IEC TS 62933-3-2

Edition 1.0 2023-01

TECHNICAL SPECIFICATION

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Electrical energy storage (EES) systems – Part 3-2: Planning and performance assessment of electrical energy storage systems – Additional requirements for power intensive and renewable energy sources integration related applications

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ICS 13.020.30

ISBN 978-2-8322-6326-6

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IEC TS 62933-3-2 has been prepared by IEC technical committee 120: Electrical Energy Storage (EES) Systems. It is a Technical Specification.

This Technical Specification is based on IEC TS 62933-3-1:2018 and is to be used in conjunction with IEC TS 62933-3-3:2022.

The text of this Technical Specification is based on the following documents:

Draft	Report on voting
120/263A/DTS	120/278/RVDTS 120/278A/RVDTS

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this Technical Specification is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts in the IEC 62933 series, published under the general title *Electrical energy storage (EES) systems*, 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 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- withdrawn,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.

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INTRODUCTION

This part of IEC 62933 should be used as a reference when planning, designing, controlling and operating power intensive and renewable energy sources integration related applications of EES systems.

ELECTRICAL ENERGY STORAGE (EES) SYSTEMS –

Part 3-2: Planning and performance assessment of electrical energy storage systems – Additional requirements for power intensive and renewable energy sources integration related applications

1 Scope

This part of IEC 62933 provides the requirements for power intensive and renewable energy sources integration related applications of EES systems, including grid integration, performance indicators, sizing and planning, operation and control, monitoring and maintenance. The power intensive applications of EES systems are usually used to improve the dynamic performance of the grid by discharging or charging based on corresponding control strategies. The renewable energy sources integration related applications of EES systems are usually used to mitigate short-term fluctuation and/or to keep long-term stability. This document includes the following applications of EES systems:

– frequency regulation/support;
– grid voltage support ($Q(U)$) (“volt/var support”);
– voltage sag mitigation;
– renewable energy sources integration related applications;
– power oscillation damping (POD).

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 60721-1, *Classification of environmental conditions – Part 1: Environmental parameters and their severities*

IEC 61850 (all parts), *Communication networks and systems for power utility automation*

IEC TS 62786, *Distributed energy resources connection with the grid*

IEC TS 62933-1:2018, *Electrical energy storage (EES) systems – Part 1: Vocabulary*

IEC TS 62933-3-1, *Electrical energy storage (EES) systems – Part 3-1: Planning and performance assessment of electrical energy storage systems – General specification*

IEC TS 62933-3-3, *Electrical energy storage (EES) systems – Part 3-3: Planning and performance assessment of electrical energy storage systems – Additional requirements for energy intensive and backup power applications*

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

IEC TS 62933-5-2, *Electrical energy storage (EES) systems – Part 5-2: Safety requirements for grid-integrated EES systems – Electrochemical-based systems*

IEC/IEEE 60255-118-1, *Measuring relays and protection equipment – Part 118-1: Synchrophasor for power systems – Measurements*

ISO 5660-1, *Reaction-to-fire tests – Heat release, smoke production and mass loss rate – Part 1: Heat release rate (cone calorimeter method) and smoke production rate (dynamic measurement)*

IEEE C37.118-2015, *IEEE Standard for Synchrophasors for Power Systems*