



COMPONENTS

SOLID STATE RELAYS

Solid state relays or semiconductor relays (also called SSRs) are semiconductor devices that can be used in place of mechanical relays to switch electricity to a load in many applications. They are purely electronic devices, normally composed of a low current control side and a high current load side (switching side).

General application - solid state relays can be used in any industrial situation where a relay is required.

Mounting choices for solid state relays are:

- PC Board
- Socket or Plug-in Style
- Bracket or Flange Mount
- DIN Rail

The following electrical specifications should be considered when choosing solid state relays:-

- AC input, DC input
- AC output, DC output
- Input (pick-up) voltage range
- Input (control signal) current range
- Maximum switching current
- Maximum switching voltage

EMI FILTERS

EMI filters consist of a circuit or device containing series inductive (load-bearing) and parallel capacitive (nonload-bearing) components, which provides a low impedance path around the protected circuit for high frequency noise.

EMI filters can be –

Single Phase - alternating current (AC) with a single output which may be center tapped for dual voltage levels.

Three Phase - alternating current (AC) with a single output which may be center tapped for dual voltage levels.

DC Or Direct Current (DC) - flows always in the same direction.
EMI filters can be module, desktop, or stand-alone.



COOLING FANS AND BLOWERS

Cooling fans and blowers are used in electronics, computers, telecommunications, appliances, refrigeration, and HVAC (heating, ventilation and air conditioning). The most important performance specifications for cooling fans and blowers include maximum airflow and maximum static pressure.

Cooling fans and blowers can be either -

Axial Fans are for relatively high flow rates and low pressures with flow parallel to axis of fan.

Centrifugal Or Radial Blowers are for relatively low flow rates and high pressures with flow perpendicular to blower axis. Air enters around center of the fan and exits around the outside.

Housing configurations can be unducted (open), or ducted (enclosed)

Motor types for fans are typically AC, brushless DC, and DC.

The rate of airflow required for a given temperature increase can be calculated by:-

$$V = (3.0 \times W) dt$$

Where

V = Airflow in M³/HR

W = Power loss in watts

dt = Allowed increase in ambient temperature

FLOAT (LEVEL) SWITCHES

Float/Level switches are used to detect liquid or powder levels, or interfaces between liquids. These level switches can be used either as an alarm device or as control switches, turning something on or off, such as a pump, or sending a signal to a valve actuator.

What makes float/level switches special is that they have a switched output and can be either electromechanical or solid state, either normally open or normally closed.

Float/Level switches can have displays that are analog or digital. Control for the devices can be analog with switches, dials and potentiometers; digital with serial communications for computer control.