

**Installation Manual -
Electronic Control Unit (ECU)**

Magic Touch

ATTENTION: Read the entire installation manual before installing the Magic Touch system.

INTRODUCTION:

Magic Touch represents the latest in advanced technology using touch sensitive door handles with specific attention to design and detail for the automotive industry. We have not only applied advanced technology to the operation of the product, but also to the installation, which allows for a more simple and straightforward installation. Magic Touch is designed with highly reliable components that are found in consumer products inside and outside the automotive industry.

OPERATION:

The Magic Touch door handles work identically to how a manual handle works. When the door is locked, the handle sensor is inactive and the door will not open. When the door is unlocked, the handle sensor is active and allows the touch of your hand to open the door. Every time the door is unlocked the system recalibrates to the environment and continues to recalibrate every few seconds allowing for a reliable operation. The sensor is activated by the electrical properties of your body, not by pressure. So it will activate with contact of more skin surface area. Touch in the center of the sensor to activate.

If a remote keyless entry system that has an optional auxiliary output has been connected to the Magic Touch Control unit, the door can also be opened by pressing the auxiliary button on the key fob.

Magic Touch has a built in rain sensor that prevents it from opening when the car is unlocked and it is raining. If you will never have the car unlocked in the rain, you can choose to not connect the black wire between the sensor and the main Electronic Control Unit. This will increase the area that may be touched to activate the sensor.

To activate the sensor, you must touch the sensor from the center or from below. Touching from the top, will be perceived as rain and ignored.

NOTICE: LOCK VEHICLE AT ALL TIMES WHEN IN MOTION. THIS WILL DEACTIVATE THE DOOR SENSORS. ALSO, LOCK THE VEHICLE WHILE WASHING THE CAR. WET RAGS AND WET BRUSHES WILL TRIGGER THE SYSTEM IF IT IS NOT LOCKED. RAIN WILL NOT TRIGGER THE SYSTEM.

INSTALLATION:

The following safety warnings must be observed at all times:

We recommend that this product be installed by a qualified installation professional. Proper installation is the sole responsibility of the authorized Magic Touch installer. The installer shall make sure the following safety features have been installed and connected.

- Connect to a proper lock and unlock signal from a factory or aftermarket locking system that locks the vehicle doors when the car transmission is removed from park or while the vehicle is moving.
- Connect the disable feature to an additional safety switch system, such as a speed or motion sensor.
- Connect to the proper window up and window down signals when installing a glass window sensor on a moveable window.

When properly installed, this system will automatically open the vehicle door via a touch on the door, window, or mirror sensor or via a command signal from a remote control transmitter. Therefore proper installation and operation is required. The following precautions are the sole responsibility of the user; however, authorized Magic Touch installer shall make the following recommendations to all users of this system.

- Lock your vehicle at all times while away for it to insure its security.
- Lock your vehicle while it is in motion.
- Lock your vehicle when washing it by hand or in a car wash.
- Lock your vehicle during any rain or precipitation.
- It is the user's sole responsibility to properly handle, and keep out of reach from children, all remote control transmitters to assure that the system does not unintentionally open a door.

Use of this product in a manner contrary to its intended mode of operation may result in property damage, personal injury, or death. It is the sole responsibility of the user to operate the product in the manner in which it was intended. If the system operates in a manner in which it was not designed, return to an authorized installation facility to have it checked and repaired if necessary. LaFrance Autoworks will not be held responsible or pay for installation or reinstallation costs. If the product is found to be faulty, contact LaFrance Autoworks at RMA@lafranceautoworks.com for a return merchandise authorization.

Before beginning the installation:

- Please read this entire installation guide before beginning the installation. The installation of this product requires interfacing with the vehicle systems. Many new vehicles use low-voltage or multiplexed systems that can be damaged by low resistance testing devices, such as test lights and logic probes (computer safe test lights). Test all circuits with a high quality digital multi-meter before making connections.
- Do not disconnect the battery if the vehicle has an anti-theft-coded radio. If equipped with an air bag, avoid disconnecting the battery if possible. Many airbag systems will display a diagnostic code through their warning lights after they lose power. Disconnecting the battery requires this code to be erased, which can require a trip to the dealer.
- Remove the dome light fuse. This prevents accidentally draining the battery.
- Roll down a window to avoid potentially being locked out of the car.

During Installation:

- Install the controller box on the dry side of a water barrier under the door panel.
- Remove the existing OEM handle and replace it with the Magic Touch handle or window sensor using the hardware provided. Refer to the documentation for the specific car model.
- Install a properly sized actuator or solenoid for the specific model of vehicle to the door latch release.
- If using a high current solenoid be sure to run an additional #10 gauge power wire from the battery to the door and do not use existing power from other door controls.
- If necessary, install a door popper or other device to push the door open when the latch is released. Some factory door seals are enough.

