SLOVENSKI STANDARD
SIST EN 62282-3-201:2018

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Nadomešča:
SIST EN 62282-3-201:2014

Tehnologije gorivnih celic - 3-201. del: Nepremični elektroenergetski sistemi z gorivnimi celicami - Metode za preskušanje zmogljivosti majhnih elektroenergetskih sistemov z gorivnimi celicami (IEC 62282-3-201:2017)

Fuel cell technologies - Part 3-201: Stationary fuel cell power systems - Performance test methods for small fuel cell power systems (IEC 62282-3-201:2017)

Brennstoffzellentechnologien - Teil 3-201: Stationäre Brennstoffzellen-Energiesysteme - Leistungskennwerteprüfverfahren für kleine Brennstoffzellen-Energiesysteme (IEC 62282-3-201:2017)

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 62282-3-201:2017)

Ta slovenski standard je istoveten z: **EN 62282-3-201:2017**

ICS:

27.070	Gorilne celice	Fuel cells

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EUROPEAN STANDARD

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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 62282-3-201:2017)

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This European Standard was approved by CENELEC on 2017-09-14. 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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, 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: Avenue Marnix 17, B-1000 Brussels

European foreword

The text of document 105/564/CDV, future edition 2 of IEC 62282-3-201, prepared by IEC TC 105 "Fuel cell technologies" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62282-3-201:2017.

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)	2018-06-14
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2020-09-14

This document supersedes EN 62282-3-201:2013.

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 62282-3-201:2017 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 61672-1	NOTE	Harmonized as EN 61672-1.
IEC 61672-2	NOTE	Harmonized as EN 61672-2.
ISO 6060	NOTE	Harmonized as EN ISO 6060.
ISO 6326 (Series)	NOTE	Harmonized as EN ISO 6326 (Series).
ISO 6974 (Series)	NOTE	Harmonized as EN ISO 6974 (Series).
ISO 6975	NOTE	Harmonized as EN ISO 6975.
ISO 6976	NOTE	Harmonized as EN ISO 6976.
ISO 7941	NOTE	Harmonized as EN 27941.
ISO 9000	NOTE	Harmonized as EN ISO 9000.
ISO 10523	NOTE	Harmonized as EN ISO 10523.
ISO 80000 (Series)	NOTE	Harmonized as EN ISO 80000 (Series).
ISO 11541	NOTE	Harmonized as EN ISO 11541.

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 When 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 61000-3-2	-	Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ¿ 16 A per phase)	EN 61000-3-2	-
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	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 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	EN 61000-4-11	-
IEC 61000-6-2	2005	Electromagnetic compatibility (EMC) -- Part 6-2: Generic standards - Immunity for industrial environments	EN 61000-6-2	2005
-	-		+ corrigendum Sep.	2005
IEC 62282-3-200	2015	Fuel cell technologies - Part 3-200: Stationary fuel cell power systems - Performance test methods	EN 62282-3-200	2016
CISPR 11	-	Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement	EN 55011	-

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INTERNATIONAL STANDARD

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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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

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object 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.
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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 publication.
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 62282-3-201 has been prepared by IEC technical committee 105: Fuel cell technologies.

This second edition cancels and replaces the first edition published in 2013. This edition constitutes a technical revision.

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

a) Revision of definitions
b) Revision of symbols (Clause 4, in accordance with ISO/IEC 80000 series and ISO/IEC Directives Part 2);
c) Revision of Figures 2, 5 and 6;
d) Revision of test set-up (Clause 9);

e) Revision of measurement instruments (Clause 10);
f) Introduction of ramp-up test (14.6);
g) Introduction of rated operation cycle efficiency (14.11);
h) Introduction of electromagnetic compatibility (EMC) test (14.12);
i) Revision of exhaust gas test (15.3);
j) Introduction of typical durations of operation cycles (Annex F).

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

CDV	Report on voting
105/564/CDV	105/623/RVC

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 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 "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.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

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) and provides test methods specifically designed for them in detail. It is based on 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 and/or those who evaluate the performance of their systems for certification purposes.

Users of this document may 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.

FUEL CELL TECHNOLOGIES –

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

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 less than 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 covers fuel cell power systems whose primary purpose is the production of electric power and whose secondary purpose may 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*