What is a Relay?
A relay is an electrically operated switch. They commonly use an electromagnet (coil) to operate their internal mechanical switching mechanism (contacts). We stock a large range of relays & holders all available for purchase directly from our website.

What do the electrical specifications of a relay mean?
Basic relays feature electrical ratings for both the coil and the internal switching contacts. The coil voltage rating is the voltage required for the coil to operate correctly. The switching circuit of the relay also features a voltage and ampere rating. This is the maximum rating of the switch contacts and should NOT be exceeded. Double throw relays often have 2 x switch electrical specifications. One for the normally open terminal, the other for the normally closed terminal. ie. N/O: 35A at 14Vdc, N/C: 20A at 14Vdc.

Why use a Relay?
Relays allow a low current circuit to control one or more higher current circuits. Relays provide these benefits;
1. Thinner cables can be used to connect the control switch to the relay thereby saving weight, space and cost.
2. Relays allow power to be routed to a device over the shortest distance, thereby reducing voltage loss.
3. Heavy gauge cable only needs to be used to connect a power source (via the relay) to the device.

Why are Protection Devices used in a Relay?
Relays can produce a large voltage spike when they are switched off due to the coil de-energising. Resistors or diodes are sometimes fitted across the coil of the relay to stop/reduce these spikes travelling back into the control circuit and damaging sensitive components. Resistors are more durable than diodes, but not quite as efficient at eliminating voltage spikes. You need to assess the sensitivity of the components in the control circuit when deciding if / what type of protection is required.

What is the different between 4 or 5 pin Relays?
4 Pin Relay
4 pin relays use 2 pins (85 & 86) to control the coil and 2 pins (30 & 87) which switch power on a single circuit. There are 2 types of 4 pin relay available; normally open or normally closed. A normally open relay will switch power ON for a circuit when the coil is activated. A normally closed relay will switch power OFF for a circuit when the coil is activated.

5 Pin Relay
5 pin relays provide 2 pins (85 & 86) to control the coil and 3 pins (30, 87 & 87A) which switch power between two circuits. They have both normally open and normally closed connection pins. When the coil is activated, power will be switched from the normally closed pin to the normally open pin.
What are ISO Relays?
ISO relays are designed for use in the automotive industry and adhere to a standard pattern for their electrical terminals. The newer ISO 280 relays use a smaller pin terminal that is 2.8mm wide and can be used in compact power distribution units and holders.

Standard ISO Relays
We sell both 4 pin normally open (SPST) and 5 pin change-over (SPDT) relays with resistor protection in either 12V or 24V ratings. Should you require diode protection, please contact sales.

New ISO 280 Relays
We sell both 4 pin normally open (SPST) and 5 pin change-over (SPDT) relays with resistor protection in either 12V or 24V ratings. Should you require diode protection, please contact sales.
Sample Wiring Diagrams for a Normally Open Relay

**Example 1.** 4 pin (normally open) relay with the switch on the positive side of the control circuit.

![Diagram of Example 1](image1)

**Example 2.** 4 pin (normally open) relay with the switch on the negative side of the control circuit.

![Diagram of Example 2](image2)

Note: These circuits have been simplified to illustrate the function of a relay and therefore exclude fuse protection that would be required. Relay coil terminals have no polarity unless the relay coil is protected by a diode (inside the relay) in which case the coil terminal wired to the diode’s anode must be connected to negative.

Relay Holders

We sell a wide range of holders for ISO and ISO 280 relays that can fit one or multiple relays. We also have a large range of power distribution units that can be fitted with a mixture of relays, fuses & circuit breakers.