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Adjustable Speed Electrical Power Drive Systems

Part 1: General Requirements — Rating Specifications for Low Voltage Adjustable Speed d.c. Power Drive Systems

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Foreword

1) This document is an adaptation of the IEC Standard 61800-1 with the addition of requirements pertinent to use of these devices in the US.

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International Standard IEC 61800-1 was prepared by IEC technical sub-committee 22G: Semiconductor power converters for adjustable speed electric drive systems, of IEC technical committee 22: Power electronics.

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

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ADJUSTABLE SPEED ELECTRICAL POWER DRIVE SYSTEMS

1 GENERAL

1.1 SCOPE AND OBJECT

This part of IEC 61800 applies to general purpose adjustable speed d.c. drive systems which include the power conversion, control equipment, and also a 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.

NOTE – In the United States, the line voltage is not more than 600 V a.c.

EMC aspects are covered in IEC 61800-3.

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

This part of IEC 61800 gives the characteristics of the converters and their relationship with the complete d.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.

1.2 NORMATIVE REFERENCES

NEMA ICS 1-1993 Industrial Control and Systems General Requirements
NEMA ICS 1.3-1986 (R1991) Preventive Maintenance of Industrial Control and Systems Equipment
NEMA ICS 6-1993 Industrial Control and Systems Enclosures
NEMA MG 1-1999 Motors and Generators
NEMA 250-1997 Enclosures for Electrical Equipment (1000 Volts Maximum)
ANSI/IEEE 597-1983 Practice and Requirements for General Purpose Thyristor DC Drives
ANSI/NFPA 70-1999 National Electrical Code
UL 508C Standard for Power Conversion Equipment

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 61800. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this part of IEC 61800 are encouraged to investigate the possibility of applying the most recent editions of the normative