Australian Standard®

Adjustable speed electrical power drive systems

Part 4: General requirements—Rating specifications for a.c. power drive systems above 1000 V a.c. and not exceeding 35 kV

This Australian Standard® was prepared by Committee EL-027, Power Electronics. It was approved on behalf of the Council of Standards Australia on 28 June 2007.
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The following are represented on Committee EL-027:

- Australian Communications Authority
- Australian Electrical and Electronic Manufacturers Association
- Bureau of Steel Manufacturers of Australia
- Energy Networks Association
- Monash University
- University of Wollongong

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PREFACE

This Standard was prepared by the Standards Australia Committee EL-027, Power Electronics.

The objective of this Standard is to provide designers, manufacturers, specifiers, purchasers and users of variable speed drive systems with a set of common characteristics to define variable speed drives with supply voltage above 1 kV and up to 35 kV.

This Standard is identical with, and has been reproduced from IEC 61800-4, Ed.1.0 (2002), *Adjustable speed electrical power drive systems – Part 4: General requirements—Rating specifications for a.c. power drive systems above 1 000 V a.c. and not exceeding 35 kV*.

As this Standard is reproduced from an International Standard, the following applies:

(a) Its number does not appear on each page of text and its identity is shown only on the cover and title page.

(b) In the source text ‘IEC 61800-4’ should read ‘AS 61800.4’.

(c) A full point should be substituted for a comma when referring to a decimal marker.

The terms ‘normative’ and ‘informative’ are used to define the application of the annex to which they apply. A normative annex is an integral part of a standard, whereas an informative annex is only for information and guidance.

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1 Scope

This part of IEC 61800 applies to adjustable speed a.c. drive systems that include power conversion, control equipment and a motor. Excluded are traction for railway applications and electrical vehicle drives.

It applies to power drive systems (see figure 1) with converter voltages (line-to-line voltage), between 1 kV a.c. and 35 kV a.c., input side 50 Hz or 60 Hz, and load side frequencies up to 600 Hz. Requirements for voltages above 15 kV are not included and are defined by agreement between the manufacturer and the system supplier.

For power drive systems, with voltages above 1 kV, using a step-down input transformer and/or a step-up output transformer in connection with a low voltage converter (below 1 000 V), IEC 61800-2 applies.

EMC aspects are covered in IEC 61800-3.

Specific safety requirements for drive systems with voltage above 1 kV will be covered in IEC 61800-5.

This standard gives the characteristics of the converters, their topologies and their relationship with the complete a.c. drive system. It also states their performance requirements with respect to ratings, normal operating conditions, overload conditions, surge withstand capabilities, stability, protection, a.c. line earthing, topologies and testing. Furthermore, it deals with application guidelines, such as control strategies, torsion analysis, recommendations for earthing and drive system component integration.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

References to international standards that are struck through in this clause are replaced by references to identical Australian Standards that are listed immediately thereafter and identified by shading.

IEC 60034-1, *Rotating electrical machines – Part 1: Rating and performance*

IEC 60034-2:1972, *Rotating electrical machines – Part 2: Methods for determining losses and efficiency of rotating electrical machinery from tests (excluding machines for traction vehicles)*
Amendment 1 (1995)
Amendment 2 (1996)