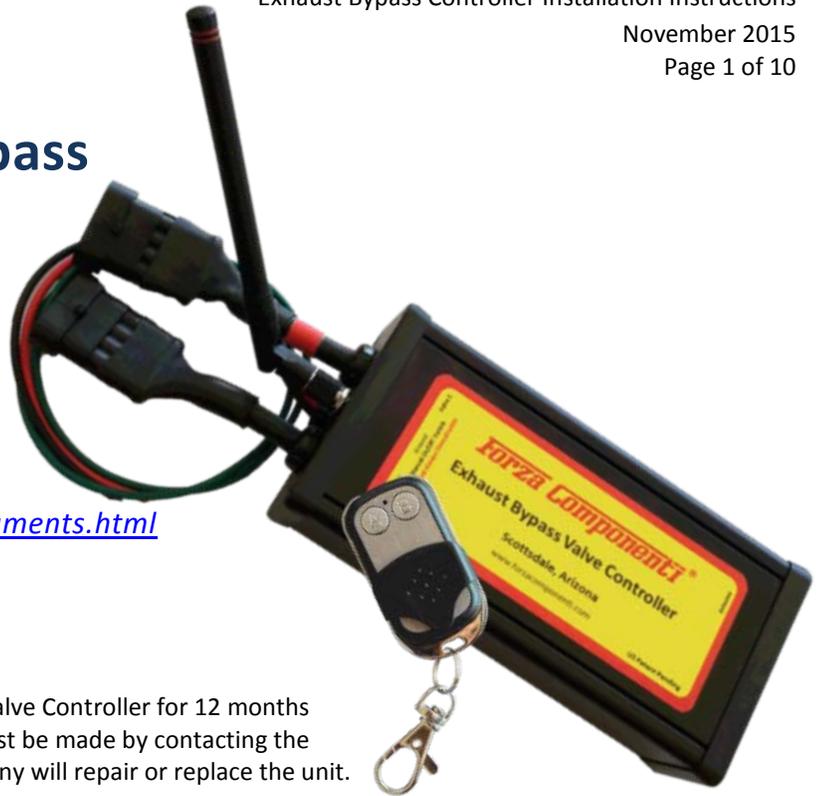


Model B1 Exhaust Bypass Valve Controller Installation Instructions

*Note: These instructions
are available on our Web Site*

<http://www.forzacomponenti.com/documents.html>



Disclaimers and Warranty

Warranty

Forza Componenti warrants the Exhaust Bypass Valve Controller for 12 months after receipt of the unit. Any warranty claims must be made by contacting the company. During the warranty period, the company will repair or replace the unit. User is responsible for return shipping costs.

The Exhaust Bypass Valve Controller Module and Cables are designed to withstand high temperatures; however, the user must install the controller in a location that is shielded from direct heat of the exhaust system. The ambient temperature of the controller installation location should not exceed 105° C (221° F). Cable outer jacket and inner insulation use TPE high temperature material rated for continuous use up to 105° C. However care should be taken to route and secure the cables so they are not in contact with or exposed to the direct heat from the exhaust system components. We do not assume any guarantee for components that are damaged due to faulty installation.

Within the first 15 days after receipt of the unit, if the buyer wishes to return the unit, Forza Componenti will provide a full refund of the purchase price. Contact Forza for a return authorization. Upon receipt of the unused, un-installed unit, a refund will be given. User is responsible for return shipping costs.

Disclaimers

Every effort has been made to assure that the Exhaust Bypass Valve Controller will be compatible with the vehicle that the unit is to be installed. The user is responsible for assuring that installation and use of the Exhaust Bypass Valve Controller is compatible with the vehicle exhaust and engine management system. Forza Componenti shall not be responsible for any damages to the host vehicle arising out of the use of, or otherwise related to, the Exhaust Bypass Valve Controller.

Users are responsible for ensuring their own compliance with legal requirements concerning noise abatement in their area. Forza Componenti assumes no responsibility should your vehicle become out of compliance with any relevant laws and regulatory requirements due to installation of the Exhaust Bypass Valve Controller.

Caution on Usage

Usage on vehicles such as the Ferrari F355 may have exhaust system design characteristics where the use of the exhaust bypass controller could cause damage to the vehicle exhaust system. Review guidelines on the Forza Componenti web site for additional details.

