

<b>STN</b>	<b>Technológia palivových článkov. Časť 3-201: Malé stacionárne výkonové sústavy palivových článkov. Prevádzkové skúšobné metódy.</b>	<b>STN EN 62282-3-201</b>
		36 4512

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Obsahuje: EN 62282-3-201:2013, IEC 62282-3-201:2013

**118825**

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Úrad pre normalizáciu, metrológiu a skúšobníctvo SR, odbor SÚTN, 2014  
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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 62282-3-201**

September 2013

ICS 27.070

English version

**Fuel cell technologies -  
Part 3-201: Stationary fuel cell power systems -  
Performance test methods for small fuel cell power systems  
(IEC 62282-3-201:2013)**

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  
(CEI 62282-3-201:2013)

Brennstoffzellentechnologien -  
Teil 3-201: Stationäre Brennstoffzellen-  
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Leistungskennwerteprüfverfahren  
(IEC 62282-3-201:2013)

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## Foreword

The text of document 105/444/FDIS, future edition 1 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 62282-3-201:2013.

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) 2014-05-15
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In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 61672-2	NOTE	Harmonised as EN 61672-2.
ISO 6326 Series	NOTE	Harmonised in EN ISO 6326 series.
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ISO 6975	NOTE	Harmonised as EN ISO 6975.
ISO 6976	NOTE	Harmonised as EN ISO 6976.
ISO 7941	NOTE	Harmonised as EN 27941.
ISO 11541	NOTE	Harmonised as EN ISO 11541.

## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61672-1	-	Electroacoustics - Sound level meters - Part 1: Specifications	EN 61672-1	-
IEC 62282-3-200	-	Fuel cell technologies - Part 3-200: Stationary fuel cell power systems - Performance test methods	EN 62282-3-200	-
ISO 5815	Series	Water quality - Determination of biochemical oxygen demand after n days (BOD <sub>n</sub> )	-	-
ISO 6060	-	Water quality - Determination of the chemical oxygen demand	-	-
ISO 6798	-	Reciprocating internal combustion engines - Measurement of emitted airborne noise - Engineering method and survey method	-	-
ISO 9000	-	Quality management systems - Fundamentals and vocabulary	EN ISO 9000	-
ISO 10523	-	Water quality - Determination of pH	EN ISO 10523	-
ASTM F2602	-	Standard Test Method for Determining the Molar Mass of Chitosan and Chitosan Salts by Size Exclusion Chromatography with Multi-angle Light Scattering Detection (SEC-MALS)	-	-



# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



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

**Technologies des piles à combustible –  
Partie 3-201: Systèmes à piles à combustible stationnaires – Méthodes d’essai  
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IEC 62282-3-201

Edition 1.0 2013-07

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



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**Fuel cell technologies –  
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des performances pour petits systèmes à piles à combustible**

INTERNATIONAL  
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ELECTROTECHNIQUE  
INTERNATIONALE

PRICE CODE **XB**  
CODE PRIX

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ICS 27.070

ISBN 978-2-8322-0886-1

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## CONTENTS

FOREWORD.....	5
INTRODUCTION.....	7
1 Scope.....	8
2 Normative references .....	8
3 Terms and definitions .....	9
4 Symbols .....	13
5 Configuration of small stationary fuel cell power system and test boundary .....	16
6 Reference conditions.....	16
7 Heating value base.....	17
8 Test preparation .....	17
8.1 General.....	17
8.2 Uncertainty analysis .....	17
8.3 Data acquisition plan.....	17
9 Test set-up.....	18
10 Instruments and measurement methods .....	19
10.1 General.....	19
10.2 Measurement instruments .....	19
10.3 Measurement points.....	20
10.4 Minimum required measurement systematic uncertainty.....	22
11 Test conditions .....	22
11.1 Laboratory conditions .....	22
11.2 Installation and operating conditions of the system.....	22
11.3 Power source conditions .....	23
11.4 Test fuel.....	23
12 Operating process .....	23
13 Test plan.....	25
14 Type tests on electric/thermal performance .....	25
14.1 General.....	25
14.2 Fuel consumption test.....	26
14.2.1 Gaseous fuel consumption test.....	26
14.2.2 Liquid fuel consumption test .....	28
14.3 Electric power output test .....	29
14.3.1 General .....	29
14.3.2 Test method .....	29
14.3.3 Calculation of average net electric power output.....	30
14.4 Heat recovery test.....	30
14.4.1 General .....	30
14.4.2 Test method .....	30
14.4.3 Calculation of average recovered thermal power .....	30
14.5 Start-up test .....	32
14.5.1 General .....	32
14.5.2 Determination of state of charge of battery .....	32
14.5.3 Test method .....	32
14.5.4 Calculation of results .....	34
14.6 Storage state test.....	36



