

Installing/mounting

4.1 Installation conditions

General installation conditions

When installing the Power Modules carefully observe the conditions listed below in order to guarantee reliable, continuous and disturbance-free operation.

- The Power Modules are designed for installation in a control cabinet.
- The Power Modules are certified for use in environments with degree of pollution 2 without condensation; i.e. in environments where no conductive pollution/dirt occurs. Condensation is not permissible.
- Built-in units FSA ... FSC have degree of protection IP20.
- Built-in units FSD ... FSF have degree of protection IPxxB.
- Devices with push-through technology have degree of protection IP20, to the rear of the control cabinet, IP55.
- You can find the permissible terminal cross-sections in:
 -  Cable cross-sections and tightening torques (Page 64) .
- The following section describes how you can install the Power Modules in compliance with EMC regulations:
 -  EMC-compliant installation of a plant or machine (Page 22).

Inverters for systems in the United States / Canada (UL/cUL)

- For configurations in conformance with UL/cUL, use the UL/cUL-approved fuses, Class J or Siemens 3NE1 semiconductor fuses, which are specified in this manual.

Permissible fuse types and characteristic values:  Technical data (Page 61).
- Only use copper cables for 75 °C for frame sizes FSA ... FSC.
- Only use copper cables rated for 60 °C or 75 °C for frame sizes FSD ... FSGX.
- The integrated solid state short circuit protection does not provide cable protection. On the system side, provide cable protection in conformance with NEC or CEC, Part 1 and the local regulations.
- The inverter features internal motor overload protection corresponding to UL508C. The protection threshold is 115 % of the inverter full load current. When commissioning, you can adapt the motor overload protection using parameter p0640.

4.2 EMC-compliant installation of a plant or machine

4.2.1 Control cabinet

The inverter is designed for operation in industrial environments where high-level electromagnetic fields are to be expected.

Reliable and disturbance-free operation of the inverter is only ensured if the inverter is installed in compliance with EMC regulations.

EMC zones within the control cabinet

- Subdivide the control cabinet and the machine or plant into EMC zones:

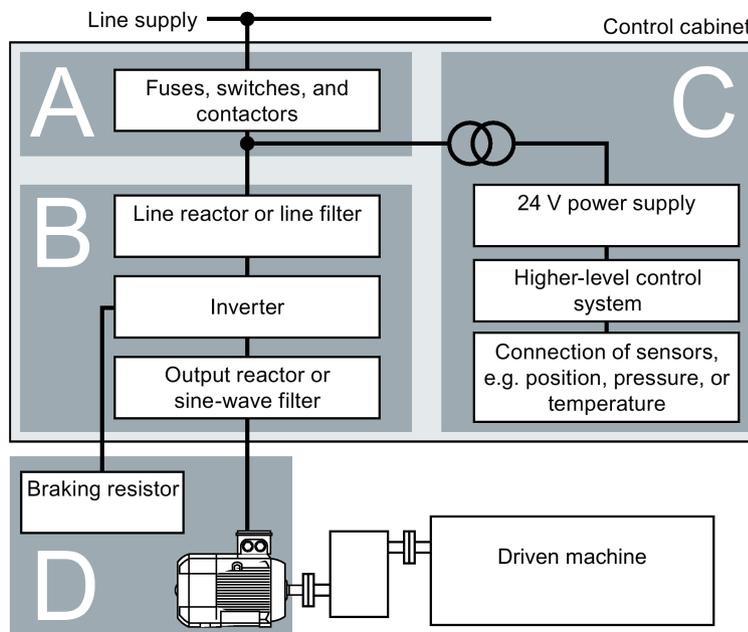


Image 4-1 Example of the EMC zones of a plant or machine

- Zone A: Line supply connection
- Zone B: Power electronics
Devices in Zone B generate energy-rich electromagnetic fields.
- Zone C: Control and sensors
Devices in Zone C do not generate any energy-rich electromagnetic fields themselves, but their functions can be impaired by electromagnetic fields.
- Zone D: Motors, braking resistors outside the control cabinet
Devices in Zone D generate electromagnetic fields with a significant amount of energy