The Exhaust Bypass Valve Controller

The Exhaust Bypass Valve Controller allows the driver to remotely control the exhaust bypass valves by intercepting the signal to the vacuum solenoids. The controller will either open the circuit to the vacuum solenoid valves or apply a +12V to the vacuum solenoid valve to open the bypass valves. Closing the circuit or dropping the +12V will then return control of the bypass valves to the vehicle's ECU.

You can open the exhaust valves at any time using either a remote control transmitter or using a manual on/off switch than you can install inside the passenger compartment. Using the same remote control transmitter or manual switch, you can return control of the bypass valves to the vehicle's ECU so that at lower vehicle speeds or engine RPM, you will have reduced noise from your exhaust system.

You also have the option of keeping the exhaust bypass valve Always Closed. There are limitations using this option. Refer to pages later in the document.

Installation does not require any wiring modifications or splicing into the car's electrical system. The unit is installed using the plug and play principal. If you are comfortable performing simple maintenance tasks on your car, you should not have any problems installing the kit yourself. If you are not comfortable performing maintenance tasks on your car, you should consult with your technician who performs the service on your vehicle.

Exhaust Bypass Valve Controller Kit Contents

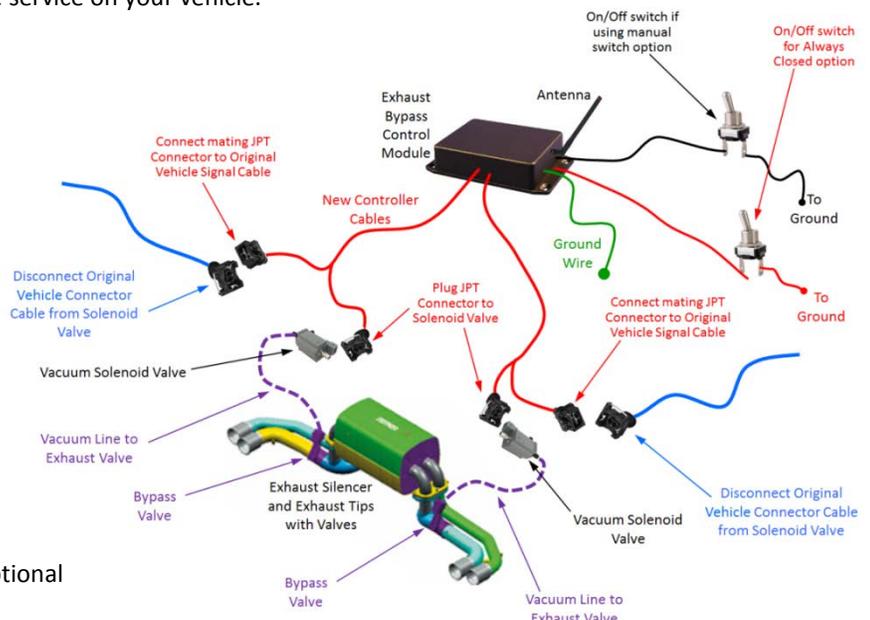
Included in the kit

- Remote Controller Unit
- Two wiring harnesses (one short and one long)
- One Remote control transmitter (extra transmitters available)
- Antenna
- 3M Dual Lock Mounting Tape
- Nylon cable ties
- Plastic hole plug (see

Not included in the kit

The following items are not included in the kit, but will be required if you plan on using the optional functions of the controller

- A manual switch if you plan to use it instead of the remote control transmitter
- Manual switch for Always Closed Option (you can combine these two functions by using a SPDT, 3-position switch. See Manual Switch Options on page 9.



Installation Steps

Follow these steps in the order presented.

1. **Check the vehicle's exhaust bypass valves function and type** (*Do not skip this step*)
2. Decide if using either the included remote transmitter or a manual switch.
3. Configure the Bypass Controller Module and attach the antenna
4. Determine mounting position for the Control Module
5. Install the electrical control cables and connect to the Control Module. Install and connect the manual control switch if you choose to use this option.
6. Verify operation of Controller
7. Complete the installation

Check the Vehicle's Current Exhaust Bypass Valve Functionality **DO NOT SKIP**

Do not skip this step. Ensure that your vehicle's exhaust bypass valves are functional. We have seen occurrences where the vehicle's exhaust bypass valves had been removed or the exhaust bypass valves were not functional (e.g., vacuum lines were disconnected). If the exhaust bypass valves are not functioning on your vehicle, find out now before you go through the effort of installing the controller. This step should take less than a couple of minutes and could save you a lot of time later.

