"The Right Control
for your Application"

KB ELECTRONICS, INC.
12095 NW 39th Street, Coral Springs, Florida 33065 USA
(954) 346-4900 FAX (954) 346-3377

SUBJECT: IMPORTANT INFORMATION YOU SHOULD KNOW ABOUT FUSING FOR AC & DC DRIVES

This technical note explains the benefits of proper fuse selection when specifying and installing AC or DC Drives. There are two general applications for fuses:

Line Fusing for AC and DC Drives: The purpose of the line fuse is to prevent costly damage to the customer's equipment in case the AC or DC Drive's power bridge shorts. This fuse is not intended to prevent the Drives from failing, since it will only blow after the Drives have shorted. The line fuse is generally sized for 1.7 times of the full load current rating of the Drives. Depending upon the application a Normal Blow or Slow Blow fuse may be selected, however, a Quick Blow fuse might cause nuisance blowing.

Motor Fusing for DC Drives: The purpose of the armature fuse, if sized and used properly, is to protect both the power bridge and the motor from failure. It is important to remember that the DC Drive cannot cause an armature fuse to blow. Only a fault from the output wiring of the DC Drive to the motor or the motor itself can cause the armature to blow. Therefore, if the armature fuse blows, you can be assured that external influences were responsible. These might included but not be limited to; shorted armature leads, plug reversing, shorted motor, extreme settings of the Acceleration and CL circuits when used with high inertia loads. The armature fuse is generally sized for 1.5 times the motor's full load current rating. Using this value will prevent nuisance blowing. All DC Drives with current limiting should utilize an armature fuse. If a DC Drive is supplied without the current limiting feature, then only a line fuse is required, since the AC RMS and DC RMS currents are almost equal.

The armature and the line fuses will not necessarily protect the AC or DC Drive from failing if the drives are wired incorrectly. There are times when the person installing the control accidentally reverses the armature and line wires. In this case, although the power bridge may blow, the armature fuse would also be blown, indicating that the cause was external.

Please feel free to call us with any questions you may have.

Sincerely,
Richard Fritts