After the installation:

- Cycle the lock and unlock using the remote or interior switches.
- Test all functions and modes.
- Set the vehicle settings to auto-unlock when the car is put in park or the doors are opened to avoid being locked out.

CONNECTIONS:

Connect the cable from the sensor board to the main ECU box as shown in the following photo with the silver connectors visible from the front. Push the connector through the small hole in the side of the box and snap into place.



Photo 1

Connect the 7-Pin connector to the side of the box as shown in the following photo. Be sure to have the locking ramp facing up and the black wire on the outside. Connect the individual wires to the automobile as appropriate.



Photo 2

+12 Volts: Connect to a constant +12Volt power source. See Diagram 1 below to identify which is the proper connector. It is the connector closest to the 7-pin connector. Use the appropriate wire gauge based upon the actuator or solenoid being used. The electronic controller can support up to 30Amps of current.

Actuator Out: +12 Volt output when triggered. See Diagram 2 below to identify which is the proper connector. It is the furthest from the 7-pin connector. Connect this output to the appropriate polarity of the solenoid or actuator to create the needed push or pull action. See Note 5 below to determine if a relay is needed on the output.

Ground (BLACK): Connect to a solid ground.

General Disable (PURPLE): (Optional) Use to connect to an auxiliary safety system that will disable the touch sensitivity of the door or glass sensor. This can be used in addition to an automatic locking system in newer automobiles. Examples would be a transmission neutral switch, motion detector, tachometer or speedometer sensor, or other devices that detect when the car is in motion. Pull this line down to ground to disable the Magic Touch sensor. If this line is not used, connect it to +12v.

Remote Open (GREEN): (Optional) Connect this input to a remote keyless entry system that generates a ground or low-side driver signal when a button is pushed on a key fob. If this line is not used, connect it to +12v.

Door Lock (YELLOW): (Required) Connect this input to the wire within the door that signals the door lock actuator. The factory setting is to connect to door lock wire that generates a positive +12v when the electric lock is activated. This will deactivate the touch sensitivity of the door or glass sensor until the vehicle is unlocked. For use with vehicles with a negative trigger system, see Note 1 below.

Door Unlock (BLUE): (Required) Connect this input to the wire within the door that signals the door lock actuator to unlock. The factory setting is to connect to the door unlock wire that generates a positive +12v when the electric unlock is activated. This will activate the touch sensitivity of the door or glass sensor until the vehicle is locked. For use with vehicles with a negative trigger system, see Note 1 below.

Window Down (BROWN): (Moving-window sensor only) Connect this input to the wire within the door that activates the window motor to roll down. The factory setting is to connect to the window motor wire that generates a positive +12v when the electric window is rolled down. This wire is used for window sensor installations only. If not used, connect this wire to ground. For use with vehicles with a negative signal trigger system, see Note 2 below.

Window Up (ORANGE): (Moving-window sensor only) Connect this input to the wire within the door that activates the window motor to roll up. The factory setting is to connect to the window motor wire that generates a positive +12v when the electric window is rolled up. This wire is used for window sensor installations only. If not used, connect this wire to ground. For use with vehicles with a negative signal trigger system, see Note 2 below.

Note 1: For vehicles with a negative trigger locking system, make the following changes to the jumpers within the ECU. Remove the cover by removing the four screws in the box. Move the jumper on JP2 from the center and left pins to the center and right pins. Remove the second and third jumper from the top on JP4. See Diagram 1 below.

Note 2: For vehicles with a negative trigger window up and window down signals, make the following changes to the jumpers within the ECU. Remove the cover and move jumper JP3 from the center and bottom pin to the center and top pin. Remove the fourth and fifth jumper from the top of JP4. See Diagram 1 below.

Note 3: For trunk or hatches that do not have a lock and unlock signal available the ECU can be set to always be unlocked and active. Remove the cover and move the jumper on JP2 from the center and left pins to the center and bottom pins. This change will make the touch sensor always active, so for security and safety make sure that the vehicle locking system will not allow the trunk or hatch to open when the vehicle is locked. In addition, you may need to add a relay that is controlled by the ECU to act in place of the trunk or hatch switch. See Diagram 1 below.

Note 4: If you are connecting the ECU to an external system that will remotely trigger the door to open which uses a positive signal make the following changes to the jumpers within the ECU. Remove the cover and move jumper JP1 from the center and bottom pin to the center and top pin. See Diagram 1 below.

