

Wiring for frequency converter cabinet



Overview

This video was associated with the source search result. Verify technical details against current product documentation and project requirements.

Key Takeaways

Wiring a frequency converter cabinet involves careful installation of main and control circuits, proper grounding, EMC compliance, and adherence to safety standards. Main Circuit Wiring

The main circuit connects the power supply to the frequency converter and the motor. Key steps include:

- **Correct Phase Connections:** Ensure the input phases (R, S, T) and output phases (U, V, W) are connected correctly to avoid damage to the converter or motor .
- **Wire Sizing:** Select wire diameters according to the motor capacity and local electrical codes, similar to standard motor wiring .
- **Input Protection:** Install input fuses in the mains supply to protect the converter from overcurrent .
- **RFI/EMC Considerations:** Use reinforced grounding and clean metal contact surfaces for RFI filters to minimize high-frequency interference .

Control Circuit Wiring

Control circuits manage the operation of the frequency converter and include signals for start/stop, speed control, and feedback:

- **Correct Terminal Connections:** Follow the terminal diagram provided by the manufacturer to connect control signals accurately .
- **Separation from Power Lines:** Keep control wiring physically separated from high-power lines to reduce electromagnetic interference .
- **Use of Shielded Cables:** For sensitive signals, shielded cables may be required, grounded at one end to prevent noise .

Grounding and Safety

Proper grounding is critical for safety and EMC compliance:

- **PE Busbar Connection:** All modules must be connected to the cabinet PE busbar using copper busbars or cables to ensure continuity of the protective bonding circuit .
- **Cabinet Door Grounding:** If the door contains devices other than low-voltage components, it must be earthed with a copper cable .
- **Air Clearance:** Maintain at least 12.7 mm clearance around live parts to prevent accidental contact .

Cabinet Installation Considerations

- **Ventilation:** Ensure adequate airflow, either through natural cooling or forced air with fans, especially for multiple converters in a single cabinet .
- **Spacing:** Maintain minimum distances from surrounding objects (≥ 100 mm on sides, ≥ 150 mm top and bottom) to allow heat dissipation .
- **Vertical Mounting:** Install converters vertically to ensure proper cooling and operation .

Testing and Verification

- **Continuity Checks:** Use a multimeter to verify correct connections and grounding before powering the cabinet .
- **Functional Testing:** Test the converter under controlled conditions to ensure proper operation of both main and control circuits .
- **Compliance Verification:** Confirm that all wiring meets local electrical codes, EMC standards, and manufacturer specifications . By following these wiring processes, frequency converter cabinets can be installed safely, operate reliably, and comply with electrical and EMC standards.

Article Content

EN / ACS 6x1/604 Converter Module Installation in User-defined

Sufficient high-frequency earthing network must be constructed in the cabinet to avoid voltage differences and forming of high

EN / ACS 6x1/604 Converter Module Installation in User-defined

Converter Module Installation in User-defined Cabinet This manual concerns the ACS 601, ACC 601, ACP 601, ACS 611, ACC 611

Related Video Reference

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