Follow conversion, then follow the mechanism

Original reference card | v0.3 | Source text checked 2026-11-19

Generic voltage-source PWM drive with a diode front end. Regenerative, active-front-end and other topologies require their own model.

Understand the relationships

Three blocks, three jobs: In the selected teaching topology, a rectifier supplies the DC side, the DC link couples and smooths the conversion stages, and the inverter switches the motor output.

Insulation stress and bearing current need different questions: Differential-mode voltage behavior concerns voltage between motor conductors and includes reflected-wave/dv/dt insulation stress.

Preserve the record's meaning: An event-time snapshot and a display read after a stop are different observations.

Preserve useful evidence

[ ] Exact fault/auxiliary codes, timestamps and the applicable model/firmware manual.

[ ] Available event snapshots, commands and load/process context; distinguish later displays.

[ ] Motor/cable/filter/bonding records and the specific proposed stress mechanism.

The next question

Which physical mechanism does the proposed remedy address, and what evidence supports it?

Keep the limits

Original illustration: a fault snapshot reports current during acceleration; a later stopped display shows zero current. These can both be true. The later value does not invalidate the event-time snapshot, and neither observation alone proves why the trip occurred.

Primary sources and scope

ABB / 3AFE61389211 Rev C, 2011-05-12; printed pp. 13-16
https://library.e.abb.com/public/5212850908d44d979d34b61b703feeaa/ABB_Technical_guide_No_4_REVC.pdf

ABB / 3AFE64230247 Rev C, 2011-04-27; chapters 2-3
https://library.e.abb.com/public/8c253c2417ed0238c125788f003cca8e/ABB_Technical_guide_No5_RevC.pdf

ABB / 3AXD50000016097 Rev J, 2025-10-01; printed pp. 538-539 and 209
https://library.e.abb.com/public/d03c76db17d34239a838ed3baf814028/EN_ACS580_FW_J_A5.pdf

Educational reference, not a work procedure, diagnosis or qualification. Use current OEM/site requirements. Scope and full lessons:
https://apexreng.com/library/component-lab/