

Understanding Relays

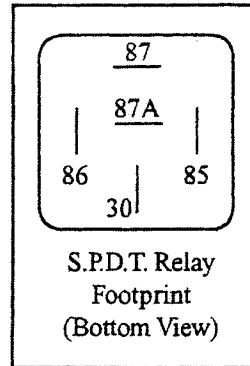
AU-7, AU-Pot, & AU-Bosch

One of the biggest problems that installers have is that they don't really understand how relays work. This portion of our book is designed to help you better understand the basics of relays and how they function.

Note: The following refers only to **Single Pole Double Throw (S.P.D.T.)** relays only. Although other types and styles exist, only S.P.D.T. relays will be discussed here. These relays will have **pin numbers 85, 86, 30, 87, and 87A** only.

The concept of a relay is really simple if you break it into two parts:

The **first** part is the coil (see pins 85 and 86 below). A coil is a winding of wire that, when energized, creates a magnetic field. For our relays, this magnetic field is used to swing an arm (armature) from its resting point (pin 87A) to (pin 87). Typically, when a relay coil is energized, it will draw between 125 and 150ma. Contact ratings for the **Potter - Brumfield** relays are **40 amps** between 30 and 87A and **30 amps** between 30 and 87. **Bosch** ratings are **30 amps** between pin 30 and 87A and **20 amps** between 30 and 87.



The **second** part is the contact side. This consists of a common point (pin 30) connected to our armature, and that in turn rests in contact with pin 87A (without the coil energized) creating a normally closed contact between pin 30 and pin 87A (see Fig. 1 below). When the coil is energized, the armature moves, from its resting position on pin 87A, to a contact on pin 87 (the normally open contact) completing a path for current to flow from pin 30 to pin 87 (see Fig. 2 below).

Figure 1
Relay at Rest

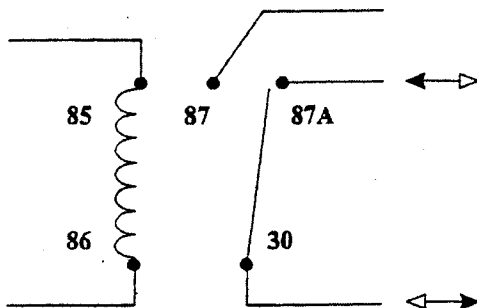
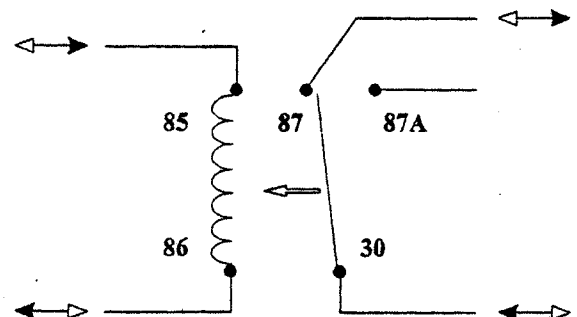


Figure 2
Relay with Coil Energized



Using the principles above, the following pages contain examples of practical applications using relays to solve alarm installation problems.