Ensure that the exhaust bypass valve(s) are functioning.

- Find the exhaust bypass valve(s) on your vehicle.
- With the engine off and no vacuum available to the exhaust valves, observe the default position – Open or Closed. Most vehicles the default position is open, but some cars (e.g., Ferrari F355 and 575M) the default position is closed.
- Start the car. The valves should close once the engine has achieved a steady idle. This may take a few seconds.
Note: This version of the controller will only function with bypass valves that close at engine idle. Some vehicles (e.g., Chevy Camaro), the valves remain open at engine idle and close when the vehicle is placed in gear and moving off from a stand still.
- If the valve(s) do not perform as designed, you will have to determine the cause. It may be a faulty vacuum line, a faulty valve or vacuum solenoid or an electrical connection to the vacuum solenoid that may be at fault. Correct the situation before proceeding.

Which Type of Exhaust Bypass Valves Do You Have

When you observed the exhaust bypass valves, with the engine off and no vacuum present, note if ...

- If they were open ... we call this type a Mode 1 or M1 valve (the most common)
- If they were closed ... we call this type a Mode 2 or M2 valve

Decide on Remote Transmitter or Manual Switch Operation

The controller can be used with either the included remote transmitter or with a manual switch that you would provide. There are pros and cons to both.

Device	Advantages	Disadvantages
Remote Control Transmitter	<ul style="list-style-type: none"> • Installation is easier as no additional wire to route to passenger compartment • Valve operation defaults to vehicle ECU in the event of power disruption (e.g., turning the ignition off) 	<ul style="list-style-type: none"> • Potential loss of remote transmitter • Battery replacement from time to time
Manual On/Off Switch	<ul style="list-style-type: none"> • Long term reliability as fewer components to fail • Ability to operate the valves is always at hand ... separate transmitter not required. 	<ul style="list-style-type: none"> • Requires routing a control wire into the passenger compartment to the switch intended for use.

The controller is shipped with the remote transmitter enabled. If you wish to use a manual On/Off Switch, you will need to provide the switch and change the controller configuration which is described below.

Configure the Exhaust Bypass Valve Controller

The controller module should be pre-set to use the remote transmitter option. The mode will be pre-set to your specific vehicle if known at time of sale. If the mode for your vehicle is not known, it should be set to M1. Any changes to the configuration will require that you access the configuration switches located inside the controller module.



Set the Operation and Mode Switches

If you need to set the operation or mode switched, remove the end panel from the controller module.

- Set the Operation for either **Manual Switch** or **Remote Transmitter Operation**
- Set the Mode switch to either **M1** or **M2** ... refer to: *Which Type of Exhaust Bypass Valves Do You Have* on page 3.
- Re-install the end panel on the controller module when you are finished.

Attach the RF Antenna

The RF antenna attaches to the small SMA connector on the end panel of the controller module. Thread the antenna on the connector taking care to not over tighten. We recommend the use of thread-locking compound or a dab of silicone sealant on the threads to prevent the antenna from vibrating loose.

Determine and Temporarily Position the Control Module

Find a suitable location for the Controller Module. On rear engine cars, we suggest you locate a place in the engine bay as cool as possible away from the exhaust system components. Find a space where you can secure the control module without interfering with any vehicle panels that may have been removed to access your proposed installation location. Temporarily locate the control module in this location.

Guidelines for Installation

- Although precautions have been made in the assembly of the Control Module to withstand the elevated temperatures in the engine bay, you should position it as far from heat sources as possible (e.g., exhaust manifold, catalytic converters, silencer).
- Protect the control module from water as much as possible. If you believe that excessive water is likely to be splashed onto the control module, we suggest that you apply some silicone sealant around the cable grips to minimize the possibility of water getting inside the control module.
- The wiring harnesses have high temperature insulation (continuous rating up to 105° C), however you should route them away from direct heat sources where temperature may exceed 105° C.
- Check our website for vehicle specific installation tips ... <http://www.forzacomponenti.com/vehicles.html>

Connect the Wiring Harnesses

Locate the Exhaust Bypass Vacuum Solenoid Valve(s)

Follow the vacuum line(s) from the exhaust bypass valves back and you will find the Exhaust Bypass Vacuum Solenoid Valve(s). Once you have located the solenoids, disconnect the electrical connector from each solenoid.

