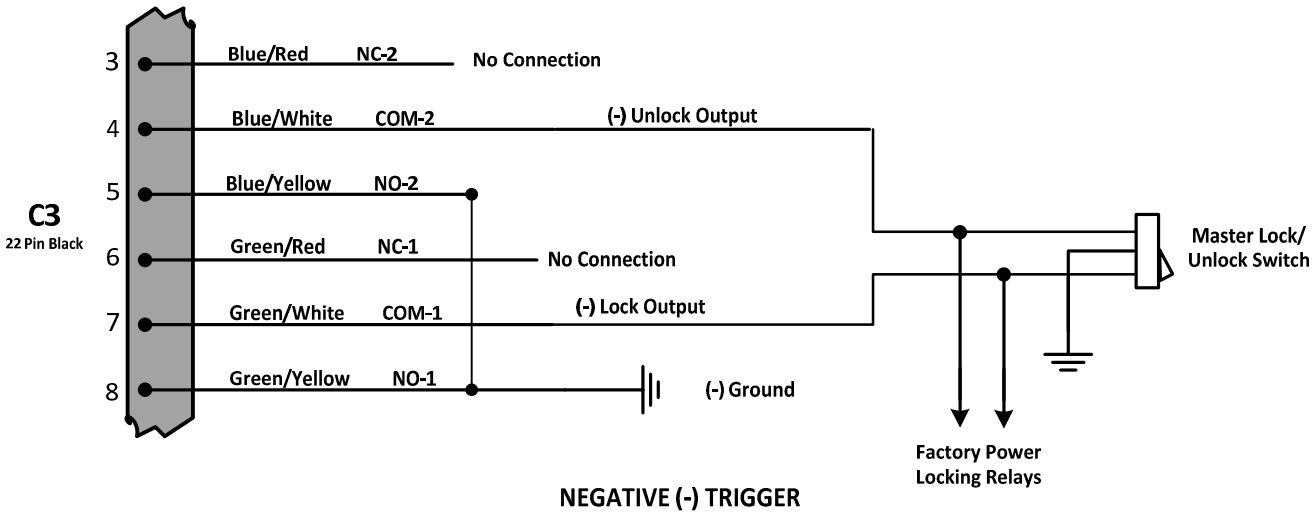
Determine the Door Locking/Unlocking circuitry that your vehicle is equipped with. Fig. 2 shows the door lock/unlock output relay & Pin number configuration of the C3 Control Module connector. The majority of vehicles come equipped with either Neg (-) Fig. 3 or Pos. (+) Fig. 4 Trigger circuits. Find the location of the appropriate circuitry for your vehicle (Make, Model, Year Diagrams can be found on our web site at www.GalloTech.com) If the Trigger wire is 0v when the Lock/unlock switch is depressed then you have a Neg. (-) trigger (Fig. 3). If the trigger wire is +12v when depressing the Lock/unlock switch then you have a Pos. (+) Trigger (Fig 4). For Pre- '95 Audi or Mercedes Benz vacuum motor operation use Fig. 5. For Reverse Polarity applications, were the lock and unlock wires rest at Negative Ground, use Fig. 6.

C3: 22 PIN WIRE HARNESS DIAGRAMS:
Only Door Locking/Unlocking Pins #'s shown below



