FACULTY OF ENGINEERING & TECHNOLOGY

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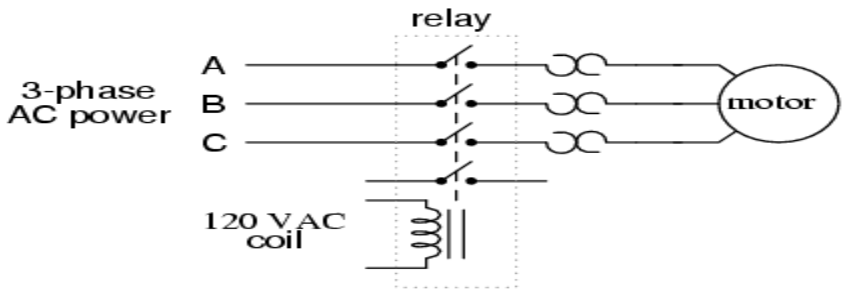
CONTROL SYSTEM COMPONENTS

Contactors

When a relay is used to switch a large amount of electrical power through its contacts, it is designated by a special name: contactor. Contactors typically have multiple contacts, and those contacts are usually (but not always) normally-open, so that power to the load is shut off when the coil is de-energized. Perhaps the most common industrial use for contactors is the control of electric motors. The top three contacts switch the respective phases of the incoming 3-phase AC power, typically at least 480 Volts for motors 1 horsepower or greater. The lowest contact is an “auxiliary” contact which has a current rating much lower than that of the large motor power contacts, but is actuated by the same armature as the power contacts. The auxiliary contact is often used in a relay logic circuit, or for some other part of the motor control scheme, typically switching 120 Volt AC power instead of the motor voltage. One contactor may have several auxiliary contacts, either normally-open or normally-closed if required.



CONTROL SYSTEM COMPONENTS

Saturable Core Reactors

Also known as magnetic amplifiers, saturable reactors use a DC control winding to control the flow of AC power in a circuit. By using a saturable reactor in the primary circuit of a power transformer, the output power to the load can be controlled. This is helpful for driving a variety of loads including motors, furnaces, and even lighting equipment. Because there are no fans or solid state devices, saturable reactors can operate in environments that would be harmful to silicon controlled rectifier power supplies due to high temperatures or unclean conditions. Magnetic Specialties can design saturable reactors to fit existing control schemes or if necessary supply new DC power supplies. For more information see our DC Power Supply page

Saturable core reactors application in magnetic amplifiers

The invention comprises a high frequency inductor filter apparatus coupled with an inverter yielding high frequency harmonics and/or non-sixty Hertz output. For example, an inductor/converter apparatus is provided that uses a silicon carbide transistor to output power having a carrier frequency, modulated by a fundamental frequency, and a set of harmonic frequencies. A filter, comprising an inductor having a distributed gap core material and optional magnet wires, receives power output from the inverter/converter and processes the power by passing the fundamental frequency while reducing amplitude of the harmonic frequencies