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# Application of Surge Protection to Vacuum Contactors • Bulletin 1502

Product Data

Allen-Bradley Bulletin 1502 vacuum contactors have advantages such as high reliability, safety, and low maintenance, making them ideal for medium voltage switching duty. Early vacuum bottle designs had chop current levels up to 10 amps, which could result in large peak voltages on the load side of the interrupter, equal to the product of the chopped current and the surge impedance of the load. This problem has been solved by extensive testing of various contact materials. The vacuum bottles used in Allen-Bradley medium voltage contactors have very low chop current levels (0.4 to 0.8 amperes) which result in no harmful switching overvoltages.

No surge protection is required for transformer or capacitor switching, or for the vast majority of motor and generator applications. When controlling motors that are subject to frequent switching such as inching and jogging duty or low horsepower motors with very long cable runs, an R-C surge absorber should be applied. Absorbers are connected on the load side of the vacuum contactor, preferably at the motor terminals. Arc furnace transformers should use an R-C surge absorber between the vacuum contactor and the primary windings. A surge absorber is available to reduce the rate of rise of the switching transients for applications requiring suppression. The surge absorber may fit into some standard controller configurations, but some arrangements require additional space for mounting. Lightning arresters may be used to limit peak overvoltages on motor circuits.

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