On Ferrari's, the connector for the vacuum solenoids is called a JPT (Junior Power Timer) connector. Refer to photo.



Connect the Vacuum Solenoids to Control Module

- Connect the new module connectors to both the cable end you disconnected and to the solenoid end.
- Route the wiring harnesses to the control module and secure with cable ties.
- Plug in the connectors to those on the control module. **Note: If your vehicle has only a single vacuum solenoid valve, connect that solenoid valve to the red marked connector.** If you wish, you can then remove the unused connector and install the included plastic hole plug.

Connect the Ground Wire, the Switch Wire(s) and RF Antenna

Check Electrical Polarity

- Connect the green ground wire on the control module to any nearby ground location. Note, not all screws are good grounds. Verify you have a good ground.
- Turn on the ignition and start the engine. Check that the two LEDs visible through the clear windows in the end panel are illuminated indicating correct electrical polarity. If one or both of the LEDs are not illuminated, refer to *Electrical Polarity* on page 7 to correct polarity. Turn off the ignition.



Connect the Manual Switch Control Wires if Applicable

If you intend to use the **Manual Switch** or the **Always Closed** option, you must provide a manual On/Off for these options.

If you intend to use the **Manual Switch** option, splice into the black wire. Connect the wire to one of the switch contacts and the ground the other switch contact.

If you wish to use the **Always Closed** option, splice into the red wire. Refer to additional instructions, *What is the “Always Closed” Option* on page 5.



Check the Operation of the Controller

Once you have determined that you have correct polarity ...

- With ignition off, the exhaust valves should be in the same initial position you noted earlier.
- If using a manual switch in the passenger compartment, verify the switch is in the open (off) position.
- If you have connected the Always Closed option to a switch, verify that switch is in the open (off) position.
- Start the car ... with the engine running, the valves should close as before.
- If using the remote control transmitter ... The left button should open the valves and right button should close them
- If using a manual switch ... Closing the switch (on position) should open the valves and opening the switch (off) should close them
- If valves do not open when you use the remote or the manual switch, proceed with *Troubleshooting* on the page 6.

What is the “Always Closed” Option?

The Always Closed option will keep the exhaust bypass valves closed at all times. In normal conditions, leaving the vehicle under ECU control and maintaining lower engine RPM will generally close the exhaust bypass valves. However, there may be situations when you may want to completely disable the ECU from opening the valves. For example, if you track the vehicle and there are noise limitations in place at the track, the Always Closed option should help meet the noise requirements at the track as it will prevent the vehicle ECU from opening the valves at high engine RPM. Another usage example is gentle highway cruising and you wish to quiet the car.

Limitations

The Always Closed option has usage limitations. It is only available for vehicles that use the Mode 1 operation (Refer to *Which Type of Exhaust Bypass Valves Do You Have* on page 3. When Always Closed is enabled, all other functions will be disabled. You will not be able to open the valves or return control to the ECU until you disable the Always Closed option.

Connecting and Operating the Always Closed Option

Electrical Connection

Splice into the red wire on the controller module and place a switch or an electrical disconnect in-line. Connect the opposite side of the switch or disconnect to ground as you would do with the black wire for a manual switch.

- Before enabling the Always Closed option, turn the engine off. If you are using a manual control switch instead of the remote transmitter, make sure the manual control switch is set for ECU control – switch is in the open position.
- Close the “Always Closed” circuit using a switch or electrical disconnect. Once the circuit is closed, **DO NOT** perform any other operations with the either the remote transmitter or the manual control switch. Doing so may lead to unpredictable results

Complete the Installation

- Secure the controller module using cable ties, screws or adhesive strips.
- Secure the cables you routed from the vehicle's vacuum solenoids using cable ties. Ensure the cables are not directly exposed to heat sources such as exhaust pipes, headers, etc.
- Replace any panels and other parts you may have removed from the car.