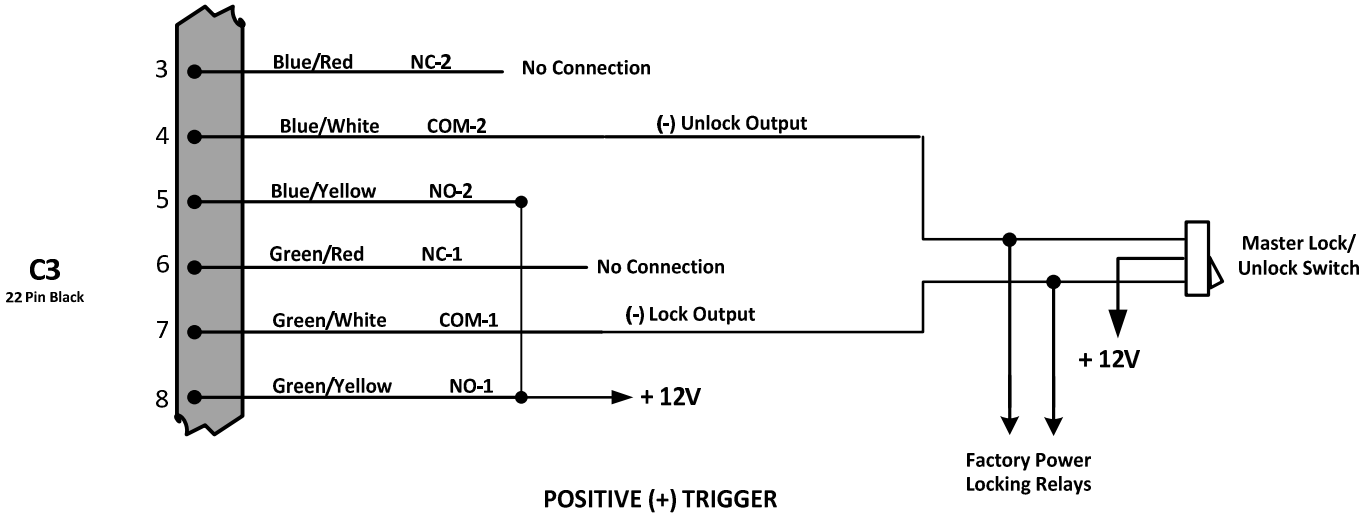
NORMAL DOOR LOCK/UNLOCK OUTPUT CONFIGURATION

