SLOVENSKI STANDARD
SIST EN IEC 61800-5-1:2024

01-april-2024

Električni pogonski sistemi z nastavljivo hitrostjo - 5-1. del: Varnostne zahteve - Električne, toplotne in energijske (IEC 61800-5-1:2022 + COR1:2023)

Adjustable speed electrical power drive systems - Part 5-1: Safety requirements - Electrical, thermal and energy (IEC 61800-5-1:2022 + COR1:2023)

Elektrische Leistungsantriebssysteme mit einstellbarer Drehzahl - Teil 5-1: Anforderungen an die Sicherheit - Elektrische, thermische und energetische Anforderungen (IEC 61800-5-1:2022 + COR1:2023)

Entraînements électriques de puissance à vitesse variable - Partie 5-1: Exigences de sécurité - Electrique, thermique et énergétique (IEC 61800-5-1:2022 + COR1:2023)

Ta slovenski standard je istoveten z: **EN IEC 61800-5-1:2023**

ICS:

29.160.30	Motorji	Motors
29.200	Usmerniki. Pretvorniki. Stabilizirano električno napajanje	Rectifiers. Convertors. Stabilized power supply

SIST EN IEC 61800-5-1:2024 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 61800-5-1

October 2023

ICS 29.200; 29.130.99; 13.110

Supersedes EN 61800-5-1:2007; EN 61800-5-1:2007/A1:2017; EN 61800-5-1:2007/A11:2021

English Version

Adjustable speed electrical power drive systems - Part 5-1: Safety requirements - Electrical, thermal and energy (IEC 61800-5-1:2022 + COR1:2023)

Entraînements électriques de puissance à vitesse variable - Partie 5-1: Exigences de sécurité - Électrique, thermique et énergétique (IEC 61800-5-1:2022 + COR1:2023)

Elektrische Leistungsantriebssysteme mit einstellbarer Drehzahl - Teil 5-1: Anforderungen an die Sicherheit - Elektrische, thermische und energetische Anforderungen (IEC 61800-5-1:2022 + COR1:2023)

This European Standard was approved by CENELEC on 2022-10-05. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

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CENELEC

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. EN IEC 61800-5-1:2023 E

European foreword

The text of document 22G/455/FDIS, future edition 3 of IEC 61800-5-1 + COR1, prepared by SC 22G "Adjustable speed electric power drive systems (PDS)" of IEC/TC 22 "Power electronic systems and equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 61800-5-1:2023.

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) 2024-04-20
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2026-10-20

This document supersedes EN 61800-5-1:2007 and all of its amendments and corrigenda (if any).

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

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Endorsement notice

The text of the International Standard IEC 61800-5-1:2022 + COR1:2023 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 standard indicated:

IEC 60034-9:2021	NOTE	Approved as EN IEC 60034-9:—[1] (not modified)
IEC 60060-1:2010	NOTE	Approved as EN 60060-1:2010 (not modified)
IEC 60068-1:2013	NOTE	Approved as EN 60068-1:2014 (not modified)
IEC 60068-2-14	NOTE	Approved as EN IEC 60068-2-14
IEC 60068-2-31:2008	NOTE	Approved as EN 60068-2-31:2008 (not modified)
IEC 60071-1:2019	NOTE	Approved as EN IEC 60071-1:2019 (not modified)
IEC 60073:2002	NOTE	Approved as EN 60073:2002 (not modified)
IEC 60085:2007	NOTE	Approved as EN 60085:2008 (not modified)
IEC 60112:2020	NOTE	Approved as EN IEC 60112:2020 (not modified)
IEC 60127-2:2014	NOTE	Approved as EN 60127-2:2014 (not modified)
IEC 60127-4:2005	NOTE	Approved as EN 60127-4:2005 (not modified)

[1] To be published. Stage at the time of publication: FprEN IEC 60034-9:2021.

