

NEMA ICS 61800-2-2005

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Adjustable-Speed  
Electrical Power Drive  
Systems, Part 2: General  
Requirements - Rating  
Specifications for Low-  
Voltage Adjustable  
Frequency AC Power  
Drive Systems



NEMA ICS 61800-2

ADJUSTABLE SPEED  
ELECTRICAL POWER  
DRIVE SYSTEMS

PART 2: GENERAL  
REQUIREMENTS --  
RATING SPECIFICATIONS  
FOR LOW VOLTAGE  
ADJUSTABLE  
FREQUENCY A.C. POWER  
DRIVE SYSTEMS

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**NEMA Standards Publication ICS 61800-2-2005**

*Adjustable Speed Electrical Power Drive Systems*

*Part 2: General requirements—Rating specifications for low voltage adjustable frequency a.c. power drive systems*

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## Foreword

This document is a adaptation of the IEC Standard 61800-2 with the addition of requirements pertinent to use of these devices in the U.S.

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international cooperation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition, to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 61800-2 has been prepared by IEC technical sub-committee 22G: Semiconductor power converters for adjustable speed electric drive systems, of IEC technical committee 22: Power electronics.

The text of this standard is based on the following documents:

FDIS	Report on voting
22G/40/FDIS	22G/44/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

Annexes A, B, C, D, E, F, and G are for information only.

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## Section 1 GENERAL

### 1.1 SCOPE AND OBJECT

This part of IEC 61800 applies to general purpose adjustable speed a.c. drive systems which include power conversion, control equipment, and also an a.c. motor or motors. Excluded are traction and electrical vehicle drives.

It applies to systems connected to line voltages up to 1 kV a.c., 50 Hz or 60 Hz, and load side frequency up to 600 Hz.

EMC aspects are covered in IEC 61800-3.

US NOTE—EMC Immunity and Emission requirements of IEC 61800-3 are not applicable in the U.S.

This part of IEC 61800 gives the characteristics of the converters 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, and testing. Furthermore, it deals with application guidelines, such as control strategies, diagnostics, and topologies.

This part of IEC 61800 is intended to define a complete a.c. PDS in terms of its performance and not in terms of individual subsystem functional units.

### 1.2 NORMATIVE REFERENCES

NEMA ICS 1-1993	<i>Industrial Control and Systems General Requirements</i>
NEMA ICS 1.3-1986(R1991)	<i>Preventive Maintenance of Industrial Control and System Equipment</i>
NEMA ICS 7.1-1995	<i>Safety Standards for Construction and Guide for Selection, Installation, and Operation of Adjustable-Speed Drive Systems</i>
NEMA ICS 6-1993	<i>Industrial Control and Systems Enclosures</i>
NEMA MG 1-1993	<i>Motors and Generators</i>
NEMA 250-1997	<i>Enclosures for Electrical Equipment (1000 volts maximum)</i>
ANSI/IEEE 19-1992	<i>IEEE Recommended Practices and Requirements for Harmonic Control in Electric Power Systems</i>
ANSI/IEEE 597-1983	<i>Practice and Requirements for General Purpose Thyristor DC Drives</i>
ANSI/NFPA 70-1999	<i>National Electrical Code</i>
UL 508C	<i>Standard for Power Conversion Equipment</i>