14.6.1	General .....	36
14.6.2	Test method .....	37
14.6.3	Calculation of average electric power input in storage state .....	37
14.7	Electric power output change test .....	37
14.7.1	General .....	37
14.7.2	Test method .....	37
14.7.3	Calculation of electric power output change rate .....	39
14.8	Shutdown test .....	39
14.8.1	General .....	39
14.8.2	Test method .....	40
14.8.3	Calculation of results .....	40
14.9	Computation of efficiency .....	41
14.9.1	General .....	41
14.9.2	Electric efficiency .....	41
14.9.3	Heat recovery efficiency .....	42
14.9.4	Overall energy efficiency .....	42
15	Type tests on environmental performance .....	42
15.1	General .....	42
15.2	Noise test .....	42
15.2.1	General .....	42
15.2.2	Test conditions .....	43
15.2.3	Test method .....	44
15.2.4	Processing of data .....	44
15.3	Exhaust gas test .....	44
15.3.1	General .....	44
15.3.2	Components to be measured .....	44
15.3.3	Test method .....	45
15.3.4	Processing of data .....	45
15.4	Discharge water test .....	50
15.4.1	General .....	50
15.4.2	Test method .....	50
16	Test reports .....	51
16.1	General .....	51
16.2	Title page .....	51
16.3	Table of contents .....	51
16.4	Summary report .....	51
Annex A (informative)	Heating values for components of natural gases .....	52
Annex B (informative)	Examples of composition for natural gases .....	54
Annex C (informative)	Exemplary test operation schedule .....	56
Annex D (informative)	Typical exhaust gas components .....	57
Annex E (informative)	Guidelines for the contents of detailed and full reports .....	58
Bibliography	.....	59
Figure 1	– Symbol diagram .....	15
Figure 2	– General configuration of small stationary fuel cell power system .....	16
Figure 3	– Small stationary fuel cell power system fed with gaseous fuel .....	18
Figure 4	– Small stationary fuel cell system fed with gaseous fuel, air cooled and no valorization of the by-product heat .....	19

Figure 5 – Operating states of stationary fuel cell power system without battery .....	24
Figure 6 – Operating states of stationary fuel cell power system with battery .....	25
Figure 7 – Example of electric power chart at start-up for system without battery.....	33
Figure 8 – Example of electric power chart at start-up for system with battery.....	34
Figure 9 – Examples of liquid fuel supply systems .....	35
Figure 10 – Electric power output change pattern for system without battery .....	38
Figure 11 – Electric power output change pattern for system with battery .....	38
Figure 12 – Example for electric power change stabilization criteria.....	39
Figure 13 – Electric power chart at shutdown.....	40
Figure 14 – Noise measurement points for small stationary fuel cell power systems .....	43
Table 1 – Symbols and their meanings for electric/thermal performance .....	13
Table 2 – Symbols and their meanings for environmental performance .....	15
Table 3 – Compensation of readings against the effect of background noise.....	43
Table A.1 – Heating values for components of natural gases at various combustion reference conditions for ideal gas .....	52
Table B.1 – Example of composition for natural gas (%) .....	54
Table B.2 – Example of composition for propane gas (%) .....	55
Table C.1 – Exemplary test operation schedule .....	56
Table D.1 – Typical exhaust gas components to be expected for typical fuels .....	57

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

The text of this standard is based on the following documents:

FDIS	Report on voting
105/444/FDIS	105/454/RVD

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

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of the IEC 62282 series, under the general title *Fuel cell technologies*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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- withdrawn,
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## INTRODUCTION

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

This international standard limits its scope to small (below 10 kW electric power output) stationary fuel cell power systems and provides test methods specifically designed for them in detail. It is based on IEC 62282-3-200, that generally describes performance test methods that are common to all types of fuel cells.

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

This standard is to be used by manufacturers of small stationary fuel cell power systems and/or those who evaluate the performance of their systems for certification purposes.

Users of this standard may selectively execute test items that are suitable for their purposes from those described in this standard. This standard 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 electric/thermal and environmental performance of small stationary fuel cell power systems that meet the following criteria:

- output: nominal 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 to 1 000 V comes from the definition for "low voltage" given in IEC 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 standard covers fuel cell power systems whose primary purpose is the production of electric power and whose secondary purpose may be the utilization of by-product heat. Accordingly, fuel cell power systems for which the use of heat is primary and the use of by-product electric power is secondary are outside the scope of this standard.

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

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

#### 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61672-1, *Electroacoustics – Sound level meters – Part 1: Specifications*

IEC 62282-3-200, *Fuel cell technologies – Part 3-200: Stationary fuel cell power systems – Performance test methods*

ISO 5815 (all parts), *Water quality – Determination of biochemical oxygen demand after n days (BOD<sub>n</sub>)*

ISO 6060, *Water quality – Determination of the chemical oxygen demand*

ISO 6798, *Reciprocating internal combustion engines – Measurement of emitted airborne noise – Engineering method and survey method*

ISO 9000, *Quality management systems – Fundamentals and vocabulary*

ISO 10523, *Water quality – Determination of pH*

ASTM F2602, *Standard Test Method for Determining the Molar Mass of Chitosan and Chitosan Salts by Size Exclusion Chromatography with Multi-angle Light Scattering Detection (SEC MALS)*

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