Troubleshooting

Indication	Possible Causes	Solution
<p>Pressing remote button has no effect.</p> <p>While pressing the button (or moving the manual switch) you should be able hear the relays opening or closing inside the controller module.</p>	<ul style="list-style-type: none"> • Vehicle engine should be running to assure that power is available to the controller • Ground wire not attached to good vehicle ground. • The controller module is configured to use the manual switch option. • Vehicle's connector polarity is reversed with respect to the controller module. LEDs not illuminated. • The remote transmitter is not programmed to the controller module. • If you have only one solenoid valve, you must connect the cable to the red marked connector 	<ul style="list-style-type: none"> • Start the vehicle's engine. • Disconnect ground wire from current location and connect to a ground point that you are sure provides continuity. • Check the operation switch. If necessary, change the configuration on the controller module to use Remote option. • Reverse connector polarity inside the controller module. Refer to <i>Electrical Polarity</i> on page 7. • Perform the steps to program the transmitter to the controller module receiver. • Make sure the single cable is connected to the connector with the red marking on the boot.
<p>The relays appear to be functioning within the controller module (you can hear them opening and closing), however, the valves do not open.</p>	<ul style="list-style-type: none"> • Your vehicle may require the application of +12V to open the valves (e.g., Ferrari F355). • The controller module is configured for Mode #2 operation, but the vehicle requires Mode #1. • One of the cable connections is not secure. • The Always Closed switch is turned on. • Vacuum lines may be disconnected to the exhaust bypass valves 	<ul style="list-style-type: none"> • If the controller is set to Mode #1, change it to Mode #2. • If the controller is set to Mode #2, change it to Mode #1. • Check the cable connections. Make sure a good connection is made. • If you have installed an Always Closed option, check that it is turned disabled. • Check that vacuum lines are all connected. Check that the exhaust bypass valves are functioning .
<p>The manual switch does not open the valves.</p>	<ul style="list-style-type: none"> • The controller module is configured to use the Remote option. • The manual switch is not connected properly. • Vehicle's connector polarity is reversed with respect to the controller module. • The Always Closed circuit is enabled. 	<ul style="list-style-type: none"> • Change the configuration of the controller module to use Manual option. • Check continuity of the wiring to the manual switch. Make sure the ground side of the switch is connected to a good ground point on the car. • Reverse connector polarity inside the controller module. Refer to <i>Electrical Polarity</i> on page 7. • If you have enabled the Always Closed option. Check that it disabled.

Indication	Possible Causes	Solution
The always closed option does not close the valves.	<ul style="list-style-type: none"> Your car requires Mode 2 operation and the mode switch is set for this position. The always closed option functions only with Mode 1 The manual switch for the Always Closed option is not connected properly. You have enabled the remote transmitter or the manual switch to “open” the valves while attempting to “close” the valves with the Always Closed option. 	<ul style="list-style-type: none"> You cannot use the Always Closed option in Mode 2 Check continuity of the wiring to the Always Closed circuit. Make sure the ground wire is connected to a good ground point on the car. You cannot use the manual switch or the remote On/Off switch when enabling the Always Closed option. Set the manual switch to the open position (switch is OFF and valves are closed) or press Button B on the remote transmitter (valves closed) if you are using the Always Closed option.

