Allen-Bradley

AC Drive Installation Considerations

Overview

This publication identifies important installation considerations for Allen-Bradley adjustable frequency AC drives.

Precautions

Qualified Personnel

ATTENTION: Only qualified personnel familiar with adjustable frequency AC drives and associated machinery should plan or implement the installation, start-up and subsequent maintenance of the system. Failure to comply may result in personal injury and/or equipment damage.

General

ATTENTION: To avoid an electric shock hazard, verify that the voltage on the bus capacitors has discharged before performing any work on the drive. Measure the DC bus voltage at the +DC and –DC terminals of the Power Terminal Block. Refer to the product-specific documentation for location. The voltage must be zero.

Reference Materials

For detailed information about your drive, including mechanical and electrical installation, programming, application considerations, troubleshooting, and related precautions, refer to the documentation that was packaged with your drive and additional publications available online at:
www.rockwellautomation.com/literature

Refer to Wiring and Grounding Guidelines for Pulse Width Modulated (PWM) AC Drives, publication DRIVES-IN001, for basic information on how to properly wire and ground Allen-Bradley drives.

Installation Considerations

Configure For Non-Solid Grounded Distribution Systems

Your drive may contain protective MOVs and common mode capacitors that are referenced to ground. Disconnect these devices from ground when installing the drive on any of the following non-solid grounded distribution systems:

- AC fed ungrounded
- Impedance grounded
- High resistive ground
- B phase ground
- Regenerative unit such as common DC bus supply & brake
- DC fed from an active converter

Measure Input Impedance

Do not install a drive on a power distribution system that is more than 10 times the drive kVA rating without adding impedance (line reactor or transformer) in front of the drive.

Measure Line-To-Line Voltages

Verify that the drive input voltage has an unbalance that is less that 3%.

$$\text{Unbalanced Percent} = \frac{(V_{max} - V_{min}) \times 100}{(V_{avg})}$$

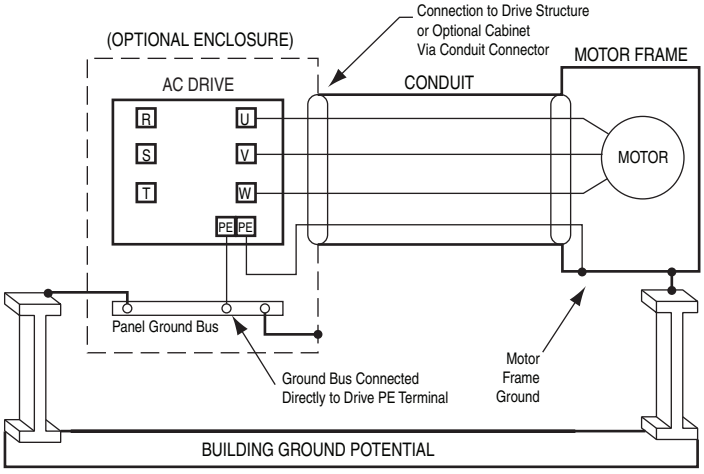
Where: Vmax = maximum line-to-line RMS voltage
Vmin = minimum line-to-line RMS voltage

$$V_{avg} = \frac{(V_{AB} + V_{BC} + V_{CA})}{3}$$

Where: VAB, VBC, VCA = line-to-line voltage

Ground The Drive

Ensure that drive grounding is properly connected as illustrated below. The ground wire return between the motor and the drive must be terminated directly to the drive PE terminal. Shielded cable is recommended but not always needed. Refer to the product-specific documentation for requirements.



Protect The Drive

Ensure that the proper sized input fuses or circuit breakers are installed prior to applying power to the drive.

Verify Your Installation

Ensure that all input and output power wiring is correctly wired and securely fastened prior to applying power to the drive.

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Power, Control and Information Solutions Headquarters

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444
Europe/Middle East/Africa: Rockwell Automation, Vorstlaan/Boulevard du Souverain 36, 1170 Brussels, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640
Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846

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