Note 5: The controller will generate a +12v up to 30 amp signal for 2 seconds on the Actuator output signal. This gives the driver ample time to grab the door and open it. If you are using a solenoid that draws more than 30 amps the controller has a safety shutoff that will turn off. If the solenoid is active for less than 2 seconds, then it is drawing more than 30 amps. To work with these high current solenoids, you must use a relay or install a current limiting resistor between the ECU and the solenoid. If you are using a solenoid, be sure to run a #10 wire to handle the current.

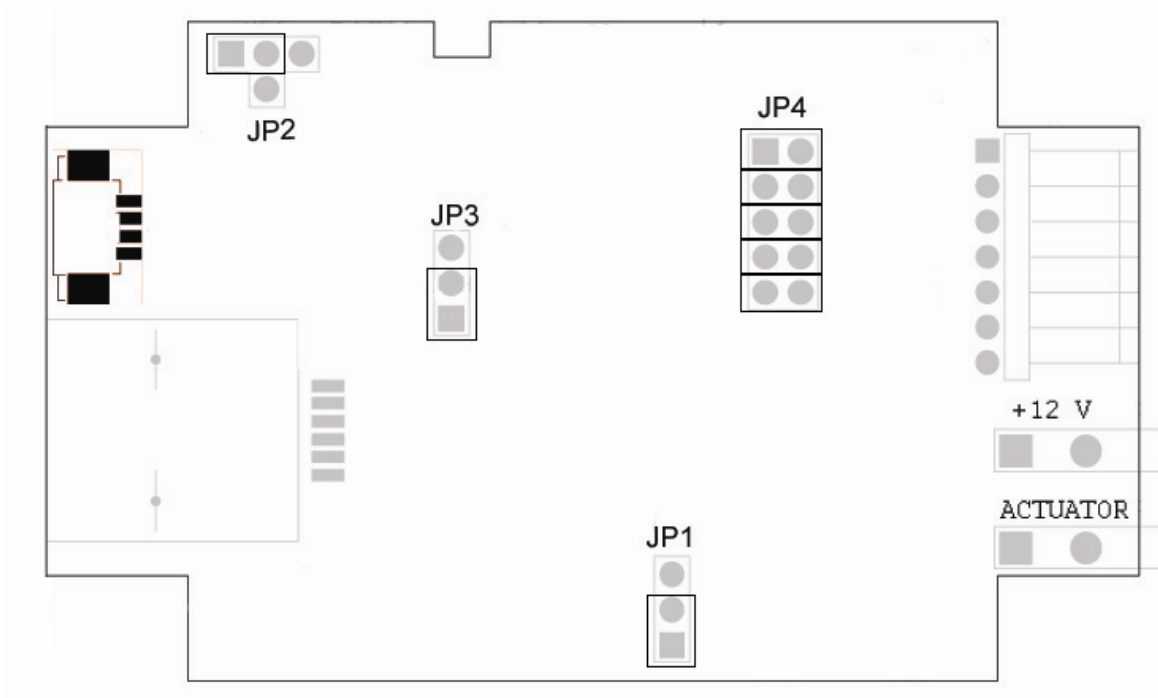


DIAGRAM 1 - JUMPER SETTINGS AND CONNECTORS:

Peel the red protective layer off of the adhesive and mount the ECU under the door panel, or on the inside of the door compartment closest to the interior, in a dry location. Also, make sure that the ECU and all wiring is clear of any moving window parts.

IMPORTANT NOTICE: Upon completion of installation, you may have extra-unused wires on the wiring harness. Do not be concerned. These wires are used for features available on other models. Connect them as noted above.

FOR ASSISTANCE: Contact LaFrance Autoworks at support@lafranceautoworks.com

TROUBLE SHOOTING

Issue	Resolution
Actuator is not strong enough to release the latch.	Switch to using a solenoid to release the latch.
Door opens when in rain	Make sure that the sensor is installed correctly and that the black wire is connected between the sensor and the ECU.
Door doesn't work when touched	Confirm all connections. Touch in the center of the sensor. Ground the Green Remote-Open wire. If it triggers the actuator when the car is unlocked, but not when locked, then the main board is installed correctly. Check your installation and wiring of the sensor board. If it doesn't recheck the ECU wiring.
Door triggers when I roll down a window	If you are using a Moving-window sensor, make sure that the Brown and Orange wires are connected to your window motor up and down signals.
Door triggers randomly when not touched	If you are using a Moving-window sensor, make sure that the clear adhesive sticker is at least 2 1/2" above the window seal.
Door triggers when I hit the switches on my air suspension system.	There is noise from the relays in the controller. Install a 0.1uf capacitor across the power and ground on the air ride controller.
Door triggers when my air suspension compressor stops.	There is noise from the air suspension equipment. Install a 0.1uf capacitor across the pressure switch output and ground.

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