

INTERNATIONAL STANDARD

NORME INTERNATIONALE

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

**Systèmes de production d'énergie à batteries d'accumulateurs à circulation
d'électrolyte pour les applications stationnaires –
Partie 2-2: Exigences de sécurité**



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CONTENTS

FOREWORD.....	5
INTRODUCTION.....	7
1 Scope.....	8
2 Normative references	8
3 Terms, definitions and abbreviated terms	9
3.1 Terms and definitions.....	9
3.2 Abbreviated terms.....	9
4 Procedure of the risk analysis.....	9
5 Safety requirements and protective measures	10
5.1 General.....	10
5.2 Risk information.....	10
5.3 Electrical hazards	10
5.3.1 Electrical shock	10
5.3.2 Short-circuits	10
5.3.3 Leakage currents.....	11
5.4 Hazards of gaseous emissions.....	11
5.4.1 General	11
5.4.2 Harmful gas.....	12
5.4.3 Ventilation	13
5.4.4 Warning sign	13
5.4.5 Close vicinity to emissions.....	14
5.5 Hazard posed by liquids.....	14
5.5.1 General	14
5.5.2 Detection of electrolyte leakage.....	14
5.5.3 Protective measures against leakage.....	14
5.5.4 Specific information	14
5.5.5 Flow path identification.....	15
5.6 Hazards of mechanical cause	15
5.7 Operational hazards and measures.....	15
5.7.1 General	15
5.7.2 Start	15
5.7.3 Remote monitoring and control systems	16
5.7.4 Protection.....	16
5.7.5 Auxiliary power failure	16
6 Instructions.....	16
7 Identification labels or marking	16
7.1 Name plate information	16
7.2 Warning label information and location	17
8 Transport, storage, disposal and environmental aspects.....	17
8.1 Packing and transport.....	17
8.2 Dismantling, disposal, and recycling	17
9 Inspection.....	17
10 Maintenance.....	18
11 Verification tests for protective measures	18

11.1	General.....	18
11.1.1	Tests	18
11.1.2	Test object.....	19
11.1.3	Test category.....	19
11.2	Dielectric strength of the parts in contact with the fluid.....	19
11.2.1	Requirements	19
11.2.2	Category.....	19
11.2.3	Number of samples.....	19
11.2.4	Test and acceptance criteria.....	19
11.3	Operational sequence	19
11.3.1	Requirements	19
11.3.2	Category.....	19
11.3.3	Number of samples.....	19
11.3.4	Test.....	20
11.3.5	Acceptance criteria	20
11.4	Emergency stop	20
11.4.1	Requirement.....	20
11.4.2	Category.....	20
11.4.3	Number of samples.....	20
11.4.4	Test.....	20
11.4.5	Acceptance criteria	20
11.5	Protection	20
11.5.1	Requirements	20
11.5.2	Category.....	21
11.5.3	Number of samples.....	21
11.5.4	Test.....	21
11.5.5	Acceptance criteria	21
11.6	Safety requirement for stacks	21
Annex A	(informative) Recommended structure of user manual	22
A.1	General.....	22
A.2	Table of contents	22
A.3	Safety warning.....	22
A.4	Introduction.....	22
A.5	Product description	22
A.5.1	Overview	22
A.5.2	Technical specifications.....	23
A.5.3	System structure.....	23
A.5.4	Applications.....	23
A.5.5	Operational sequence.....	23
A.6	Site requirements.....	23
A.6.1	Location and load	23
A.6.2	Access and clearance.....	23
A.6.3	Precautionary measures for fluid containment.....	23
A.6.4	Ventilation	24
A.6.5	Temperature	24
A.7	Operation.....	24
A.7.1	General	24
A.7.2	Checks before operation.....	24
A.7.3	Energizing and de-energizing the system.....	24

