



**BSI Standards Publication**

# **Safety requirements for secondary batteries and battery installations**

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Part 6: Safe operation of lithium-ion batteries in traction applications

## National foreword

This British Standard is the UK implementation of EN IEC 62485-6:2021. It is identical to IEC 62485-6:2021.

The UK participation in its preparation was entrusted to Technical Committee PEL/21, Secondary cells and batteries.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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### Amendments/corrigenda issued since publication

| Date | Text affected |
|------|---------------|
|------|---------------|

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English Version

Safety requirements for secondary batteries and battery  
installations - Part 6: Safe operation of lithium-ion batteries in  
traction applications  
(IEC 62485-6:2021)

Exigences de sécurité pour les batteries d'accumulateurs et  
les installations de batteries - Partie 6: Fonctionnement en  
toute sécurité des batteries ions-lithium dans les  
applications de traction  
(IEC 62485-6:2021)

Sicherheitsanforderungen an sekundäre Batterien und  
Batterieanlagen – Teil 6: Sicherer Betrieb von Lithium-  
Ionen-Batterien in Traktionsanwendungen  
(IEC 62485-6:2021)

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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 21/1071/FDIS, future edition 1 of IEC 62485-6:2021, prepared by IEC/TC 21 "Secondary cells and batteries" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62485-6:2021.

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) 2021-11-09
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2024-02-09

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## Endorsement notice

The text of the International Standard IEC 62485-6:2021 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 60664 (series)       | NOTE | Harmonized as EN 60664 (series)                                |
| IEC 60730-1:2013         | NOTE | Harmonized as EN 60730-1:2016 (modified)                       |
| IEC 60730-1:2013/A1:2015 | NOTE | Harmonized as EN 60730-1:2016/A1:2019 (not modified)           |
| IEC 60730-1:2013/A2:2020 | NOTE | Harmonized as EN 60730-1:2016/A2:— <sup>1</sup> (not modified) |
| IEC 60812                | NOTE | Harmonized as EN IEC 60812                                     |
| IEC 60900                | NOTE | Harmonized as EN IEC 60900                                     |
| IEC 61025                | NOTE | Harmonized as EN 61025                                         |
| IEC 61429                | NOTE | Harmonized as EN 61429                                         |
| IEC 61508-1              | NOTE | Harmonized as EN 61508-1                                       |
| IEC 62281                | NOTE | Harmonized as EN IEC 62281                                     |
| IEC 62485-1              | NOTE | Harmonized as EN IEC 62485-1                                   |
| IEC 62485-3:2014         | NOTE | Harmonized as EN 62485-3:2014 (not modified)                   |
| IEC 62902                | NOTE | Harmonized as EN IEC 62902                                     |
| IEC 62928                | NOTE | Harmonized as EN IEC 62928                                     |
| IEC 62660 (series)       | NOTE | Harmonized as EN 62660 (series)                                |

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<sup>1</sup> To be published. Stage at the time of publication: EN 60730-1:2016/FprA2:2020.

## 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](http://www.cenelec.eu).

| <u>Publication</u> | <u>Year</u> | <u>Title</u>                                                                                                                                                                                                     | <u>EN/HD</u>                  | <u>Year</u> |
|--------------------|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------|
| IEC 60204-1        | -           | Safety of machinery - Electrical equipment of machines - Part 1: General requirements                                                                                                                            | EN 60204-1                    | -           |
| 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 60529          | -           | Degrees of protection provided by enclosures (IP Code)                                                                                                                                                           | -                             | -           |
| 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 <sup>2</sup> | -           |

<sup>2</sup> To be published. Stage at the time of publication: prEN IEC 61000-6-3:2019.

## EN IEC 62485-6:2021 (E)

|               |        |                                                                                                                                                                                                              |                  |      |
|---------------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------|
| 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 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 3864      | series | Graphical symbols - Safety colours and safety signs                                                                                                                                                          | -                | -    |
| -             | -      | Safety of industrial trucks - Electrical requirements - Part 1: General requirements for battery powered trucks                                                                                              | EN 1175-1        | 1998 |
|               |        |                                                                                                                                                                                                              | +A1              | 2010 |

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## SAFETY REQUIREMENTS FOR SECONDARY BATTERIES AND BATTERY INSTALLATIONS –

### Part 6: Safe operation of lithium ion batteries in traction applications

#### FOREWORD

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International Standard IEC 62485-6 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 |
|--------------|------------------|
| 21/1071/FDIS | 21/1077/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.