Rockwell Automation

Allen-Bradley

APPLICATION OF LINE REACTOR ON ISOLATION TRANSFORMER FOR 1336 PLUS AC DRIVE

In general, the 1336 PLUS is suitable for direct connection to an AC line of the correct voltage. Certain conditions can exist, however, that prompt consideration of a line reactor or isolation transformer ahead of the drive.

The basic rules to aid in determining whether a line reactor or isolation transformer should be considered are as follows:

1. If the AC source experiences frequent power outages or significant voltage transients, users should calculate the KVA_{max} (see formula below). If the source transformer KVA exceeds the calculated KVA_{max} and the drive is installed close to the source, it is an indication that there may be enough energy behind these voltage transients to cause nuisance input fuse blowing, overvoltage faults, or drive power structure damage. In these cases, a line reactor or isolation transformer should be considered.

$$Z_{drive}\ (\Omega / \phi) = \frac{V_{line\text{-}line}}{\sqrt{3} \times \text{Input Amps}}$$

$$KVA_{max} = \frac{(V_{line\text{-}line})^2 \times \%\text{Source Leakage (5-6\% typical)}}{Z_{drive} \times .01}$$

2. If the AC source does not have a neutral or one phase referenced to ground (see unbalanced distribution systems on page 2-3), an isolation transformer with the neutral of the secondary grounded is **highly recommended**. If the line to ground voltages on any phase can exceed 125% of the nominal line-to-line voltage, an isolation transformer with the neutral of the secondary grounded is **highly recommended**.

3. If the AC line supplying the drive has power factor correction capacitors that are switched in and out, an isolation transformer or 5% line reactor is recommended between the drive and the capacitors. If the capacitors are permanently connected and not switched, the general rules above apply.