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Električne naprave za shranjevanje energije (EES) - 5-1. del: Varnostni vidiki za sisteme EES, vključene v omrežje - Splošna specifikacija (IEC 62933-5-1:2024)

Electrical energy storage (EES) systems - Part 5-1: Safety considerations for grid-integrated EES systems - General specification (IEC 62933-5-1:2024)

Elektrische Energiespeichersysteme (EES-Systeme) - Teil 5-1: Sicherheitserwägungen für netzintegrierte EES-Systeme - Allgemeine Spezifikation (IEC 62933-5-1:2024)

Systèmes de stockage de l'énergie électrique (EES) - Partie 5-1: Considérations de sécurité pour les systèmes EES intégrés au réseau - Spécifications générales (IEC 62933-5-1:2024)

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**Electrical energy storage (EES) systems - Part 5-1: Safety considerations for grid-integrated EES systems - General specification
(IEC 62933-5-1:2024)**

Systèmes de stockage de l'énergie électrique (EES) - Partie 5-1: Considérations de sécurité pour les systèmes EES intégrés au réseau - Spécifications générales
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Elektrische Energiespeichersysteme (EES-Systeme) - Teil 5-1: Sicherheitserwägungen für netzintegrierte EES-Systeme - Allgemeine Spezifikation
(IEC 62933-5-1:2024)

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Europäisches Komitee für Elektrotechnische Normung

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EN IEC 62933-5-1:2024 (E)**European foreword**

The text of document 120/368/FDIS, future edition 1 of IEC 62933-5-1, prepared by TC 120 "Electrical Energy Storage (EES) systems" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62933-5-1:2024.

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- latest date by which the document has to be implemented at national (dop) 2025-06-03 level by publication of an identical national standard or by endorsement
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In the official version, for Bibliography, the following notes have to be added for the standard indicated:

IEC 60079-0	NOTE	Approved as EN IEC 60079-0
IEC 60079-10-1	NOTE	Approved as EN IEC 60079-10-1
IEC 60079-10-2	NOTE	Approved as EN 60079-10-2
IEC 60085	NOTE	Approved as EN 60085
IEC 60127-1	NOTE	Approved as EN 60127-1
IEC 60309 series	NOTE	Approved as EN IEC 60309 series
IEC 60317 series	NOTE	Approved as EN IEC 60317 series
IEC 60335-2-40	NOTE	Approved as EN IEC 60335-2-40
IEC 60691	NOTE	Approved as EN IEC 60691
IEC 60730-1	NOTE	Approved as EN 60730-1
IEC 60730-2-8	NOTE	Approved as EN IEC 60730-2-8
IEC 60738-1	NOTE	Approved as EN IEC 60738-1
IEC 60812:2018	NOTE	Approved as EN IEC 60812:2018 (not modified)
IEC 60896-11	NOTE	Approved as EN 60896-11
IEC 60896-21	NOTE	Approved as EN 60896-21
IEC 60896-22	NOTE	Approved as EN 60896-22

