

Safety requirements for secondary batteries and battery installations - Part 5: Safe operation of stationary lithium ion batteries

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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| See Eesti standard EVS-EN IEC 62485-5:2021 sisaldab Euroopa standardi EN IEC 62485-5:2021 ingliskeelset teksti. | This Estonian standard EVS-EN IEC 62485-5:2021 consists of the English text of the European standard EN IEC 62485-5:2021. |
| Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas. | This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation. |
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ICS 29.220.20, 29.220.30

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ICS 29.220.20; 29.220.30

English Version

Safety requirements for secondary batteries and battery installations - Part 5: Safe operation of stationary lithium ion batteries
(IEC 62485-5:2020)

Exigences de sécurité pour les batteries d'accumulateurs et les installations de batteries - Partie 5: Fonctionnement en toute sécurité des batteries ions-lithium stationnaires
(IEC 62485-5:2020)

Sicherheitsanforderungen an sekundäre Batterien und Batterieanlagen - Teil 5: Sicherer Betrieb von stationären Lithium-Ionen-Batterien
(IEC 62485-5:2020)

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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

European foreword

The text of document 21/1069/FDIS, future edition 1 of IEC 62485-5, prepared by IEC/TC 21 "Secondary cells and batteries" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62485-5:2021.

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) 2021-09-30
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2023-12-30

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

| | | |
|-----------------|------|------------------------------|
| IEC 60065 | NOTE | Harmonized as EN 60065 |
| IEC 60079-10-1 | NOTE | Harmonized as EN 60079-10-1 |
| IEC 60364-1 | NOTE | Harmonized as HD 60364-1 |
| IEC 60364-4-42 | NOTE | Harmonized as HD 60364-4-42 |
| IEC 60364-5-54 | NOTE | Harmonized as HD 60364-5-54 |
| IEC 60364-7-706 | NOTE | Harmonized as HD 60364-7-706 |
| IEC 60695-11-20 | NOTE | Harmonized as EN 60695-11-20 |
| IEC 60695-11-10 | NOTE | Harmonized as EN 60695-11-10 |
| IEC 60900 | NOTE | Harmonized as EN IEC 60900 |
| IEC 60950-1 | NOTE | Harmonized as EN 60950-1 |
| IEC 60990 | NOTE | Harmonized as EN 60990 |
| IEC 61000-4-2 | NOTE | Harmonized as EN 61000-4-2 |
| IEC 61000-6-5 | NOTE | Harmonized as EN 61000-6-5 |
| ISO 9773 | NOTE | Harmonized as EN ISO 9773 |

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.cenelec.eu.

| <u>Publication</u> | <u>Year</u> | <u>Title</u> | <u>EN/HD</u> | <u>Year</u> |
|-------------------------|-------------|--|----------------|-------------|
| IEC 60050-482 | - | International Electrotechnical Vocabulary - Part 482: Primary and secondary cells and batteries | - | - |
| 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 |
| +A1 | 2017 | | + A11 | 2017 |
| - | - | | + A12 | 2019 |
| IEC 60364-4-43 | - | IEC 60364-4-43 Ed. 4: Low-voltage electrical installations - Part 4-43: Protection for safety - Protection against overcurrent | - | - |
| IEC 60364-5-53 | - | Low-voltage electrical installations - Part 5-53: Selection and erection of electrical equipment - Protection, isolation, switching, control and monitoring | - | - |
| IEC 60364-5-54 | - | Low-voltage electrical installations - Part 5-54: Selection and erection of electrical equipment - Earthing arrangements and protective conductors | HD 60364-5-54 | - |
| IEC 60417 | - | Graphical symbols for use on equipment. Index, survey and compilation of the single sheets. | - | - |
| IEC 60529 | - | Degrees of protection provided by enclosures (IP Code) | - | - |
| 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 60755 | - | General safety requirements for residual current operated protective devices | - | - |