IEC 60204-1:2016	NOTE	Approved as EN 60204-1:2018
IEC 60216 (series)	NOTE	Approved as EN 60216 (series)
IEC 60320-1	NOTE	Approved as EN IEC 60320-1
IEC 60335-1:2020	NOTE	Approved as EN IEC 60335-1:—[2] (not modified)
IEC 60364 (series)	NOTE	Approved as HD 60364 (series)
IEC 60364-1:2005	NOTE	Approved as HD 60364-1:2008 + A11:2017
IEC 60364-4-44:2007	NOTE	Approved as HD 60364-4-444:2010
IEC 60364-4-44:2007/A1:2015	NOTE	Approved as HD 60364-4-443:2016
IEC 60364-5-52:2009	NOTE	Approved as HD 60364-5-52:2011 + A11:2017
IEC 60445:2021	NOTE	Approved as EN IEC 60445:2021 (not modified)
IEC 60664 (series)	NOTE	Approved as EN 60664 (series)
IEC 60695-10-3:2016	NOTE	Approved as EN 60695-10-3:2016 (not modified)
IEC 60695-11-5:2016	NOTE	Approved as EN 60695-11-5:2017 (not modified)
IEC 60721 (series)	NOTE	Approved as EN 60721 (series)
IEC 60947-2:2016	NOTE	Approved as EN 60947-2:2017 (not modified)
IEC 60947-7-2:2009	NOTE	Approved as EN 60947-7-2:2009 (not modified)
IEC 61082-1:2014	NOTE	Approved as EN 61082-1:2015 (not modified)
IEC 61140:2016	NOTE	Approved as EN 61140:2016 (not modified)
IEC 61148:2011	NOTE	Approved as EN 61148:2012 (not modified)
IEC 61439-1:2020	NOTE	Approved as EN IEC 61439-1:2021 (not modified)
IEC 61508 (series)	NOTE	Approved as EN 61508 (series)
IEC 61643-11:2011	NOTE	Approved as EN 61643-11:2012 + A11:2018
IEC 61643-12	NOTE	Approved as CLC/TS 61643-12
IEC 61800-1:2021	NOTE	Approved as EN IEC 61800-1:2021 (not modified)
IEC 61800-2:2021	NOTE	Approved as EN IEC 61800-2:2021 (not modified)
IEC 61800-3:2017	NOTE	Approved as EN IEC 61800-3:2018 (not modified)
IEC 61800-5-1:2007	NOTE	Approved as EN 61800-5-1:2007 (not modified) + A11:2021
IEC 61800-5-1:2007/A1:2016	NOTE	Approved as EN 61800-5-1:2007/A1:2017 (not modified)
IEC 61800-5-2	NOTE	Approved as EN 61800-5-2
IEC 61800-5-3	NOTE	Approved as EN IEC 61800-5-3
IEC/TR 61800-6:2003	NOTE	Approved as CLC/TR 61800-6:2007 (not modified)
IEC 61800-7 (series)	NOTE	Approved as EN 61800-7 (series)

[2] To be published. Stage at the time of publication: FprEN IEC 60335-1:2023.

