IEC 62282-6-400

Edition 1.0 2019-05

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Fuel cell technologies –
Part 6-400: Micro fuel cell power systems – Power and data interchangeability

Technologies des piles à combustible –
Partie 6-400: Systèmes à micropiles à combustible – Interchangeabilité de la puissance et des données

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CONTENTS

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FUEL CELL TECHNOLOGIES –

Part 6-400: Micro fuel cell power systems – Power and data interchangeability

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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International Standard IEC 62282-6-400 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
105/721/FDIS	105/724/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 *Full 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.

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FUEL CELL TECHNOLOGIES –

Part 6-400: Micro fuel cell power systems – Power and data interchangeability

1 Scope

This part of IEC 62282 covers the interchangeability of power and data between micro fuel cell power systems and electronic devices to provide the micro fuel cell power system compatibility for a variety of electronic devices while maintaining the safety and performance of the micro fuel cell system. For that purpose, this document covers power interfaces and their connector configuration. The power management circuitry and power sharing methodology are also provided.

This document also covers the data communication protocol and its data specification. Operation modes and alert conditions are also provided for the means to comply with the power control requirements of the electronic device.

A micro fuel cell power system and micro fuel cell power unit block diagram is shown in Figure 1. Micro fuel cell power systems and micro fuel cell power units are defined as devices that are wearable or easily carried by hand, providing DC outputs that do not exceed 60 V DC and power outputs that do not exceed 240 VA. This document covers the power and data interfaces between the micro fuel cell power unit and electronic device.

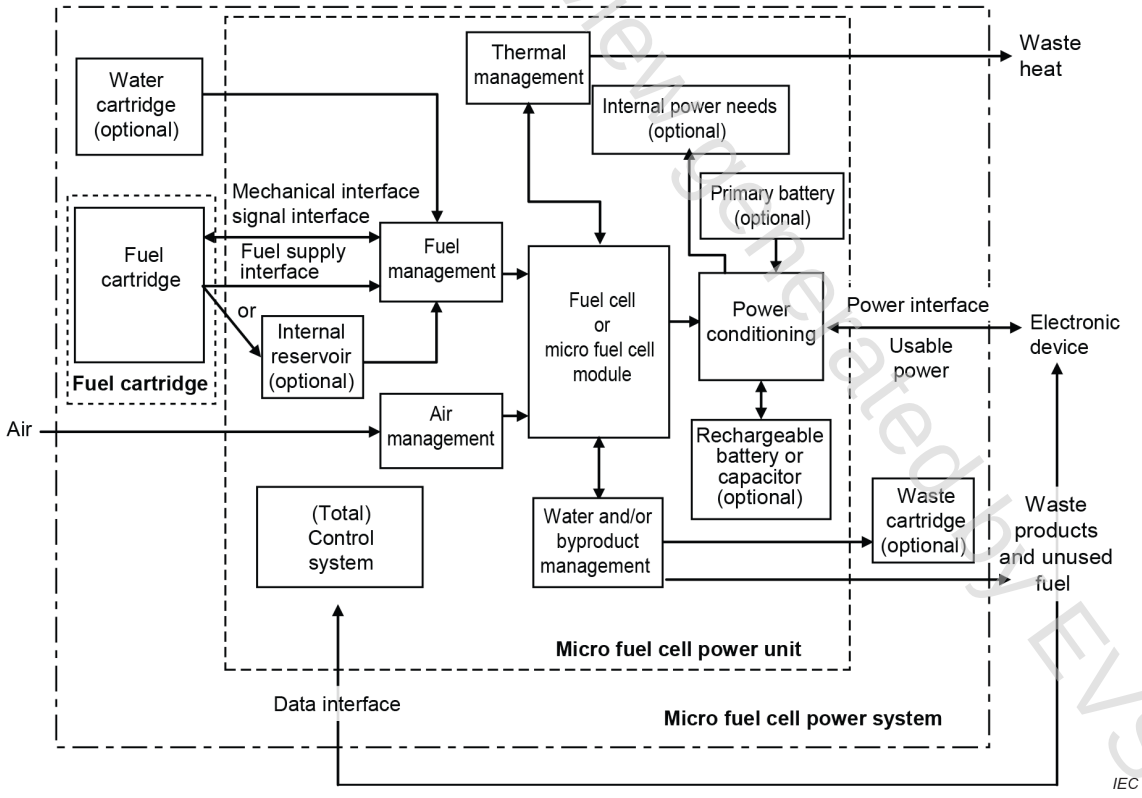

Figure 1 – Micro fuel cell power system and micro fuel cell power unit block diagram

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.

IEC TS 62282-1, *Fuel cell technologies – Part 1: Terminology*

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC TS 62282-1 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

3.1.1
stand-alone micro fuel cell power system
micro fuel cell power system intended to provide power to an electronic device by way of a cable or other external connection

3.1.2
semi-integrated micro fuel cell power system
micro fuel cell power system intended to be removably installed in an electronic device, for example in a battery port

Note 1 to entry: This type of micro fuel cell power system may be directly connected to the electronic device, and may have a volume externally protruding from the electronic device.

3.1.3
integrated micro fuel cell power system
micro fuel cell power system that is permanently installed within an electronic device, either at the time of manufacture, or as an aftermarket feature

Note 1 to entry: This type of micro fuel cell power system may have a permanently installed, refillable internal reservoir for storage of fuel, or it may have a removable cartridge for storage of fuel.

3.1.4
electronic device
device such as cellular phone, music player, digital camera, camcorder, personal digital assistant (smartphone, laptop, tablet), mobile game machine or mobile PC, that uses a micro fuel cell power unit/system

3.1.5
micro fuel cell charger
charger that uses a micro fuel cell power unit/system

3.2 Abbreviated terms

The abbreviated terms are given in Table 1.