

Typical Applications

Magnetic circuit breakers protect wiring, motors, generators, transformers, solid state systems, computers, telecommunications systems, micro-processors, peripheral and printing devices, office machines, machine tools, medical and dental equipment, instrumentation, vending machines, industrial automation and packaging

systems, process control systems, lamps, ballasts, storage batteries, linear and switching power supplies, as well as marine control panels and numerous other applications.

Generally, wherever precise and reliable circuit protection is required, a magnetic circuit breaker is specified.

What Makes a Magnetic Circuit Breaker Trip

The most common magnetic circuit breaker configuration is called "Series Trip". It consists of a current sensing coil connected in series with a set of contacts. (Fig. 1)

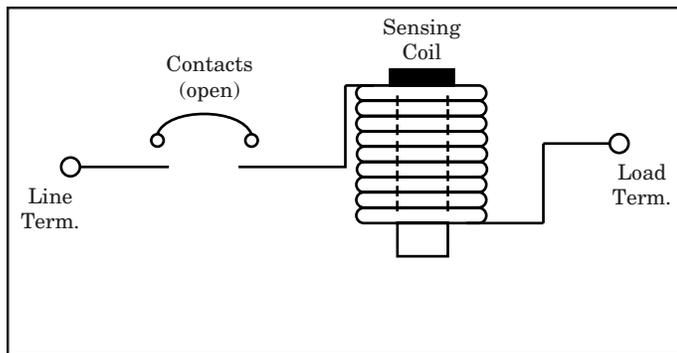


Figure 1

Inside the coil is a non-magnetic delay tube, housing a spring-biased, moving, magnetic core. An armature links the contacts to the coil mechanism, which functions as an electro magnet. When the contacts are open, there is no current flow through the circuit breaker, and no electro-magnetic energy is developed by the coil. When the contacts are closed, current flow begins. (Fig. 2)

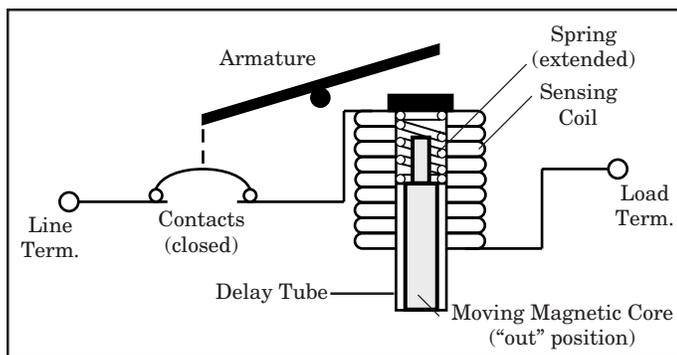


Figure 2 - Rated Current or Less

As the normal operating or "rated" current flows through the sensing coil, a magnetic field is created around that coil. When the current flow increases, the strength of the

magnetic field increases, drawing the spring-biased, movable, magnetic core toward the pole piece. As the core moves inward, the efficiency of the magnetic circuit is increased, creating an even greater electro-magnetic force. When the core is fully "in", maximum electro-magnetic force is attained, the armature is attracted to the pole piece, unlatching a trip mechanism, thereby opening the contacts. (Fig. 3)

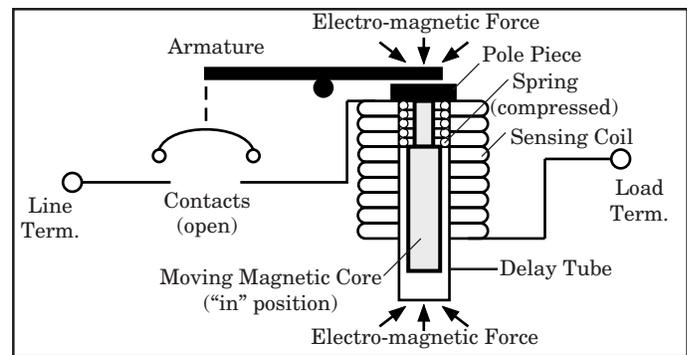


Figure 3 - Moderate Overload with Induced Delay

Under short circuit conditions, the resultant increase in electro-magnetic energy is so rapid, that the armature is attracted without core movement, allowing the breaker to trip without an induced delay. This is called "instantaneous trip". It is a safety feature which results in a very fast trip response when most needed. (Fig. 4)

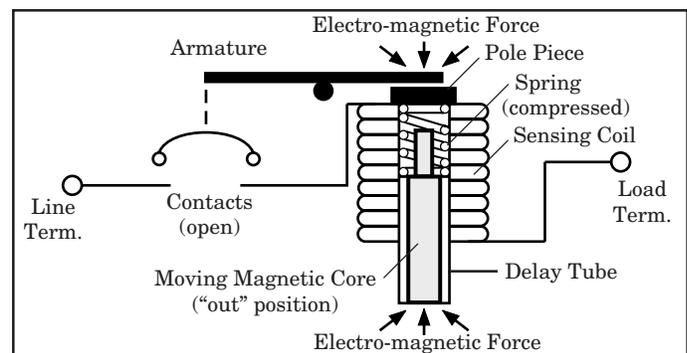


Figure 4 - Short Circuit Condition - No Induced Delay