A.7.4	Valve status.....	24
A.7.5	Specific operations	24
A.7.6	Notices for operation	24
A.8	Alarms and fault finding	25
A.9	Maintenance	25
A.10	Contact information.....	25
Annex B (normative)	Safety requirements for stacks	26
B.1	General.....	26
B.2	External short-circuit of the stack.....	26
B.2.1	Requirements	26
B.2.2	Category.....	26
B.2.3	Number of samples.....	26
B.2.4	Test.....	26
B.2.5	Acceptance criteria	26
B.3	Heat shock strength.....	27
B.3.1	Requirements	27
B.3.2	Category.....	27
B.3.3	Number of samples.....	27
B.3.4	Test.....	27
B.3.5	Acceptance criteria	27
B.4	Leakage of the stack.....	27
B.4.1	Requirements	27
B.4.2	Category.....	28
B.4.3	Number of samples.....	28
B.4.4	Test.....	28
B.4.5	Acceptance criteria	28
Bibliography.....		29
Figure 1 – Flow battery energy system.....		7
Table 1 – List of verification tests for protective measurements		18
Table B.1 – List of verification tests for stacks for protective measurements		26

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FLOW BATTERY ENERGY SYSTEMS FOR STATIONARY APPLICATIONS –**Part 2-2: Safety requirements**

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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.

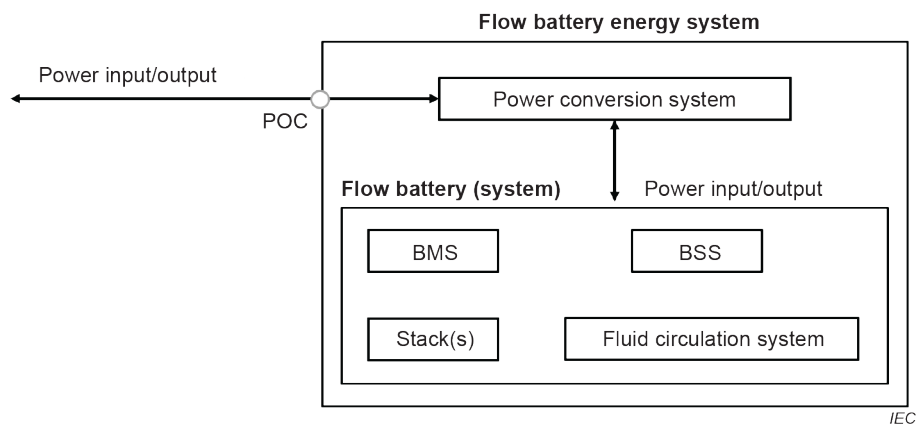


Figure 1 – Flow battery energy system

FLOW BATTERY ENERGY SYSTEMS FOR STATIONARY APPLICATIONS –

Part 2-2: Safety requirements

1 Scope

This part of IEC 62932 applies to flow battery systems for stationary applications and their installations with a maximum voltage not exceeding 1 500 V DC in compliance with IEC 62932-1.

This document defines the requirements and test methods for risk reduction and protection measures against significant hazards relevant to flow battery systems, to persons, property and the environment, or to a combination of them.

This document is applicable to stationary flow battery systems intended for indoor and outdoor commercial and industrial use in non-hazardous (unclassified) areas.

This document covers significant hazards, hazardous situations and events, with the exception of those associated with natural disaster, relevant to flow battery systems, when they are used as intended and under the conditions foreseen by the manufacturer including reasonably foreseeable misuse thereof.

The requirements described in this document are not intended to constrain innovations. When considering fluids, materials, designs or constructions not specifically dealt with in this document, these alternatives are evaluated as to their ability to yield levels of safety equivalent to those specified in this document.

2 Normative references

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.

IEC 60079-10-1, *Explosive atmospheres – Part 10-1: Classification of areas – Explosive gas atmospheres*

IEC 60364-4-41, *Low-voltage electrical installations – Part 4-41: Protection for safety – Protection against electric shock*

IEC 60364-4-43, *Low-voltage electrical installations – Part 4-43: Protection for safety – Protection against overcurrent*

IEC 60364-6, *Low voltage electrical installations – Part 6: Verification*

IEC 61936-1, *Power installations exceeding 1 kV a.c. – Part 1: Common rules*

IEC 62485-2:2010, *Safety requirements for secondary batteries and battery installations – Part 2: Stationary batteries*

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*