IEC 61800-9 (series)	NOTE	Approved as EN 61800-9 (series)
IEC 61936-1:2021	NOTE	Approved as EN IEC 61936-1:2021 (not modified)
IEC 62311:2019	NOTE	Approved as EN IEC 62311:2020 (not modified)
IEC/IEEE 82079-1:2019	NOTE	Approved as EN IEC/IEEE 82079-1:2020 (not modified)
IEC 60076-1:2011	NOTE	Approved as EN 60076-1:2011 (not modified)
IEC 60127 (series)	NOTE	Approved as EN IEC 60127 (series)
IEC 60309-1	NOTE	Approved as EN IEC 60309-1
IEC 60317 (series)	NOTE	Approved as EN IEC 60317 (series)
IEC 60384-14:2013	NOTE	Approved as EN 60384-14:2013 (not modified)
IEC 60691:2015	NOTE	Approved as EN 60691:2016 (not modified)
IEC 60730 (series)	NOTE	Approved as EN IEC 60730 (series)
IEC 60738-1:2006	NOTE	Approved as EN 60738-1:2006 (not modified)
IEC 60747-5-5:2020	NOTE	Approved as EN IEC 60747-5-5:2020 (not modified)
IEC 60825 (series)	NOTE	Approved as EN 60825 (series)
IEC 60940:2015	NOTE	Approved as EN 60940:2015 (not modified)
IEC 60947 (series)	NOTE	Approved as EN IEC 60947 (series)
IEC 60947-7-1:2009	NOTE	Approved as EN 60947-7-1:2009 (not modified)
IEC 61008 (series)	NOTE	Approved as EN 61008 (series)
IEC 61009 (series)	NOTE	Approved as EN 61009 (series)
IEC 61010-1:2010	NOTE	Approved as EN 61010-1:2010 (not modified)
IEC 61051-2:2021	NOTE	Approved as EN IEC 61051-2:2021 (not modified)
IEC 61058-1:2016	NOTE	Approved as EN IEC 61058-1:2018 (not modified)
IEC 61071:2017	NOTE	Approved as EN 61071:—[3] (not modified)
IEC 61204-7:2016	NOTE	Approved as EN IEC 61204-7:2018 (not modified)
IEC 61558-2-16:2021	NOTE	Approved as EN IEC 61558-2-16:—[4] (not modified)
IEC 61810-1:2015	NOTE	Approved as EN 61810-1:2015 (not modified)
IEC 61984:2008	NOTE	Approved as EN 61984:2009 (not modified)
IEC 62368-1:2018	NOTE	Approved as EN IEC 62368-1:2020 (not modified) + A11:2020
IEC 62423:2009	NOTE	Approved as EN 62423:2012 + A11:2021

[3] To be published. Stage at the time of publication: FprEN 61071:2017.

[4] To be published. Stage at the time of publication: FprEN IEC 61558-2-16:2021.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cencenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60034	series	Rotating electrical machines	-	series
IEC 60034-1	2022	Rotating electrical machines - Part 1: Rating and performance	-	-
IEC 60034-5	2020	Rotating electrical machines - Part 5: Degrees of protection provided by the integral design of rotating electrical machines (IP code) - Classification	EN IEC 60034-5	2020
IEC 60050-112	-	International Electrotechnical Vocabulary - Part 112: Quantities and units	-	-
IEC 60050-113	-	International Electrotechnical Vocabulary - Part 113: Physics for electrotechnology	-	-
IEC 60050-114	-	International Electrotechnical Vocabulary - Part 114: Electrochemistry	-	-
IEC 60050-131	-	International Electrotechnical Vocabulary - Part 131: Circuit theory	-	-
IEC 60050-151	-	International Electrotechnical Vocabulary - Part 151: Electrical and magnetic devices	-	-
IEC 60050-161	-	International Electrotechnical Vocabulary. Chapter 161: Electromagnetic compatibility	-	-
IEC 60050-192	-	International electrotechnical vocabulary - Part 192: Dependability	-	-
IEC 60050-426	-	International Electrotechnical Vocabulary (IEV) - Part 426: Explosive atmospheres	-	-
IEC 60050-441	-	International Electrotechnical Vocabulary. Switchgear, controlgear and fuses	-	-
IEC 60050-442	-	International Electrotechnical Vocabulary - Part 442: Electrical accessories	-	-
IEC 60050-551	-	International Electrotechnical Vocabulary - Part 551: Power electronics	-	-

