



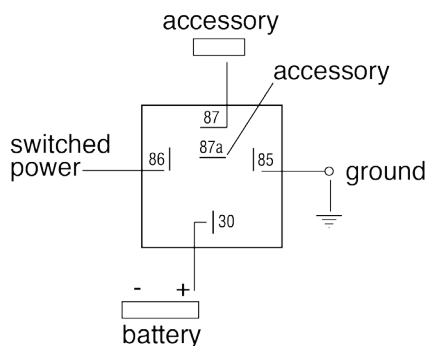
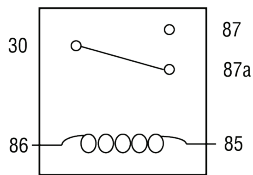
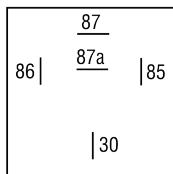
# Automotive Relay Diagram

## Relays

Relays are switches controlled by electrical power, like another switch, computer or control module. The purpose of a relay is to automate this power to switch electrical circuits on and off at particular times. The real benefit behind a relay is more than automation. They also provide the ability to switch between two circuits within the same relay.

12V DC relay switches are the best solution for full voltage applications, as they allow a low current circuit to control a high current circuit, like a vehicle's horn, headlights, auxiliary lamps, fan motors, blower motors and countless pieces of equipment existing on vehicles today.

Del City stocks a variety of relays for automotive applications, engineered to deliver superior performance over a long life. Each of our relays comes with a diagram to show exact circuit and voltage specifications.



## Looking Inside a Relay

If we were to open a relay, you would see an electromagnet coil, the contact, and a spring. The spring holds the contact in the at rest position until a current gets passed through the coil activating the relay. The coil then generates the magnetic field which moves the contact to the opposite pin.

## Numbers of a Relay

Looking at the diagram, we see the pinout of a typical 12V relay. Note that each pin is numbered. 85 and 86 are the coil pins while 30, 87, and 87a are the switch pins.

87 and 87a are the two contacts to which 30 will connect. If the coil is not activated, 30 will always be connected to 87a. Think of this as the relay in the Normally Closed (OFF) position. When current is applied to the coil, 30 is then connected to pin 87. The great thing about relays is that you can set 87 and 87a to be either open or closed, depending on how you need the switch to work. If you want a closed relay, you will want to wire to 87a. If you want a normally open relay, you will wire to 87.

Although most relays are labeled on the bottom, for easy identification to the power source, you can always find the 30 pin set center and perpendicular to the output pins.

## Output for a Relay

Realizing that 85 and 86 are the coil pins, these pins will be transferring the current through their coil. One of these will be used to ground your current, while the other will be connected to a switched power source.

87 and/or 87a will be connected to your controlled accessories that you wish to turn on and off with your relay.

30 will then be the pin connected to your battery power.

## Change Over Relays

A change over relay switches current from one accessory to another. Change over relays can be used as a normally open relay, normally closed relay, or can switch between both depending on your applications needs.

## Normally Open Relay

A normally open relay controls one single accessory instead of switching between two. The relay will only have the 87 contact; there will be no 87a accessory contact.

## Time Delay Relays

The delay on release time delay relay is an adjustable relay that can maintain a power supply for as short as 2 seconds, or for as long as 15 minutes after power is switched off. The delay on operate relay delays supplying power to the accessory for 2 seconds to 15 minutes. This process is due to the solid state timing circuit with variable resistor within the relay, allowing for a time delay to take place.