

How is a solid state relay different from a mercury or electro-mechanical one?

A solid state relay has a few major differences from an electromechanical one. SSRs have no moving parts and are extremely fast switching. SSRs are generally designed to turn on/off power when the line voltage crosses 0, so there is a smaller surge and no arcing which is a major problem with electromechanical relays that leads to their failure. Due to the fact that SSRs use semiconductor circuitry to switch the current, there is some heat that must be removed from the relay due to an internal voltage drop. This heat is removed through the heat sink that is appropriately sized for the load being switched. Heat sink design and application is one of HBControls specialties and we have many innovative heat sink designs to solve this challenge. Since there are no moving parts and no arc, the expected lifecycle of a SSR is much greater than that of an electro mechanical model. With proper heat sink specification, billions of on/off cycles can be expected.

Another major advantage of solid state relays over other options is the ease in which SSRs can be used for proportional power control. SSRs by themselves or in conjunction with power control cards make some very attractive packages. Benefits include tighter control resolution, phase angle and time proportioned (Burst Fire) control, space savings, time savings and power savings.

Testing of an SSR is a bit different than testing an EMR. When the control signal is applied on the input side of the SSR, the output will not appear as a closed switch to a meter like an EMR would. An SSR should be tested while its output is connected to a voltage and load that are at least equal to its minimum voltage and current ratings. This can be accomplished with a dummy load such as a light bulb. If you have any questions about solid state relays, heat sinks or custom power assemblies, please do not hesitate to contact HBControls

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