Publication	Year	Title	EN/HD	Year
IEC 60050-601	-	International Electrotechnical Vocabulary. Chapter 601: Generation, transmission and distribution of electricity - General	-	-
IEC 60050-826	-	International Electrotechnical Vocabulary - Part 826: Electrical installations	-	-
IEC 60050-903	-	International electrotechnical vocabulary_- Part_903: Risk assessment	-	-
IEC 60068-2-1	2007	Environmental testing - Part 2-1: Tests - Test A: Cold	EN 60068-2-1	2007
IEC 60068-2-2	2007	Environmental testing - Part 2-2: Tests - Test B: Dry heat	EN 60068-2-2	2007
IEC 60068-2-6	2007	Environmental testing - Part 2-6: Tests - Test Fc: Vibration (sinusoidal)	EN 60068-2-6	2008
IEC 60068-2-30	-	Environmental testing - Part 2-30: Tests - Test Db: Damp heat, cyclic (12 h + 12 h cycle)	EN 60068-2-30	-
IEC 60068-2-30	2005	Environmental testing - Part 2-30: Tests - Test Db: Damp heat, cyclic (12 h + 12 h cycle)	EN 60068-2-30	2005
IEC 60068-2-52	2017	Environmental testing - Part 2-52: Tests - Test Kb: Salt mist, cyclic (sodium chloride solution)	EN IEC 60068-2-52	2018
IEC 60068-2-68	1994	Environmental testing - Part 2-68: Tests - Test L: Dust and sand	EN 60068-2-68	1996
IEC 60068-2-78	2012	Environmental testing - Part 2-78: Tests - Test Cab: Damp heat, steady state	EN 60068-2-78	2013
IEC 60204-11	2018	Safety of machinery - Electrical equipment of machines - Part 11: Requirements for equipment for voltages above 1 000 V AC or 1 500 V DC and not exceeding 36 kV	EN IEC 60204-11	2019
IEC 60320	-	Appliance couplers for household and similar general purposes	-	-
IEC 60364	series	Low-voltage electrical installations	HD 60364	series
+ A1	2017		-	-
IEC 60364-4-41 (mod)	2005	Low-voltage electrical installations - Part 4-41: Protection for safety - Protection against electric shock	HD 60364-4-41	2017
-	-		+ A11	2017
-	-		+ A12	2019
IEC 60364-5-54	2011	Low-voltage electrical installations - Part 5-54: Selection and erection of electrical equipment - Earthing arrangements and protective conductors	HD 60364-5-54	2011
-	-		+ A11	2017
IEC 60417	-	Graphical symbols for use on equipment. Index, survey and compilation of the single sheets.	-	-

Publication	Year	Title	EN/HD	Year
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529	1991
-	-		+ corrigendum May	1993
+ A1	1999		+ A1	2000
+ A2	2013		+ A2	2013
IEC 60617	-	Standard data element types with associated classification scheme for electric components - Part 4: IEC reference collection of standard data element types and component classes	-	-
IEC 60664-1	2020	Insulation coordination for equipment within low-voltage supply systems - Part 1: Principles, requirements and tests	EN IEC 60664-1	2020
IEC 60664-3	2016	Insulation coordination for equipment within low-voltage systems - Part 3: Use of coating, potting or moulding for protection against pollution	EN 60664-3	2017
IEC 60664-4	2005	Insulation coordination for equipment within low-voltage systems - Part 4: Consideration of high-frequency voltage stress	EN 60664-4	2006
-	-		+ corrigendum Oct.	2006
IEC 60695-2-10	2021	Fire hazard testing - Part 2-10: Glowing/hot-wire based test methods - Glow-wire apparatus and common test procedure	EN IEC 60695-2-10	2021
IEC 60695-2-11	2021	Fire hazard testing - Part 2-11: Glowing/hot-wire based test methods - Glow-wire flammability test method for end products (GWEPT)	EN IEC 60695-2-11	2021
IEC 60695-2-13	2021	Fire hazard testing - Part 2-13: Glowing/hot-wire based test methods - Glow-wire ignition temperature (GWIT) test method for materials	EN IEC 60695-2-13	2021
IEC 60695-10-2	2014	Fire hazard testing - Part 10-2: Abnormal heat - Ball pressure test method	EN 60695-10-2	2014
IEC 60695-11-10	2013	Fire hazard testing - Part 11-10: Test flames - 50 W horizontal and vertical flame test methods	EN 60695-11-10	2013
IEC 60695-11-20	2015	Fire hazard testing - Part 11-20: Test flames - 500 W flame test method	EN 60695-11-20	2015
+ A1	1995		-	-
+ A2	1996		-	-
IEC 60721-3-3	1994	Classification of environmental conditions - Part 3: Classification of groups of environmental parameters and their severities - Section 3: Stationary use at weatherprotected locations	-	-

