SLOVENSKI STANDARD
SIST EN 61800-7-1:2008

01-junij-2008

Elektriḷ ni pogonski sistemi z nastavljivo hitrostjo - 7-1. del: Generiḷ ni vmesnik in uporaba profilov za elektriḷ ne pogonske sisteme - Definicija vmesnika (IEC 61800-7-1:2007)

Adjustable speed electrical power drive systems - Part 7-1: Generic interface and use of profiles for power drive systems - Interface definition (IEC 61800-7-1:2007)

Elektrische Leistungsantriebssysteme mit einstellbarer Drehzahl - Teil 7-1: Generisches Interface und Nutzung von Profilen für Leistungsantriebssysteme (PDS) - Schnittstellendefinition (IEC 61800-7-1:2007)

Entraînements électriques de puissance à vitesse variable - Partie 7-1: Interface et utilisation génériques de profils pour les entraînements électriques de puissance - Définition de l'interface (CEI 61800-7-1:2007)

Ta slovenski standard je istoveten z: EN 61800-7-1:2008

ICS:

29.200	Usmerniki. Pretvorniki. Stabilizirano elektriḷ no napajanje	Rectifiers. Convertors. Stabilized power supply
35.100.05	Veḷ slojne uporabniġke reġitve	Multilayer applications

SIST EN 61800-7-1:2008 en

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61800-7-1

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ICS 29.200; 35.100.05

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English version

Adjustable speed electrical power drive systems - Part 7-1: Generic interface and use of profiles for power drive systems - Interface definition

(IEC 61800-7-1:2007)

Entraînements électriques de puissance à vitesse variable - Partie 7-1: Interface et utilisation génériques de profils pour les entraînements électriques de puissance - Définition de l'interface (CEI 61800-7-1:2007)

Elektrische Leistungsantriebssysteme mit einstellbarer Drehzahl - Teil 7-1: Generisches Interface und Nutzung von Profilen für Leistungsantriebssysteme (PDS) - Schnittstellendefinition (IEC 61800-7-1:2007)

This European Standard was approved by CENELEC on 2008-02-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Ref. No. EN 61800-7-1:2008 E

Foreword

The text of document 22G/183/FDIS, future edition 1 of IEC 61800-7-1, prepared by SC 22G, Adjustable speed electric drive systems incorporating semiconductor power converters, of IEC TC 22, Power electronic systems and equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61800-7-1 on 2008-02-01.

This European Standard, together with its companion parts for Profile type 4 (SERCOS), partially replaces EN 61491:1998 which is at present being revised (to be issued as a Technical Report).

The following dates were fixed:

– latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2008-11-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2011-02-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61800-7-1:2007 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 61131-3	NOTE	Harmonized as EN 61131-3:2003 (not modified).
IEC 61158	NOTE	Harmonized in EN 61158 series (not modified).
IEC 61158-5-12	NOTE	Harmonized as EN 61158-5-12:2008 (not modified).
IEC 61158-5-13	NOTE	Harmonized as EN 61158-5-13:2008 (not modified).
IEC 61158-5-16	NOTE	Harmonized as EN 61158-5-16:2008 (not modified).
IEC 61158-5-19	NOTE	Harmonized as EN 61158-5-19:2008 (not modified).
IEC 61158-6-12	NOTE	Harmonized as EN 61158-6-12:2008 (not modified).
IEC 61158-6-13	NOTE	Harmonized as EN 61158-6-13:2008 (not modified).
IEC 61158-6-16	NOTE	Harmonized as EN 61158-6-16:2008 (not modified).
IEC 61158-6-19	NOTE	Harmonized as EN 61158-6-19:2008 (not modified).
IEC 61491	NOTE	Harmonized as EN 61491:1998 (modified).
IEC 61499-1	NOTE	Harmonized as EN 61499-1:2005 (not modified).
IEC 61784-1	NOTE	Harmonized as EN 61784-1:2008 (not modified).
IEC 61784-2	NOTE	Harmonized as EN 61784-2:2008 (not modified).
IEC 61800	NOTE	Harmonized in EN 61800 series (not modified).
ISO/IEC 7498-1	NOTE	Harmonized as EN ISO/IEC 7498-1:1995 (not modified).

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
-	-	Industrial communications subsystem based on ISO 11898 (CAN) for controller-device interfaces - Part 4: CANopen	EN 50325-4	-[1]
IEC 61158-5-2	-[1]	Industrial communication networks - Fieldbus specifications - Part 5-2: Application layer service definition - Type 2 elements	EN 61158-5-2	2008[2]
IEC 61158-5-3	-[1]	Industrial communication networks - Fieldbus specifications - Part 5-3: Application layer service definition - Type 3 elements	EN 61158-5-3	2008[2]
IEC 61158-5-10	-[1]	Industrial communication networks - Fieldbus specifications - Part 5-10: Application layer service definition - Type 10 elements	EN 61158-5-10	2008[2]
IEC 61158-6-2	-[1]	Industrial communication networks - Fieldbus specifications - Part 6-2: Application layer protocol specification - Type 2 elements	EN 61158-6-2	2008[2]
IEC 61158-6-3	-[1]	Industrial communication networks - Fieldbus specifications - Part 6-3: Application layer protocol specification - Type 3 elements	EN 61158-6-3	2008[2]
IEC 61158-6-10	-[1]	Industrial communication networks - Fieldbus specifications - Part 6-10: Application layer protocol specification - Type 10 elements	EN 61158-6-10	2008[2]
IEC 61800-7	Series	Adjustable speed electrical power drive systems - Generic interface and use of profiles for power drive systems	EN 61800-7	Series
IEC 61800-7-201	-[1]	Adjustable speed electrical power drive systems - Part 7-201: Generic interface and use of profiles for power drive systems - Profile type 1 specification	EN 61800-7-201	2008[2]

[1] Undated reference.

