



Technical Info | Application Note

Use of high-speed products

Special features in the lower speed range

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1 Preface

The application notes describe solved application cases. They serve designers and developers as an approach for designing their own applications. However, they are considered for information only without responsibility. The selection with regard to their suitability for the intended use can only be made by the user.

The use of our devices in the target products is beyond of our control and therefore exclusively the responsibility of the machine manufacturer, system integrator or customer.

This document is not legally part of the certified device documentation. The functions described in the current KEB documentation must always be given priority. The enclosed documents correspond to conditions valid at printing. Misprint, mistakes and technical changes reserved.

2 General

Function

Use of high-speed products in applications with longer running times in the lower speed range.

Validity

High speed products

Description

As the name suggests, high-speed products are primarily used in applications that require high output speeds. In applications that also remain in the lower speed range for long periods of time (e.g. machine tools 0 Hz during output or tool change), the following information must be observed.

Problem

At low output frequencies (and thus modulation degrees), the voltage load on the motor increases when combining a drive converter system and sine filter.

3 Remedy

Reduction of the maximum voltage rise rate (du/dt) through the use of high-performance cores.

In typical applications, three high-performance cores (common-mode chokes) are used, each of which is pushed over the three motor phases at the output of the drive current converter. The du/dt is reduced to values below $3 \text{ kV}/\mu\text{s}$ and the maximum voltage below 800 V .

In individual cases, we recommend checking the values.

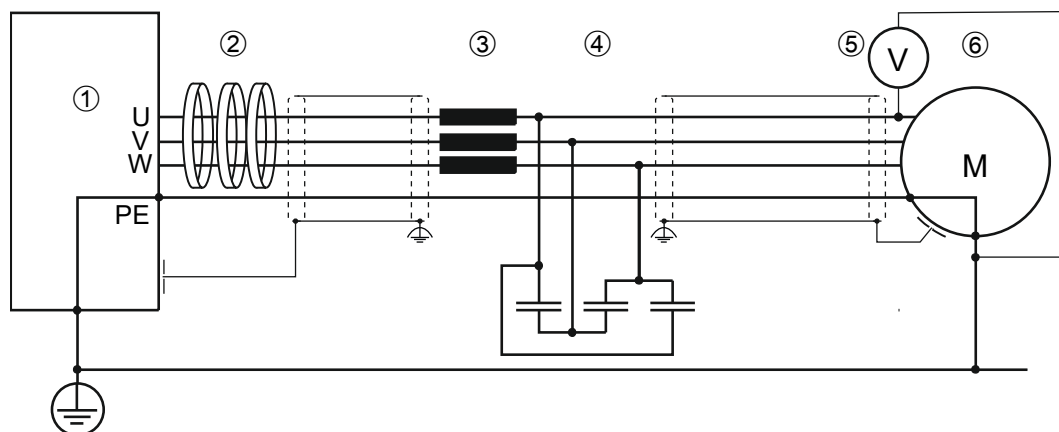


Fig. 1: Ferrite cores on the sine filter

- | | |
|--|--|
| ① Drive controller | ② High performance cores |
| ③ Z2 engine throttle (xxZ2F04-1003) | ④ Z2 capacitor assembly (xxZ2G24-xxxx) |
| ⑤ Voltage measurement at the motor between phase and earth | ⑥ Motor |



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