Publication	Year	Title	EN/HD	Year
IEC 60721-3-4	2019	Classification of environmental conditions - Part 3-4: Classification of groups of environmental parameters and their severities - Stationary use at non-weatherprotected locations	EN IEC 60721-3-4	2019
IEC 60730-1 (mod)	2013	Automatic electrical controls - Part 1: General requirements	EN 60730-1	2016
+ A1	2015		+ A1	2019
+ A2	2020		+ A2	2022
IEC 60755	2017	General safety requirements for residual current operated protective devices	-	-
IEC 60799	2018	Electrical accessories - Cord sets and interconnection cord sets	EN IEC 60799	2021
IEC 60947-4-1	2018	Low-voltage switchgear and controlgear - Part 4-1: Contactors and motor-starters - Electromechanical contactors and motor-starters	EN IEC 60947-4-1	2019
IEC 60990	2016	Methods of measurement of touch current and protective conductor current	EN 60990	2016
IEC 61032	1997	Protection of persons and equipment by enclosures - Probes for verification	EN 61032	1998
IEC 61084	series	Cable trunking systems and cable ducting systems for electrical installations	-	series
IEC 61180	2016	High-voltage test techniques for low-voltage equipment - Definitions, test and procedure requirements, test equipment	EN 61180	2016
IEC 61189-3	2007	Test methods for electrical materials, printed boards and other interconnection structures and assemblies - Part 3: Test methods for interconnection structures (printed boards)	EN 61189-3	2008
IEC 61230	2008	Live working - Portable equipment for earthing or earthing and short-circuiting	EN 61230	2008
IEC 61386	series	Conduit systems for cable management	EN 61386	series
IEC 61558-1	2017	Safety of transformers, reactors, power supply units and combinations thereof – Part 1: General requirements and tests	EN IEC 61558-1	2019
IEC 62109-1	2010	Safety of power converters for use in photovoltaic power systems - Part 1: General requirements	EN 62109-1	2010
IEC 62271-102	2018	High-voltage switchgear and controlgear - Part 102: Alternating current disconnectors and earthing switches	EN IEC 62271-102	2018
IEC 62477-1	2022	Safety requirements for power electronic converter systems and equipment - Part 1: General	EN IEC 62477-1	2023
IEC 62477-2	2018	Safety requirements for power electronic converter systems and equipment - Part 2: Power electronic converters from 1 000 V AC or 1 500 V DC up to 36 kV AC or 54 kV DC	EN IEC 62477-2	2018

Publication	Year	Title	EN/HD	Year
ISO 3746	-	Acoustics - Determination of sound power levels and sound energy levels of noise sources using sound pressure - Survey method using an enveloping measurement surface over a reflecting plane	EN ISO 3746	-
ISO 3864-1	2011	Graphical symbols - Safety colours and safety signs - Part 1: Design principles for safety signs and safety markings	-	-
ISO 7000	-	Graphical symbols for use on equipment - Registered symbols	-	-
ISO 7010	-	Graphical symbols - Safety colours and safety signs - Registered safety signs	-	-
ISO 9614-1	-	Acoustics - Determination of sound power levels of noise sources using sound intensity - Part 1: Measurement at discrete points	EN ISO 9614-1	2009

IEC 61800-5-1

Edition 3.0 2022-08

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Adjustable speed electrical power drive systems – Part 5-1: Safety requirements – Electrical, thermal and energy

Entraînements électriques de puissance à vitesse variable – Partie 5-1: Exigences de sécurité – Électrique, thermique et énergétique

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

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