Flow battery energy systems for stationary applications - Part 2-2: Safety requirements

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN IEC 62932-2-2:2020 sisaldab Euroopa standardi EN IEC 62932-2-2:2020 ingliskeelset teksti.	This Estonian standard EVS-EN IEC 62932-2-2:2020 consists of the English text of the European standard EN IEC 62932-2-2:2020.
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.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 17.04.2020.	Date of Availability of the European standard is 17.04.2020.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 29.220.99

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 62932-2-2

April 2020

ICS 29.220.99

English Version

Flow battery energy systems for stationary applications - Part 2-2: Safety requirements (IEC 62932-2-2:2020)

Systèmes de production d'énergie de batteries d'accumulateurs à circulation d'électrolyte pour applications stationnaires - Partie 2-2: Exigences de sécurité (IEC 62932-2-2:2020)

Flussbatterie-Systeme für stationäre Anwendungen - Teil 2-2: Sicherheitsanforderungen (IEC 62932-2-2:2020)

This European Standard was approved by CENELEC on 2020-03-24. 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.

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, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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 21/1029/FDIS, future edition 1 of IEC 62932-2-2, prepared by IEC/TC 21 "Secondary cells and batteries" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62932-2-2:2020.

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) 2020-12-24
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2023-03-24

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.

Endorsement notice

The text of the International Standard IEC 62932-2-2:2020 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 60529	NOTE	Harmonized as EN 60529
IEC 60664-1	NOTE	Harmonized as EN 60664-1
IEC 60721-3-2	NOTE	Harmonized as EN IEC 60721-3-2
IEC 60812	NOTE	Harmonized as EN IEC 60812
IEC 60900	NOTE	Harmonized as EN IEC 60900
IEC 61000 (series)	NOTE	Harmonized as EN 61000 (series)
IEC 61025	NOTE	Harmonized as EN 61025
IEC 61660-1	NOTE	Harmonized as EN 61660-1
IEC 61660-2	NOTE	Harmonized as EN 61660-2
IEC 61936-1	NOTE	Harmonized as EN 61936-1
IEC 62282-3-100	NOTE	Harmonized as EN 62282-3-100
IEC 62282-3-300	NOTE	Harmonized as EN 62282-3-300
IEC 62351 (series)	NOTE	Harmonized as EN 62351 (series)
IEC 62477-1	NOTE	Harmonized as EN 62477-1
IEC 62932-2-1	NOTE	Harmonized as EN IEC 62932-2-1[1]
ISO 13850	NOTE	Harmonized as EN ISO 13850

[1] To be published. Stage at the time of publication: FprEN IEC 62932-2-1:2019.

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.

Publication	Year	Title	EN/HD	Year
IEC 60079-10-1	-	Explosive atmospheres - Part 10-1: Classification of areas - Explosive gas atmospheres	EN 60079-10-1	-
IEC 60364-4-41	-	Low-voltage electrical installations - Part 4-41: Protection for safety - Protection against electric shock	HD 60364-4-41	-
IEC 60364-4-43	-	Low-voltage electrical installations - Part 4-43: Protection for safety - Protection against overcurrent	HD 60364-4-43	-
IEC 60364-6	-	Low voltage electrical installations - Part 6: Verification	HD 60364-6	-
IEC 61936-1	-	Power installations exceeding 1 kV a.c. - Part 1: Common rules	EN 61936-1	-
IEC 62485-2	2010	Safety requirements for secondary batteries and battery installations - Part 2: Stationary batteries	EN IEC 62485-2	2018
IEC 62932-1	-	Flow battery energy systems for stationary applications - Part 1: Terminology and general aspects	-	-
ISO 7010	-	Graphical symbols - Safety colours and safety signs - Registered safety signs	-	-

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

_____

FLOW BATTERY ENERGY SYSTEMS FOR STATIONARY APPLICATIONS –

Part 2-2: Safety requirements

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The objective of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
6) All users should ensure that they have the latest edition of this publication.
7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
8) Attention is drawn to the normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this edition.
9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 62932-2-2 has been prepared by IEC technical committee 21: Secondary cells and batteries, in collaboration with IEC technical committee 105: Fuel cell technologies.

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

FDIS	Report on voting
21/1029/FDIS	21/1035/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 62932 series, published under the general title *Flow battery energy systems for stationary applications*, 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

- reconfirmed
- withdrawn
- replaced by a revised edition, or
- amended.

INTRODUCTION

A flow battery system (FBS) can be utilized in a flow battery energy system (FBES). Such an FBES can consist of:

– a flow battery system,
– a power conversion system,
– other equipment and surroundings.

The FBES is connected to the external power input/output via a point of connection (POC).

This document covers the domain of the FBES, as shown in Figure 1. Energy to the auxiliary systems such as the battery management system (BMS), the battery support system (BSS), and the power conversion system (PCS) may be supplied by one of the following:

a) direct connection to the external power source;
b) the internal power source of the FBES or FBS itself.

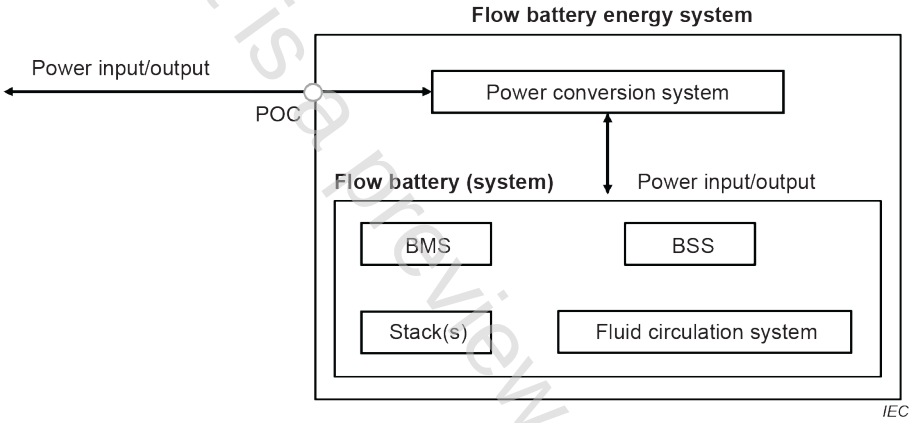

Figure 1 – Flow battery energy system