
Električni pogonski sistemi z nastavljivo hitrostjo - 3. del: Zahteve za elektromagnetno združljivost in posebne preskusne metode

Adjustable speed electrical power drive systems - Part 3: EMC requirements and specific test methods

Drehzahlveränderbare elektrische Antriebe - Teil 3: EMV-Anforderungen einschließlich spezieller Prüfverfahren

Entraînements électriques de puissance à vitesse variable - Partie 3: Exigences de CEM et méthodes d'essais spécifiques

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Ta slovenski standard je istoveten z: EN 61800-3:2004/A1:2012

ICS:

| | | |
|-----------|--|--|
| 29.200 | Usmerniki. Pretvorniki. Stabilizirano električno napajanje | Rectifiers. Convertors. Stabilized power supply |
| 33.100.01 | Elektromagnetna združljivost na splošno | Electromagnetic compatibility in general |

SIST EN 61800-3:2005/A1:2012 **en**

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 61800-3/A1

March 2012

ICS 29.200; 33.100

English version

**Adjustable speed electrical power drive systems -
Part 3: EMC requirements and specific test methods
(IEC 61800-3:2004/A1:2011)**

Entraînements électriques de puissance à
vitesse variable -
Partie 3: Exigences de CEM et méthodes
d'essais spécifiques
(CEI 61800-3:2004/A1:2011)

Drehzahlveränderbare elektrische
Antriebe -
Teil 3: EMV-Anforderungen einschließlich
spezieller Prüfverfahren
(IEC 61800-3:2004/A1:2011)

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This amendment A1 modifies the European Standard EN 61800-3:2004; it was approved by CENELEC on 2011-12-19. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment 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 CEN-CENELEC Management Centre or to any CENELEC member.

This amendment 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 CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, 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, Turkey and the United Kingdom.

CENELEC

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 22G/227/FDIS, future edition 2 of IEC 61800-3:2004/A1, 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 approved by CENELEC as EN 61800-3:2004/A1:2012.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2012-09-19
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2014-12-19

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

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The text of the International Standard IEC 61800-3:2004/A1:2011 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

IEC 61400-21:2008 NOTE Harmonized as EN 61400-21:2008 (not modified).

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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.

| <u>Publication</u> | <u>Year</u> | <u>Title</u> | <u>EN/HD</u> | <u>Year</u> |
|--------------------|-------------|---|---------------|-------------|
| <i>Replace:</i> | | | | |
| IEC 61000-2-4 | 2002 | Electromagnetic compatibility (EMC) - Part 2-4: Environment - Compatibility levels in industrial plants for low-frequency conducted disturbances | EN 61000-2-4 | 2002 |
| <i>Add:</i> | | | | |
| IEC 61000-4-11 | 2004 | Electromagnetic compatibility (EMC) - Part 4-11: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests | EN 61000-4-11 | 2004 |
| IEC 61000-4-13 | 2002 | Electromagnetic compatibility (EMC) - Part 4-13: Testing and measurement techniques - Harmonics and interharmonics including mains signalling at a.c. power port, low frequency immunity tests | EN 61000-4-13 | 2002 |
| IEC 61000-4-34 | 2005 | Electromagnetic compatibility (EMC) - Part 4-34: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests for equipment with input current more than 16 A per phase | EN 61000-4-34 | 2007 |

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IEC 61800-3

Edition 2.0 2011-11

INTERNATIONAL STANDARD

NORME INTERNATIONALE



AMENDMENT 1
AMENDEMENT 1

**Adjustable speed electrical power drive systems –
Part 3: EMC requirements and specific test methods**

**Entraînements électriques de puissance à vitesse variable –
Partie 3: Exigences de CEM et méthodes d'essais spécifiques**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

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ICS 29.200; 33.100

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FOREWORD

This Amendment has been prepared by IEC sub-committee 22G: Adjustable speed electric drive systems incorporating semiconductor power converters, of IEC technical committee 22: Power electronic systems and equipment.

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

| FDIS | Report on voting |
|--------------|------------------|
| 22G/227/FDIS | 22G/229/RVD |

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

The committee has decided that the contents of this amendment and the base publication will remain unchanged until the stability 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.

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IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

2 Normative references

Replace, in the existing list, the existing reference to IEC 61000-2-4 by the following new reference:

IEC 61000-2-4:2002, *Electromagnetic compatibility (EMC) – Part 2-4: Environment – Compatibility levels in industrial plants for low-frequency conducted disturbances*

Add, to the existing list, the following new references:

IEC 61000-4-11:2004, *Electromagnetic compatibility (EMC) – Part 4-11: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests*

IEC 61000-4-13:2002, *Electromagnetic compatibility (EMC) – Part 4-13: Testing and measurement techniques – Harmonics and interharmonics including mains signalling at a.c. power port, low frequency immunity tests*

IEC 61000-4-34:2005, *Electromagnetic compatibility (EMC) – Part 4-34: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests for equipment with input current more than 16 A per phase*

3 Terms and definitions

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3.1 Overview

Replace the existing title of this subclause by the following new title:

<https://standards.iteh.ai/catalog/standards/sist/2f877610-385f-483b-affc-0bc98b0cf619/sist-en-61800-3-2005-a1-2012>

3.1 Definition of the installation and its content

Delete the existing three paragraphs of this subclause.