[2] Valid edition at date of issue.

Publication	Year	Title	EN/HD	Year
IEC 61800-7-202	-[1)]	Adjustable speed electrical power drive systems - Part 7-202: Generic interface and use of profiles for power drive systems - Profile type 2 specification	EN 61800-7-202	2008[2)]
IEC 61800-7-203	-[1)]	Adjustable speed electrical power drive systems - Part 7-203: Generic interface and use of profiles for power drive systems - Profile type 3 specification	EN 61800-7-203	2008[2)]
IEC 61800-7-204	-[1)]	Adjustable speed electrical power drive systems - Part 7-204: Generic interface and use of profiles for power drive systems - Profile type 4 specification	EN 61800-7-204	2008[2)]
IEC 61800-7-301	-[1)]	Adjustable speed electrical power drive systems - Part 7-301: Generic interface and use of profiles for power drive systems - Mapping of profile type 1 to network technologies	EN 61800-7-301	2008[2)]
IEC 61800-7-302	-[1)]	Adjustable speed electrical power drive systems - Part 7-302: Generic interface and use of profiles for power drive systems - Mapping of profile type 2 to network technologies	EN 61800-7-302	2008[2)]
IEC 61800-7-303	-[1)]	Adjustable speed electrical power drive systems - Part 7-303: Generic interface and use of profiles for power drive systems - Mapping of profile type 3 to network technologies	EN 61800-7-303	2008[2)]
IEC 61800-7-304	-[1)]	Adjustable speed electrical power drive systems - Part 7-304: Generic interface and use of profiles for power drive systems - Mapping of profile type 4 to network technologies	EN 61800-7-304	2008[2)]
IEC/TR 62390	2005	Common automation device - Profile guideline	-	-

IEC 61800-7-1

Edition 1.0 2007-11

INTERNATIONAL STANDARD

Adjustable speed electrical power drive systems – Part 7-1: Generic interface and use of profiles for power drive systems – Interface definition

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CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ADJUSTABLE SPEED ELECTRICAL POWER DRIVE SYSTEMS –

Part 7-1: Generic interface and use of profiles for power drive systems – Interface definition

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). 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. 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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The International Standard IEC 61800-7-1 has been prepared by subcommittee SC 22G: Adjustable speed electric drive systems incorporating semiconductor power converters, of IEC technical committee TC 22: Power electronic systems and equipment.

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

FDIS	Report on voting
22G/183/FDIS	22G/191/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.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of the IEC 61800 series, under the general title *Adjustable speed electrical power drive systems*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

INTRODUCTION

The IEC 61800 series is intended to provide a common set of specifications for adjustable speed electrical power drive systems.

IEC 61800-7 describes a generic interface between control systems and power drive systems. This interface can be embedded in the control system. The control system itself can also be located in the drive (sometimes known as "smart drive" or "intelligent drive").

A variety of physical interfaces is available (analogue and digital inputs and outputs, serial and parallel interfaces, fieldbuses and networks). Profiles based on specific physical interfaces are already defined for some application areas (e.g. motion control) and some device classes (e.g. standard drives, positioner). The implementations of the associated drivers and application programmers interfaces are proprietary and vary widely.

IEC 61800-7 defines a set of common drive control functions, parameters, and state machines or description of sequences of operation to be mapped to the drive profiles.

IEC 61800-7 provides a way to access functions and data of a drive that is independent of the used drive profile and communication interface. The objective is a common drive model with generic functions and objects suitable to be mapped on different communication interfaces. This makes it possible to provide common implementations of motion control (or velocity control or drive control applications) in controllers without any specific knowledge of the drive implementation.

There are several reasons to define a generic interface:

For a drive device manufacturer

- Less effort to support system integrators
- Less effort to describe drive functions because of common terminology
- The selection of drives does not depend on availability of specific support

For a control device manufacturer

- No influence of bus technology
- Easy device integration
- Independent of a drive supplier

For a system integrator

- Less integration effort for devices
- Only one understandable way of modeling
- Independent of bus technology

Much effort is needed to design a motion control application with several different drives and a specific control system. The tasks to implement the system software and to understand the functional description of the individual components may exhaust the project resources. In some cases, the drives do not share the same physical interface. Some control devices just support a single interface which will not be supported by a specific drive. On the other hand, the functions and data structures are often specified with incompatibilities. This requires the system integrator to write special interfaces for the application software and this should not be his responsibility.

Some applications need device exchangeability or integration of new devices in an existing configuration. They are faced with different incompatible solutions. The efforts to adopt a solution to a drive profile and to manufacturer specific extensions may be unacceptable. This will reduce the degree of freedom to select a device best suited for this application to the selection of the unit which will be available for a specific physical interface and supported by the controller.