IEC 60947-1	NOTE	Approved as EN IEC 60947-1
IEC 60947-7 series	NOTE	Approved as EN IEC 60947-7 series
IEC 60999-1	NOTE	Approved as EN 60999-1
IEC 60999-2	NOTE	Approved as EN 60999-2
IEC 61000 series	NOTE	Approved as EN IEC 61000 series
IEC 61025:2006	NOTE	Approved as EN 61025:2007 (not modified)
IEC 61058-1	NOTE	Approved as EN IEC 61058-1
IEC 61140	NOTE	Approved as EN 61140
IEC 61204-7	NOTE	Approved as EN IEC 61204-7
IEC 61508-1	NOTE	Approved as EN 61508-1
IEC 61508-4:2010	NOTE	Approved as EN 61508-4:2010 (not modified)
IEC 61558-1	NOTE	Approved as EN IEC 61558-1
IEC 61558-2-16	NOTE	Approved as EN 61558-2-16
IEC 61643-11	NOTE	Approved as EN 61643-11
IEC 61643-331	NOTE	Approved as EN IEC 61643-331
IEC 61810-1	NOTE	Approved as EN 61810-1
IEC 61882:2016	NOTE	Approved as EN 61882:2016 (not modified)
IEC 61984	NOTE	Approved as EN 61984
IEC 62271 series	NOTE	Approved as EN IEC 62271 series
IEC 62282-3-100	NOTE	Approved as EN IEC 62282-3-100
IEC 62351 series	NOTE	Approved as EN IEC 62351 series
IEC 62368-1:2018	NOTE	Approved as EN IEC 62368-1:2020 (not modified) +A11:2020
IEC 62485-1:2015	NOTE	Approved as EN IEC 62485-1:2018 (not modified)
IEC 62619	NOTE	Approved as EN IEC 62619
IEC 62932-2-2	NOTE	Approved as EN IEC 62932-2-2
IEC 62984-2	NOTE	Approved as EN IEC 62984-2
IEC 62990-2	NOTE	Approved as EN IEC 62990-2
IEC 63056	NOTE	Approved as EN IEC 63056
IEC 63115-2	NOTE	Approved as EN IEC 63115-2
ISO 12944 series	NOTE	Approved as EN ISO 12944 series
ISO 13732-1:2006	NOTE	Approved as EN ISO 13732-1:2008 (not modified)
ISO 13850:2015	NOTE	Approved as EN ISO 13850:2015 (not modified)
ISO 13857:2019	NOTE	Approved as EN ISO 13857:2019 (not modified)
ISO 19353:2019	NOTE	Approved as EN ISO 19353:2019 (not modified)

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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60068-2-52	-	Environmental testing - Part 2-52: Tests - Test Kb: Salt mist, cyclic (sodium chloride solution)	EN IEC 60068-2-52	-
IEC 60079-2	2014	Explosive atmospheres - Part 2: Equipment protection by pressurized enclosure "p"	EN 60079-2	2014
IEC 60204-1	-	Safety of machinery - Electrical equipment of machines - Part 1: General requirements	EN 60204-1	-
IEC 60204-11	-	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	-
IEC 60364	series	Low-voltage electrical installations	HD 60364	series
IEC 60364-4-41	2005	Low-voltage electrical installations - Part 4-41: Protection for safety - Protection against electric shock	HD 60364-4-41	2017
+ A1	2017		-	-
-	-		+ A11	2017
-	-		+ A12	2019
IEC 60364-4-43	-	Low-voltage electrical installations - Part 4-43: Protection for safety - Protection against overcurrent	HD 60364-4-43	-
IEC 60364-4-44	-	Low-voltage electrical installations - Part 4-44: Protection for safety - Protection against voltage disturbances and electromagnetic disturbances	HD 60364-4-442	-
IEC 60364-6	2016	Low voltage electrical installations - Part 6: Verification	HD 60364-6	2016
-	-		+ A11	2017
-	-		+ A12	2017

EN IEC 62933-5-1:2024 (E)

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
-	-		+ AC	2017-11
IEC 60529	-	Degrees of protection provided by enclosures (IP Code)	EN 60529	-
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 60695-11-10	-	Fire hazard testing - Part 11-10: Test flames - 50 W horizontal and vertical flame test methods	EN 60695-11-10	-
IEC 60730-1	2022	Automatic electrical controls - Part 1: General requirements	EN IEC 60730-1	2024
IEC 60730-2-9	-	Automatic electrical controls - Part 2-9: Particular requirements for temperature sensing control	EN IEC 60730-2-9	-
IEC 60947-5-1	-	Low-voltage switchgear and controlgear - Part 5-1: Control circuit devices and switching elements - Electromechanical control circuit devices	EN 60947-5-1	-
IEC 61000-1-2	-	Electromagnetic compatibility (EMC) - Part 1-2: General - Methodology for the achievement of functional safety of electrical and electronic systems including equipment with regard to electromagnetic phenomena	EN 61000-1-2	-
IEC 61000-6-1	-	Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity standard for residential, commercial and light-industrial environments	EN IEC 61000-6-1	-
IEC 61000-6-2	-	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity standard for industrial environments	EN IEC 61000-6-2	-
IEC 61000-6-3	-	Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for equipment in residential environments	EN IEC 61000-6-3	-
IEC 61000-6-4	-	Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments	EN IEC 61000-6-4	-
IEC 61000-6-5	-	Electromagnetic compatibility (EMC) - Part 6-5: Generic standards - Immunity for equipment used in power station and substation environment	EN 61000-6-5	-
IEC 61000-6-7	-	Electromagnetic compatibility (EMC) - Part 6-7: Generic standards - Immunity requirements for equipment intended to perform functions in a safety-related system (functional safety) in industrial locations	EN 61000-6-7	-
IEC/TR 61340-1	-	Electrostatics - Part 1: Electrostatic phenomena - Principles and measurements	-	-