Figure 2



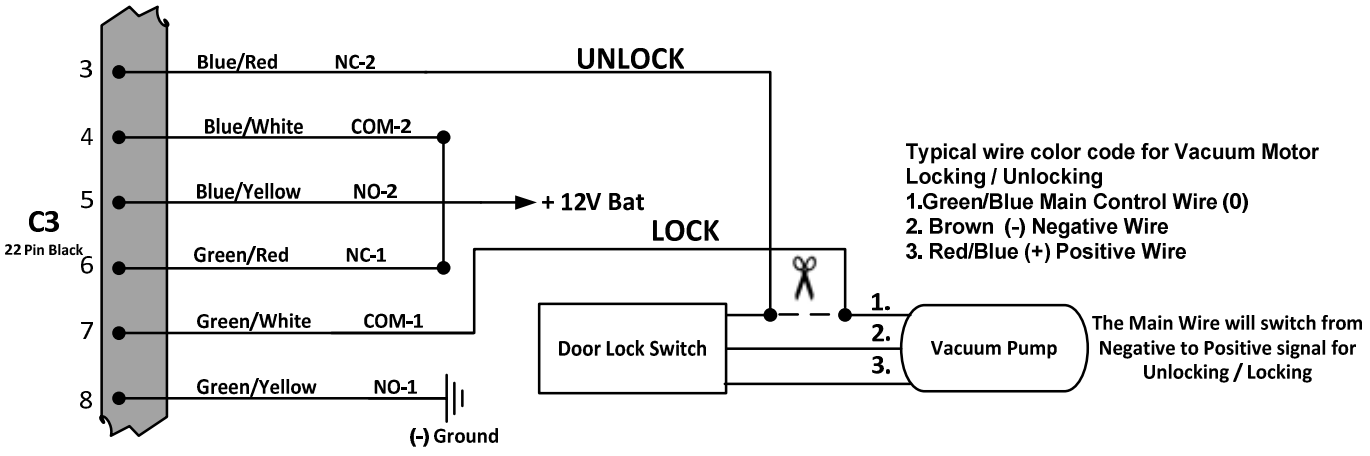
NEGATIVE (-) TRIGGER

Figure 3



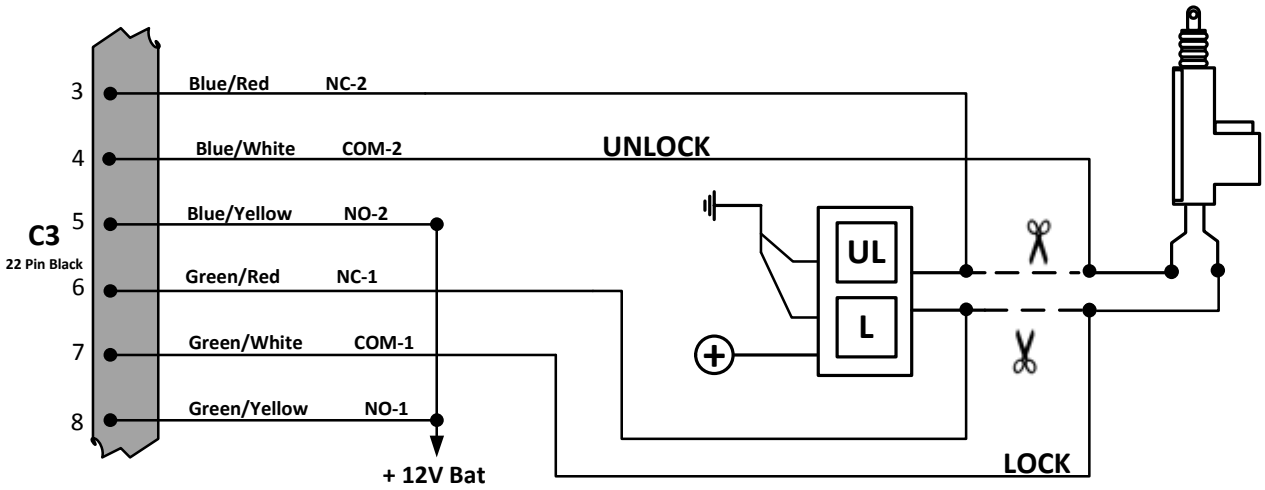
POSITIVE (+) TRIGGER

Figure 4



VACUUM OPERATED (older) Audi & Mercedes Benz

Figure 5



Reverse Polarity

Figure 6

Installing Connector C4: 3 Pin (RED) Wire Harness - HF Antenna

The HF antenna is used for the high frequency receiver that operates the remote access functions such as remote door locking, and car locating. For maximum range the antenna should be mounted above the dash board level. The antenna can be mounted under the dash however the detection range may be reduced. Caution should be taken as the antenna whip is metal and the installer should insure that the whip will not interfere / short out any under-dash wiring. Connect the 3 Pin (Red) connector to the Control Module as shown in **Figure 1.**

Installing Connector C5: 6 Pin (White) "Start/Stop Engine" button switch

The **"Start Stop Engine"** button can be surface mounted in a convenient location on the dash. The Black bezel around the switch is removable to customize the installation. The high strength double stick adhesive disk is to be used on the back side of the switch for mounting purposes. Once attached, it will be difficult to remove. Make certain that the back of the button and the mounting surface is thoroughly cleaned with **isopropyl alcohol** to remove any dirt, grease or vinyl dressing materials. **DO NOT use acetone, MEK, lacquer thinner or any other harsh chemicals as they will destroy paint, vinyl and plastic**. The adhesive will not come loose or degrade as long as the surface has been cleaned thoroughly. Attach the adhesive disk to the back of the button first.
If you choose to mount the button on the dash with the wire hidden behind the button then drill a 1/2" dia. hole in a location where the small wire and connector can be fed through the dash. It is recommended that the hole be drilled just below the centerline of the final switch location, approximately where the wires exit the back of the switch. Rout the **"Start Stop Engine"** button wire to the module. Connect the C5 (White) 6 pin connector to the module as shown in **Figure 1**.

Installing Connector C6: 4 PIN (White) Wire Harness Shock sensor (included) or motion device.

Shock Sensor (included) – The adjustable 2 stage shock sensor or an aftermarket motion sensor can be connected to either Connector C6 or C7. The shock sensor should be mounted on a rigid member of the vehicle. Typically it is best attached to the steering column. The shock sensor should never be mounted on the outside of the vehicle where it is not protected from exposure to moisture. Connect the 4 Pin (White) connector to both the shock sensor and the Control Module as shown in **Figure 1**.
Aftermarket Motion sensor (not included) – A 4 wire motion sensor must be used. Chances are the connectors may not be the same as the GTS-3. If connecting an aftermarket sensor to GTS-3 go to our Support web page (www.gallotech.com/support) for the proper wiring configuration.

Installing Connector C7: 4 PIN (White) Wire Harness Shock sensor (included) or motion device.

See Connector C6 above. Installation is the same for both connectors.

