Photovoltaic system power conversion equipment - Design qualification and type approval

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN IEC 62093:2022 sisaldab Euroopa standardi EN IEC 62093:2022 ingliskeelset teksti.	This Estonian standard EVS-EN IEC 62093:2022 consists of the English text of the European standard EN IEC 62093:2022.
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.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 18.02.2022.	Date of Availability of the European standard is 18.02.2022.
Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

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ICS 27.160

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 62093

February 2022

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Supersedes EN 62093:2005 and all of its amendments and corrigenda (if any)

English Version

Photovoltaic system power conversion equipment - Design qualification and type approval (IEC 62093:2022)

Matériel de conversion de puissance des systèmes photovoltaïques - Qualification de la conception et approbation de type (IEC 62093:2022)

Leistungsumrichter für photovoltaische Systeme - Prüfung der Bauarteignung (IEC 62093:2022)

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Ref. No. EN IEC 62093:2022 E

European foreword

The text of document 82/1963/FDIS, future edition 2 of IEC 62093, prepared by IEC/TC 82 "Solar photovoltaic energy systems" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62093:2022.

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) 2022-11-14
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2025-02-14

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Endorsement notice

The text of the International Standard IEC 62093:2022 was approved by CENELEC as a European Standard without any modification.

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 60068-2-2	2007	Environmental testing - Part 2-2: Tests - Test B: Dry heat	EN 60068-2-2	2007
IEC 60068-2-6	-	Environmental testing - Part 2-6: Tests - Test Fc: Vibration (sinusoidal)	EN 60068-2-6	-
IEC 60068-2-14	-	Environmental testing - Part 2-14: Tests - Test N: Change of temperature	EN 60068-2-14	-
IEC 60068-2-27	-	Environmental testing - Part 2-27: Tests - Test Ea and guidance: Shock	EN 60068-2-27	-
IEC 60068-2-52	-	Environmental testing - Part 2-52: Tests – Test Kb: Salt mist, cyclic (sodium, chloride solution)	EN IEC 60068-2-52	-
IEC 60068-2-60	2015	Environmental testing - Part 2-60: Tests - Test Ke: Flowing mixed gas corrosion test	EN 60068-2-60	2015
IEC 60068-2-68	-	Environmental testing - Part 2-68: Tests - Test L: Dust and sand	EN 60068-2-68	-
IEC 60068-2-78	-	Environmental testing - Part 2-78: Tests - Test Cab: Damp heat, steady state	EN 60068-2-78	-
IEC 60068-3-5	2018	Environmental testing - Part 3-5: Supporting documentation and guidance - Confirmation of the performance of temperature chambers	EN IEC 60068-3-5	2018
IEC 60068-3-6	-	Environmental testing - Part 3-6: Supporting documentation and guidance – Confirmation of the performance of temperature/humidity changes	EN IEC 60068-3-6	-
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529	1991
-	-		+ corrigendum May	1993
+ A1	1999		+ A1	2000
+ A2	2013		+ A2	2013

IEC 60721-3-3	-	Classification of environmental conditions - Part 3-3: Classification of groups of environmental parameters and their severities - Stationary use at weather protected locations	EN IEC 60721-3-3	-
IEC 60721-3-4	-	Classification of environmental conditions - Part 3-4: Classification of groups of environmental parameters and their severities - Stationary use at non-weather protected locations	EN IEC 60721-3-4	-
IEC 61000-3-2	-	Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)	EN IEC 61000-3-2	-
IEC 61000-3-12	-	Electromagnetic compatibility (EMC) - Part 3-12: Limits - Limits for harmonic currents produced by equipment connected to public low-voltage systems with input current >16 A and ≤ 75 A per phase	EN 61000-3-12	-
IEC/TR 61000-3-14	-	Electromagnetic compatibility (EMC) - Part 3-14: Assessment of emission limits for harmonics, interharmonics, voltage fluctuations and unbalance for the connection of disturbing installations to LV power systems		
IEC 61180	-	High-voltage test techniques for low-voltage equipment - Definitions, test and procedure requirements, test equipment	EN 61180	-
IEC 61557-1	-	Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC - Equipment for testing, measuring or monitoring of protective measures - Part 1: General requirements	EN IEC 61557-1	-
IEC/TS 61836	-	Solar photovoltaic energy systems - Terms, definitions and symbols		
IEC 62109-1	2010	Safety of power converters for use in photovoltaic power systems - Part 1: General requirements	EN 62109-1	2010
IEC 62116	2014	Utility-interconnected photovoltaic inverters - Test procedure of islanding prevention measures	EN 62116	2014
IEC 62477-1	2012	Safety requirements for power electronic converter systems and equipment - Part 1: General	EN 62477-1	2012
-	-		+ A11	2014
+ A1	2016		+ A1	2017
-	-		+ A12	2021
IEC 62716	2013	Photovoltaic (PV) modules - Ammonia corrosion testing	EN 62716	2013
IEC 62852	-	Connectors for DC-application in photovoltaic systems - Safety requirements and tests	EN 62852	-

IEC 62894	2014	Photovoltaic inverters - Data sheet and name plate	-	-
+ A1	2016		-	-
IEC/TS 63106-2		Basic requirements for simulator used for testing of photovoltaic power conversion equipment - Part 2: DC power simulator	-	-
ISO 4892-2	-	Plastics - Methods of exposure to laboratory light sources - Part 2: Xenon-arc lamps	EN ISO 4892-2	-
ISO 12103-1	2016	Road vehicles - Test contaminants for filter evaluation - Part 1: Arizona test dust	-	-
ISO 22479	2019	Corrosion of metals and alloys - Sulfur dioxide test in a humid atmosphere (fixed gas method)	-	-

IEC 62093

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Photovoltaic system power conversion equipment – Design qualification and type approval

Matériel de conversion de puissance des systèmes photovoltaïques – Qualification de la conception et approbation de type

IEC 62093:2022-01(en-fr)

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

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CONTENTS

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PHOTOVOLTAIC SYSTEM POWER CONVERSION EQUIPMENT – DESIGN QUALIFICATION AND TYPE APPROVAL

FOREWORD

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IEC 62093 has been prepared by IEC technical committee 82: Solar photovoltaic energy systems. It is an International Standard.

This second edition cancels and replaces the first edition published in 2005. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) Title modified.
b) This edition focusses on the design qualification of power conversion electronics (PCE), and eliminates the clauses associated with qualification testing of other balance of system components.
c) While many clause titles remain the same as the first edition, substantial changes have been made.
d) Whereas the first edition establishes requirements for the design qualification of balance-of-system components used in terrestrial photovoltaic (PV) systems, this edition is limited to power conversion equipment.

e) The test protocols have been changed.

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

Draft	Report on voting
82/1963/FDIS	82/1983/RVD

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 International Standard 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/standardsdev/publications.

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