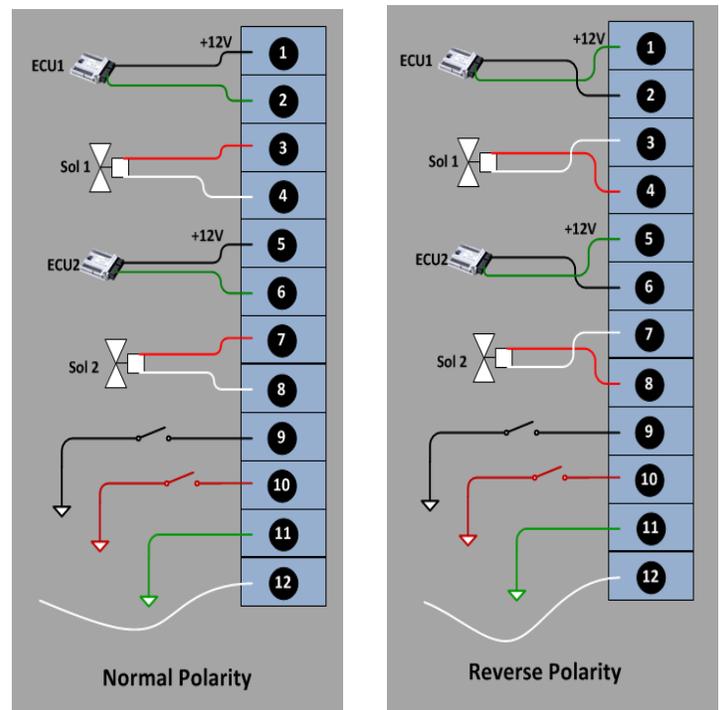
Electrical Polarity

The electrical polarity at the connector to the vacuum solenoid is not standardized. For the sake of discussion, we refer to the two possibilities as “Normal” and “Reverse” polarity.

Changing Electrical Polarity

With the vehicle ignition on and the engine running, two LEDs on the flat panel plate should be illuminated. If not, you may need to reverse the incoming wires on the control cables.

- Disconnect power from the controller module
- Remove the lid from the controller ...
 - Remove end panel with the two clear circular view windows
 - Remove top two screws of the opposite end panel
 - Slide module lid off
- Locate the terminal block nearest the connector cables
- Using a small screwdriver, loosen the terminals securing the first eight wires (Terminal # 1 – 8)
- Reverse the black & green and the red & white wires as shown in the illustration.
- Replace the lid of the controller and reconnect the Controller Module and verify LEDs are on with ignition on.



Vehicle	Mode Switch Position	Wiring Polarity
Ferrari F355	M2	Reverse
Ferrari 360	M1	Normal
Ferrari F430 (all)	M1	Normal
Ferrari 458 (all)	M1	Reverse
Ferrari 575M	M2	Reverse
Ferrari 599	M1	Reverse

Vehicle	Mode Switch Position	Wiring Polarity
Ferrari 612	M1	Reverse
Ferrari F12 / FF	M1	Reverse
Ferrari California	M1	Reverse
Maserati GT or GC	M1	Reverse

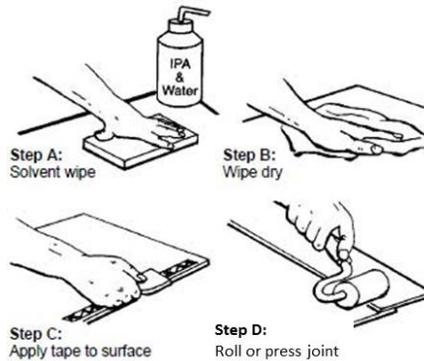
3M Dual Lock Fastening Tape

Included in your kit is enough Dual Lock fastener material to make eight squares approximately 25mm each

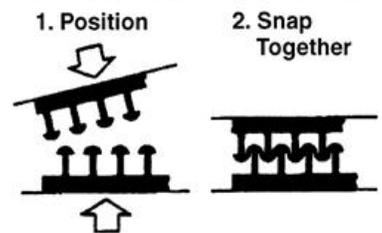
- 3M TB3560 Type 250 Dual Lock Re-closable Fastener
- Rated for use in hot environments up to 105 ° C
- Very good holding power and able to release and re-use.

Directions for use

- Thoroughly clean both surfaces of dirt and oil using a solvent that does not leave residue such as isopropyl alcohol.
- Apply Dual Lock to both substrate surfaces.
- We recommend you cut the strips into 8 small squares. Mount a square at each of the corners of the controller box with its mate on the mounting surface. An easy way to align the piece on the controller with the piece on the mounting surface is to position the Dual Lock on the control unit, gently press the mating piece on and then position the controller in place and gently apply pressure to stick the mating piece in place on the mounting surface. This will assure proper alignment of the two Dual Lock pieces. Once positioned, you can take the controller off and then press the piece on the mounting surface in place to assure a firm hold.
- Press each mounting piece on to the substrate and allow to rest for about an hour.
- Press the controller in place until you hear or feel a click.



Dual Lock Fasteners Attachment



Press until you hear or feel a "click"

Adding or Replacing Remote Transmitter

If you are adding or changing the key fob remote, you must program the control module receiver unit to recognize the new remote transmitter.

