

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



**Fuel cell technologies –  
Part 8-201: Energy storage systems using fuel cell modules in reverse mode –  
Test procedures for the performance of power-to-power systems**

**Technologies des piles à combustible –  
Partie 8-201: Systèmes de stockage de l'énergie utilisant des modules à piles à  
combustible en mode inversé – Procédures d'essai pour la performance des  
systèmes électriques à électriques**



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## CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references .....	8
3 Terms, definitions and symbols .....	9
3.1 Terms and definitions.....	9
3.2 Symbols.....	13
4 Measurement instruments and measurement methods.....	14
4.1 General.....	14
4.2 Instrument uncertainty .....	15
4.3 Measurement plan .....	15
4.4 Environmental conditions .....	16
4.5 Maximum permissible variation in test operating conditions .....	17
5 System parameters.....	17
5.1 General.....	17
5.2 Electric energy storage capacity .....	17
5.3 Rated electric power input .....	18
5.4 Rated net electric power output.....	18
5.5 Roundtrip electrical efficiency .....	18
5.6 System response (step response time and ramp rate).....	18
5.6.1 Step response time.....	18
5.6.2 Ramp rate.....	19
5.7 Minimum switchover time.....	20
5.8 Quiescent state loss rate .....	20
5.9 Heat input rate.....	20
5.10 Recovered heat output rate.....	20
5.11 Acoustic noise level.....	20
5.12 Total harmonic distortion.....	20
5.13 Discharge water quality.....	21
6 Test methods and procedures .....	21
6.1 General.....	21
6.2 Electric energy storage capacity test.....	21
6.3 Rated electric power input test.....	22
6.4 Rated net electric power output test.....	22
6.5 Roundtrip electrical efficiency test .....	23
6.6 Other system performance test .....	23
6.6.1 System response test, step response time and ramp rate .....	23
6.6.2 Minimum switchover time test.....	25
6.6.3 Quiescent state loss rate test .....	25
6.6.4 Heat input rate test.....	26
6.6.5 Recovered heat output rate test.....	26
6.6.6 Acoustic noise level test .....	26
6.6.7 Total harmonic distortion test.....	27
6.6.8 Discharge water quality test.....	27
6.7 Component performance test.....	27
6.7.1 Electrolyser performance test .....	27

6.7.2	Hydrogen storage performance test .....	28
6.7.3	Fuel cell performance test .....	28
6.7.4	Water management system performance test .....	29
6.7.5	Battery performance test .....	29
6.7.6	Oxygen storage performance test .....	29
7	Test reports .....	29
7.1	General .....	29
7.2	Report items .....	29
7.3	Tested system data description .....	30
7.4	Test condition description .....	30
7.5	Test data description .....	30
7.6	Uncertainty evaluation .....	30
	Bibliography .....	31
	Figure 1 – System configuration of electric energy storage system using hydrogen – Type with electrolyser and fuel cell .....	7
	Figure 2 – System configuration of electric energy storage system using hydrogen – Type with reversible cell .....	8
	Figure 3 – Typical sequence of phases during the system operation .....	16
	Figure 4 – Step response time and ramp rate of EES system .....	19
	Figure 5 – Step response test .....	24
	Figure 6 – Minimum switch over time test .....	25
	Table 1 – Symbols .....	14
	Table 2 – Required steps before executing the measurement .....	16
	Table 3 – Example of document format of roundtrip electrical efficiency .....	23
	Table 4 – Additional parameters measured on the electrolyser or the reversible cell module in electrolysis mode .....	27
	Table 5 – Additional parameters measured on the hydrogen storage component .....	28
	Table 6 – Additional parameters measured on the fuel cell or the reversible cell module in fuel cell mode .....	28

INTERNATIONAL ELECTROTECHNICAL COMMISSION

FUEL CELL TECHNOLOGIES –

Part 8-201: Energy storage systems using fuel cell modules in reverse mode – Test procedures for the performance of power-to-power systems

FOREWORD

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International Standard IEC 62282-8-201 has been prepared by IEC technical committee 105: Fuel cell technologies.

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

FDIS	Report on voting
105/764/FDIS	105/777/RVD

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,
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Withdrawn

## INTRODUCTION

This part of IEC 62282 describes performance evaluation methods for electric energy storage systems using hydrogen that employ electrochemical reactions both for water/steam electrolysis and electric generation.

This document is intended for power to power systems which typically employ a set of electrolyser and fuel cell, or a reversible cell for devices of electric charge and discharge.

A typical targeting application of the electric energy storage systems using hydrogen is in the class of energy intensive electric energy storage. The systems are recognized as critically useful for the relatively long-term power storage operation, such as efficient storage and supply of the renewable power derived electric energy and grid stabilization.

IEC 62282-8 (all parts) aims to develop performance test methods for power storage and buffering systems based on electrochemical modules (combining electrolysis and fuel cells, in particular reversible cells), taking into consideration both options of re-electrification and substance (and heat) production for sustainable integration of renewable energy sources.

Under the general title *Energy storage systems using fuel cell modules in reverse mode*, the IEC 62282-8 series consists of the following parts:

- IEC 62282-8-101: *Test procedures for the performance of solid oxide single cells and stacks, including reversible operation*
- IEC 62282-8-102: *Test procedures for the performance of single cells and stacks with proton exchange membranes, including reversible operation*
- IEC 62282-8-103<sup>1</sup>: *Alkaline single cell and stack performance including reversible operation*
- IEC 62282-8-201: *Test procedures for the performance of power-to-power systems*
- IEC 62282-8-202<sup>2</sup>: *Power-to-power systems – Safety*
- IEC 62282-8-300 (all parts)<sup>3</sup>: *Power-to-substance systems*

As a priority dictated by the emerging needs for industry and opportunities for technological development, IEC 62282-8-101, IEC 62282-8-102 and IEC 62282-8-201 have been initiated jointly and firstly. These parts are presented as a package to highlight the need for an integrated approach as regards the system's application (i.e. a solution for energy storage) and its fundamental constituent components (i.e. fuel cells operated in reverse or reversing mode).

IEC 62282-8-103, IEC 62282-8-202 and IEC 62282-8-300 (all parts) are suggested but are left for initiation at a later stage.

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1 Under consideration.

2 Under consideration.

3 Under consideration.