| <u>Publication</u> | <u>Year</u> | <u>Title</u> | <u>EN/HD</u> | <u>Year</u> |
|--------------------|-------------|--|-------------------------------|-------------|
| 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 ¹ | - |
| IEC 61000-6-4 | - | Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments | EN IEC 61000-6-4 | - |
| IEC 61000-6-7 | - | 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 61140 | - | Protection against electric shock - Common aspects for installation and equipment | EN 61140 | - |
| IEC/TR 61340-1 | - | Electrostatics - Part 1: Electrostatic phenomena - Principles and measurements | - | - |
| IEC 61340-5-1 | - | Electrostatics - Part 5-1: Protection of electronic devices from electrostatic phenomena - General requirements | EN 61340-5-1 | - |
| IEC 61660-1 | - | Short-circuit currents in d.c. auxiliary installations in power plants and substations - Part 1: Calculation of short-circuit currents | EN 61660-1 | - |
| IEC 61660-2 | - | Short-circuit currents in d.c. auxiliary installations in power plants and substations - Part 2: Calculation of effects | EN 61660-2 | - |
| IEC 62133-2 | - | Secondary cells and batteries containing alkaline or other non-acid electrolytes - Safety requirements for portable sealed secondary lithium cells, and for batteries made from them, for use in portable applications - Part 2: Lithium systems | EN 62133-2 | - |

¹ To be published. Stage at the time of publication: prEN IEC 61000-6-3:2019.

| <u>Publication</u> | <u>Year</u> | <u>Title</u> | <u>EN/HD</u> | <u>Year</u> |
|--------------------|-------------|--|----------------|-------------|
| IEC 62485-1 | - | Safety requirements for secondary batteries and battery installations - Part 1: General safety information | EN IEC 62485-1 | - |
| IEC 62619 | 2017 | Secondary cells and batteries containing alkaline or other non-acid electrolytes - Safety requirements for secondary lithium cells and batteries, for use in industrial applications | EN 62619 | 2017 |
| IEC 62620 | 2014 | Secondary cells and batteries containing alkaline or other non-acid electrolytes - Secondary lithium cells and batteries for use in industrial applications | EN 62620 | 2015 |
| ISO/IEC Guide 51 | - | Safety aspects - Guidelines for their inclusion in standards | - | - |
| ISO 3864 | series | Graphical symbols - Safety colours and safety signs | - | - |
| ISO 7010 | - | Graphical symbols - Safety colours and safety signs - Registered safety signs | - | - |

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Safety requirements for secondary batteries and battery installations –
Part 5: Safe operation of stationary lithium ion batteries**

**Exigences de sécurité pour les batteries d'accumulateurs et les installations
de batteries –
Partie 5: Fonctionnement en toute sécurité des batteries ions-lithium
stationnaires**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**SAFETY REQUIREMENTS FOR SECONDARY
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Part 5: Safe operation of stationary lithium ion batteries**FOREWORD**

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International Standard IEC 62485-5 has been prepared by IEC technical committee 21: Secondary cells and batteries.

The text of this International Standard is based on the following documents:

| | |
|--------------|------------------|
| FDIS | Report on voting |
| 21/1069/FDIS | 21/1076/RVD |

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

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

A list of all parts in the IEC 62485 series, published under the general title *Safety requirements for secondary batteries and battery installations*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

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INTRODUCTION

The described safety requirements comprise the protective measures to protect from hazards generated by electricity and chemical substances when using secondary batteries. In addition measures are described to maintain the functional safety of batteries and battery installations.

For electrical safety (protection against electric shock) under Clause 4, this document refers to IEC 60364-4-41. The pilot function of this document is fully observed by indication of cross-reference numbers of the relevant clauses, but interpretation is given where adoption to direct current (DC) circuits is required.

This document comes into force with the date of publication and applies to all new batteries and battery installations. Previous installations are intended to conform to the existing national standards at the time of installation. In the case of the redesign of old installations, this document applies.

Lithium ion cells/batteries used in stationary industrial applications are intended to fulfil safety requirements in accordance with IEC 62619.

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