EN IEC 62933-5-1:2024 (E)

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61439-1	-	Low-voltage switchgear and controlgear assemblies - Part 1: General rules	EN IEC 61439-1	-
IEC 61508	series	Functional safety of electrical/electronic/programmable electronic safety-related systems	EN 61508	series
IEC 61511	series	Functional safety - Safety instrumented systems for the process industry sector	EN 61511	series
IEC 61936-1	-	Power installations exceeding 1 kV AC and 1,5 kV DC - Part 1: AC	EN IEC 61936-1	-
IEC/TS 61936-2	-	Power installations exceeding 1 kV a.c. and 1,5 kV d.c. - Part 2: d.c.	-	-
IEC 62061	-	Safety of machinery - Functional safety of safety-related control systems	EN IEC 62061	-
IEC 62109-1	-	Safety of power converters for use in photovoltaic power systems - Part 1: General requirements	EN 62109-1	-
IEC 62109-2	-	Safety of power converters for use in photovoltaic power systems - Part 2: Particular requirements for inverters	EN 62109-2	-
IEC 62116	2014	Utility-interconnected photovoltaic inverters - Test procedure of islanding prevention measures	EN 62116	2014
IEC 62305-2	-	Protection against lightning - Part 2: Risk management	EN 62305-2	-
IEC 62443-3-3	-	Industrial communication networks - Network and system security - Part 3-3: System security requirements and security levels	EN IEC 62443-3-3	-
IEC 62477-1	2022	Safety requirements for power electronic converter systems and equipment - Part 1: General	EN IEC 62477-1	2023
IEC 62477-2	-	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	-
IEC 62689-2	-	Current and voltage sensors or detectors, to be used for fault passage indication purposes - Part 2: System aspects	EN 62689-2	-
IEC 62909-1	-	Bi-directional grid connected power converters - Part 1: General requirements	EN IEC 62909-1	-
IEC 62909-2	-	Bi-directional grid-connected power converters - Part 2: Interface of GCPC and distributed energy resources	EN IEC 62909-2	-
IEC 62933-1	-	Electrical energy storage (EES) systems - Part 1: Vocabulary	EN IEC 62933-1	-
IEC 62933-5-2	-	Electrical energy storage (EES) systems - Part 5-2: Safety requirements for grid-integrated EES systems - Electrochemical-	EN IEC 62933-5-2	-

EN IEC 62933-5-1:2024 (E)

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
		based systems		
ISO 1182	-	Reaction to fire tests for products - Non-combustibility test	EN ISO 1182	-
ISO 7010	-	Graphical symbols - Safety colours and safety signs - Registered safety signs	-	-
ISO 12100	2010	Safety of machinery - General principles for design - Risk assessment and risk reduction	EN ISO 12100	2010
ISO 13849	series	Safety of machinery - Safety-related parts of control systems	EN ISO 13849	series
ISO 15649	-	Petroleum and natural gas industries - Piping	-	-
ASME B31.1	-	Code for Pressure Piping, Section 1: Power Piping	-	-
ASME B31.3	-	Code for Pressure Piping, Section 3: Process piping	-	-
IEEE Std 1547.1	2020	Standard Conformance Test Procedures for Equipment Interconnecting Distributed Energy Resources with Electric Power Systems and Associated Interfaces	-	-

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**Electrical energy storage (EES) systems –
Part 5-1: Safety considerations for grid-integrated EES systems – General
specification**

**Systèmes de stockage de l'énergie électrique (EES) –
Partie 5-1: Considérations de sécurité pour les systèmes EES intégrés au
réseau – Spécifications générales**

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