Installing Connector C8: 2 Pin (Black) Valet Switch wire harness

The Valet Switch should be mounted under the dash or in the glove box so that it can be accessed from time to time to change or modify the programmable functions of GTS-3. Connect the 2 pin (Black) connector to the Control Module as shown in **Figure 1.**

1.7 FINAL INSTALLATION

1. Recheck all electrical connections to be certain they are connected in the proper locations and check that all connections are wrapped with a good quality electrical tape or shrink tubing.
Connect all 8 module connectors to the Control Module. All connectors are indexed so that they can only be installed in one direction.
2. The Control Module should be secured under the dash using cable ties or equivalent.
3. If the vehicle is equipped with a locking steering column, it must be permanently disabled before attempting to drive the vehicle.

4. Reconnect the battery and thoroughly test all starting functions.

- **If the key FOBs are not detected by the control module, then re-learn both key FOBs. See Sec. 1.5 (A) for code learning instructions.**

5. Program the module to the functions that you desire following Sec. 1.5 "Key FOB & Program Function Set Up" page 7 and Table 1 "Function Option Chart" page 8

Test the starting function:

Automatic transmission: Press and hold the "Start Stop Engine" button without pressing the brake peddle, making certain that the vehicle will not start. The engine must only start when the brake is pressed and the vehicle is in Park or Neutral. Check to make sure the vehicle does not start when the gear selector is in Drive or Reverse. If the engine starts in Drive or Reverse, then the connection to the Park / Neutral switch (C1 (Orange) must be rechecked per Figure 1.

Manual Transmission: Using caution, Set the gear selector to neutral. Press and hold the "Start Stop Engine" button without pressing the clutch peddle, making certain that the vehicle will not start. The engine must only start when the clutch peddle is pressed. If the engine starts without the clutch peddle being depressed, then the wiring connections to the Control Module (C3 pin 14) must be rechecked per Figure 1.

1.8 TROUBLESHOOTING

ENGINE CRANKS BUT WILL NOT START:

1. Check Ignition switch wiring. See Sec. 1.6 "Installing Connector C1. Some vehicles require 2 separate ignition wires IGN 1 and IGN 2 for the vehicle's ignition system to function properly. If the vehicle requires both IGN 1 & IGN 2 then follow the instructions in **Figure 1. Option 3 and Table 1 "Function Option Chart" option 2.**
2. If the vehicle has a security key, check that the security by-pass module is installed properly. See connector C3, Pin 17 (White/Red) (GWR) wire installation instructions.

ENGINE STARTS IN DRIVE OR REVERSE GEAR (AUTOMATIC TRANSMISSION).

Check the location of C1: ORANGE (Starter output) wire. It MUST be connected to the vehicles starter wire close to the ignition switch, making certain that the Park/Neutral lockout is not bypassed. Also check **Table 1** for correct transmission selection.

ENGINE STARTS WHEN THE CLUTCH IS NOT PRESSED (MANUAL TRANSMISSION).

Check the connection of C3 Pin 14 (Purple/White): "Start Enable Input" wire. It must be connected to a clutch switch that grounds Neg. (-) when the clutch is pressed. If the clutch peddle switch is Pos. (+) when the clutch is pressed then a relay is required to reverse the input to Neg. (-).Also check **Table 1** for correct transmission selection.

AN ACCESSORY (RADIO, HEATER FAN, ETC.) DOES NOT TURN OFF DURING ENGINE CRANKING AND/OR TURN BACK ON AFTER CRANKING:

a.) Check the connections of C1: wire harness for the correct connection points. See **Figure 1**. There are usually only two positions on the ignition switch which disconnect power to the accessories during engine cranking. ACC and/or IGN 2. In some vehicles IGN 2 is used for either accessories like the heater fan, or is sometimes used as an additional ignition system wire and may be required for starting (see **Table 1 "Function Option Chart" Option 2)**. Check the specific wiring diagrams for your Make, Model, and Year vehicle. Many of these can be found at www.gallotech.com/support.php .

b.) Check all fuses connected to the Control Module wire harnesses. If any are blown then there must be a short in the system. Check all wiring thoroughly.

DOORS LOCK/UNLOCK WHEN THEY SHOULD UNLOCK/LOCK:

Connector C3 Pin 4 and Pin 7 wires have been incorrectly connected to the vehicles Master Lock switch. Reversing the Lock and unlock wires Pin 4 & Pin 7 at the C3 connector of the Control Module should correct the problem.

INSTALLATION NOTES