Add, before the existing Figure 1, the following new sentence:

Figure 1 shows the major parts of the PDS as defined below and the rest of the installation.

Add, after the existing Figure 1, the following new terms and definitions 3.1.1, 3.1.2, 3.1.3 and 3.1.4:

3.1.1

basic drive module

BDM

electronic power converter and related control, connected between an electric supply and a motor. The BDM is capable of transmitting power from the electric supply to the motor and may be capable of transmitting power from the motor to the electric supply. The BDM controls some or all of the following aspects of power transmitted to the motor and motor output:

- current;
- frequency;
- voltage;
- speed;
- torque;
- force;
- position

3.1.2**complete drive module****CDM**

drive module consisting of, but not limited to, the BDM and extensions such as protection devices, transformers and auxiliaries. However the motor and the sensors which are mechanically coupled to the motor shaft are not included

3.1.3**power drive system****PDS**

system consisting of one or more complete drive module(s) (CDM) and a motor or motors. Any sensors which are mechanically coupled to the motor shaft are also part of the PDS; however the driven equipment is not included

3.1.4**installation**

equipment or equipments which include at least both the PDS and the driven equipment

3.3 Location, ports and interfaces**3.3.5****port for process measurement and control**

Delete, in the existing definition, the existing words "as defined in Clause 3 (see Figure 2)".

3.3.9**mechanical link**

Delete, in the existing definition, the existing words "as defined in Clause 3".

3.4 Components of PDS**3.4.2****(electric) motor**

Add, after the existing definition and source, the following new note:

NOTE For the purposes of this standard, the motor includes all sensors which are mounted on it and which are relevant for supporting the operating mode and interacting with a CDM.

Delete the existing definition 3.4.3 and renumber the existing definition 3.4.4 as 3.4.3.

Add, after definition 3.4.3, the following new subclause 3.5 and the following new terms and definitions 3.5.1 to 3.5.4 as follows:

3.5 Phenomena-related definitions**3.5.1****voltage deviation**

difference, generally expressed as a percentage, between the voltage at a given instant at a point in the system, and a reference voltage such as: nominal voltage, a mean value of the operating voltage, declared supply voltage

[IEV 604-01-17]

3.5.2**voltage change**

variation of the r.m.s. or peak value of a voltage between two consecutive levels sustained for definite but unspecified durations

NOTE Whether the r.m.s. or peak value is chosen depends upon the application, and which is used should be specified.

[IEV 161-08-01]

3.5.3**voltage fluctuation**

series of voltage changes or a continuous variation of the r.m.s. or peak value of the voltage

NOTE Whether the r.m.s. or peak value is chosen depends upon the application, and which is used should be specified.

[IEV 161-08-05]

3.5.4**voltage dip**

sudden reduction of the voltage at a point in an electrical system followed by voltage recovery after a short period of time from a few cycles to a few seconds

[IEV 604-01-25, IEV 161-08-10]

4.2.1 Conditions

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Renumber the existing note of this subclause as Note 1.

Replace the existing third paragraph of this subclause by the following new paragraph and new Note 2:

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For the tests, the CDM shall be connected to a motor recommended by the manufacturer with a cable and earthing rules defined by the manufacturer. Alternatively, a passive test load (resistive, or resistive and inductive) may be applied (for example, for evaluation of the low-frequency emissions), if permitted by the manufacturer.

NOTE 2 For high frequency emissions, because it is necessary to simulate differential and common mode capacitances and couplings, a passive test load may not be suitable for this application.

4.3 Documentation for the user

Replace the existing second paragraph of this subclause by the following new paragraph and new Notes 1 and 2:

The manufacturer shall supply the documentation necessary for the correct installation of a BDM, CDM or PDS into a typical system or process in the intended environment. This information includes any emission warnings required by 6.1 and Table 13. It also includes the warnings required by 5.3.2 in the case where the immunity of a BDM, CDM or PDS is not suitable for the second environment.

NOTE 1 From the emission point of view, a PDS (or BDM or CDM) with a lower emission category, such as C1, can always be used instead of one with a higher emission category, such as C3.

NOTE 2 Emission categories are independent of immunity. For example, a statement that a PDS has emission category C1 does not imply that the immunity is only suitable for the first environment.