- Remove the lid from the control unit.
- Find the program button on the printed circuit board.
- Turn on the vehicle ignition to get power to the control unit (you may have to start the engine to ensure power to the controller)
- While holding the key fob, momentarily press the "learn button" on the circuit board. The LED should flash.
 - If you press and hold the learn button for a few seconds, you will erase all memory of any transmitters. If this occurs, then you must re-program all transmitters.
- Immediately after pressing the learn button, while the LED is flashing, press the left button on the remote transmitter. The LED on the control unit should go out.
- Your transmitter should now be programmed to the control module.
- Repeat for additional transmitters.
- Verify operation of all transmitters.
- Replace the control unit cover and end panel.



Manual Switch Options

Using a SPST On-Off Switch to Control the Always Open Option ONLY

A SPST switch can be used, but for the Always Open option only. Several switch options are available to you. Ensure that the switch you select is NOT a momentary-On type. Examples of suitable SPST switches include:

- Ferrari On/Off switch (e.g., Sport switch)
- Miniature toggle or rocker switch installed in dash, center console or in ash tray
- Push button switch can also be installed anywhere
- Generic switch for existing blank panel location



Pushbutton Switch



Miniature On/Off Toggle Switch

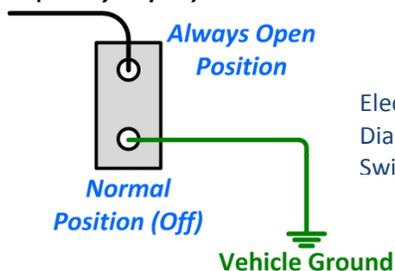


Ferrari Sport Switch



Miniature Toggle Switch mounted in ash tray

To Black Wire on Controller Module (Always Open)



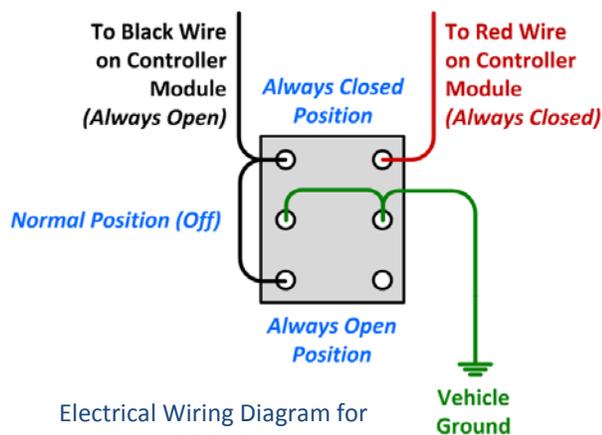
Electrical Wiring Diagram for SPST Switch



NKK LW3123-F2CF-A DPDT On-Off-On Rocker Switch w/ Black Bezel

Using a DPDT On-Off-On Switch to Control both the Always Closed and the Always Open options.

If you intend to use a switch for both the Always Open and Always Closed options, use a DPDT On-Off-On switch. Connection for the DPDT switch to manage both Always Closed and Always Open should be wired as shown in diagram below.



Electrical Wiring Diagram for DPDT Switch



DPDT On-Off-On Rocker Switch



The NKK switch (above) is an exact fit for panel switch cut-outs in the Ferrari 360 and F430. E.g., NKK switch installed in the center console of a 360 Modena



DPDT On-Off-On Toggle Switch

Replacing the Strain Relief Bushing with Plastic Hole Plug

Enclosed is a hole-plug to replace the strain relief bushing. If you have only a single solenoid valve (e.g., Ferrari F355, Ferrari 599, BMW), then you will only use one of the connectors on the module – the one with the red band. The other connector will not be used. There is no problem to leave it un-connected, but if you wish, you can remove the unused connector and insert the enclosed hole-plug.

To remove the unused connector:

- Remove the controller module top.
- Using a small screwdriver, loosen the screws on the terminal block and remove the four wires from the terminals 5 through 8 on the circuit board.
- Use a plier to squeeze the strain relief bushing to release it from the enclosure side panel and remove the pigtail connector. Snap the hole-plug in place of the strain relief bushing and replace the controller top when finished.



Strain Relief Bushing



Hole Plug