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Fuel cell technologies - Part 3-201: Stationary fuel cell power systems - Performance test methods for small fuel cell power systems

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 03/26

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Fuel cell technologies - Part 3-201: Stationary fuel cell power systems - Performance test methods for small fuel cell power systems
(IEC 62282-3-201:2025)

Technologies des piles à combustible - Partie 3-201:
Systèmes à piles à combustible stationnaires - Méthodes
d'essai des performances pour petits systèmes à piles à
combustible
(IEC 62282-3-201:2025)

Brennstoffzellentechnologien - Teil 3-201: Stationäre
Brennstoffzellen-Energiesysteme -
Leistungskennwertprüfverfahren für kleine
Brennstoffzellen-Energiesysteme
(IEC 62282-3-201:2025)

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EN IEC 62282-3-201:2025 (E)**European foreword**

The text of document 105/1114/FDIS, future edition 3 of IEC 62282-3-201, prepared by TC 105 "Fuel cell technologies" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62282-3-201:2025.

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) 2026-11-30
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2028-11-30

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In the official version, for Bibliography, the following notes have to be added for the standard indicated:

IEC 61672-1	NOTE	Approved as EN 61672-1
IEC 61672-2	NOTE	Approved as EN 61672-2
IEC 62282-3-200:2025	NOTE	Approved as EN IEC 62282-3-200: — ¹ (not modified)
ISO 6974 (series)	NOTE	Approved as EN ISO 6974 (series)
ISO 6975	NOTE	Approved as EN ISO 6975
ISO 7941	NOTE	Approved as EN 27941
ISO 9000	NOTE	Approved as EN ISO 9000
ISO 10523	NOTE	Approved as EN ISO 10523
ISO 11541	NOTE	Approved as EN ISO 11541
ISO 80000 (series)	NOTE	Approved as EN ISO 80000 (series)

¹ Under preparation. Stage at the time of publication: EN IEC 62282-3-200:2025.

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.cencenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
CISPR 11	-	Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement	EN IEC 55011	-
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 61000-4-2	-	Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test	EN IEC 61000-4-2	-
IEC 61000-4-3	-	Electromagnetic compatibility (EMC) - Part 4-3 : Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test	EN IEC 61000-4-3	-
IEC 61000-4-4	-	Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test	EN 61000-4-4	-
IEC 61000-4-5	-	Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test	EN 61000-4-5	-
IEC 61000-4-6	-	Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields	EN IEC 61000-4-6	-
IEC 61000-4-8	-	Electromagnetic compatibility (EMC) - Part 4-8: Testing and measurement techniques - Power frequency magnetic field immunity test	EN 61000-4-8	-
IEC 61000-4-11	-	Electromagnetic compatibility (EMC) - Part 4-11: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests for equipment with input current up to 16 A per phase	EN IEC 61000-4-11	-
IEC 61000-6-1	2016	Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity standard for residential, commercial and light-industrial environments	EN IEC 61000-6-1	2019



IEC 62282-3-201

Edition 3.0 2025-09

INTERNATIONAL STANDARD

**Fuel cell technologies -
Part 3-201: Stationary fuel cell power systems - Performance test methods for
small fuel cell power systems**



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**Fuel cell technologies -
Part 3-201: Stationary fuel cell power systems -
Performance test methods for small fuel cell power systems**

FOREWORD

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IEC 62282-3-201 has been prepared by IEC technical committee 105: Fuel cell technologies. It is an International Standard.

This third edition cancels and replaces the second edition published in 2017 and Amendment 1:2022. This edition constitutes a technical revision.

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

- a) revision of Introduction;
- b) revision of terms and definitions;
- c) revision of Table 1;
- d) revision of Figure 1, Figure 2, Figure 3 and Figure 4;
- e) revision of measurement instruments (10.2);

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- f) revision of minimum required measurement systematic uncertainty (10.4);
- g) revision of test conditions (Clause 11);
- h) revision of operating process (Clause 12);
- i) revision of fuel consumption test (14.2);
- j) revision of heat recovery test (14.4);
- k) revision of Figure 13 and Figure 14;
- l) revision of calculation of results (14.14.4);
- m) revision of Annex A and Annex B.

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

Draft	Report on voting
105/1114/FDIS	105/1128/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/publications.

A list of all parts in the IEC 62282 series, published under the general title *Fuel cell technologies*, 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, or
- revised.

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INTRODUCTION

This part of IEC 62282 provides consistent and repeatable test methods for the electrical, thermal and environmental performance of small stationary fuel cell power systems.

This document limits its scope to small stationary fuel cell power systems (electrical power output below 10 kW, which is typical for residential, small commercial and off-grid applications) and provides test methods specifically designed for them in detail. It is based on the latest edition of IEC 62282-3-200, which generally describes performance test methods that are common to all types of fuel cells.

This document is intended for manufacturers of small stationary fuel cell power systems or those who evaluate the performance of their systems for certification purposes, or both.

Users of this document can selectively execute test items that are suitable for their purposes from those described in this document. This document is not intended to exclude any other methods.

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1 Scope

This part of IEC 62282 provides test methods for the electrical, thermal, and environmental performance of small stationary fuel cell power systems that meet the following criteria:

- output: rated electric power output of less than 10 kW;
- output mode: grid-connected/independent operation or stand-alone operation with single-phase AC output or 3-phase AC output not exceeding 1 000 V, or DC output not exceeding 1 500 V;

NOTE The limit of 1 000 V for alternating current comes from the definition for "low voltage" given in IEC 60050-601:1985, 601-01-26.

- operating pressure: maximum allowable working pressure of 0,1 MPa (gauge) for the fuel and oxidant passages;
- fuel: gaseous fuel (natural gas, liquefied petroleum gas, propane, butane, hydrogen, etc.) or liquid fuel (kerosene, methanol, etc.);
- oxidant: air.

This document describes type tests and their test methods only. No routine tests are required or identified, and no performance targets are set in this document.

This document provides test methods to be carried out under laboratory conditions.

This document covers fuel cell power systems whose primary purpose is the production of electric power and whose secondary purpose can be the utilization of heat. Accordingly, fuel cell power systems for which the use of heat is primary, and the use of electric power is secondary are outside the scope of this document.

All systems with integrated batteries are covered by this document. This includes systems where batteries are recharged internally or recharged from an external source.

This document does not cover additional auxiliary heat generators that produce thermal energy.

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.

CISPR 11, *Industrial, scientific, and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement*

IEC 61000-3-2, *Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)*

IEC 61000-4-2, *Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test*

IEC 61000-4-3, *Electromagnetic compatibility (EMC) - Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test*

IEC 61000-4-4, *Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test*

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IEC 61000-4-5, *Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test*

IEC 61000-4-6, *Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields*

IEC 61000-4-8, *Electromagnetic compatibility (EMC) - Part 4-8: Testing and measurement techniques - Power frequency magnetic field immunity test*

IEC 61000-4-11, *Electromagnetic compatibility (EMC) - Part 4-11: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests for equipment with input current up to 16 A per phase*

IEC 61000-6-1:2016, *Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN