SLOVENSKI STANDARD
oSIST prEN 62282-6-400:2018

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Tehnologije gorivnih celic - 6-400. del: Energijski sistemi z mikro gorivnimi celicami - Izmenljivost moči in podatkov

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

Ta slovenski standard je istoveten z: **prEN 62282-6-400:2018**

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105/677/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

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IEC TC 105 : FUEL CELL TECHNOLOGIES	
SECRETARIAT: Germany	SECRETARY: Mr Wolfgang Winkler
OF INTEREST TO THE FOLLOWING COMMITTEES:	PROPOSED HORIZONTAL STANDARD: ☐ Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.
FUNCTIONS CONCERNED: ☐ EMC ☐ ENVIRONMENT ☐ QUALITY ASSURANCE ☐ SAFETY	
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TITLE:

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

NOTE FROM TC/SC OFFICERS:

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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FUEL CELL TECHNOLOGIES –

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

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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 standard is based on the following documents:

FDIS	Report on voting
105/XX/FDIS	105/XX/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 IEC 62282 series, published under the general title *Full cell technologies*, can be found on the IEC website.

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

56 • reconfirmed,
57 • withdrawn,
58 • replaced by a revised edition, or
59 • amended.
60

61 The National Committees are requested to note that for this publication the stability date
62 is ....

63 THIS TEXT IS INCLUDED FOR THE INFORMATION OF THE NATIONAL COMMITTEES AND WILL BE
64 DELETED AT THE PUBLICATION STAGE.

65

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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 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 micro fuel cell system. For this purpose, the standard covers power interfaces and its connector configuration. The power management circuitry and power sharing methodology are also provided.

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

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

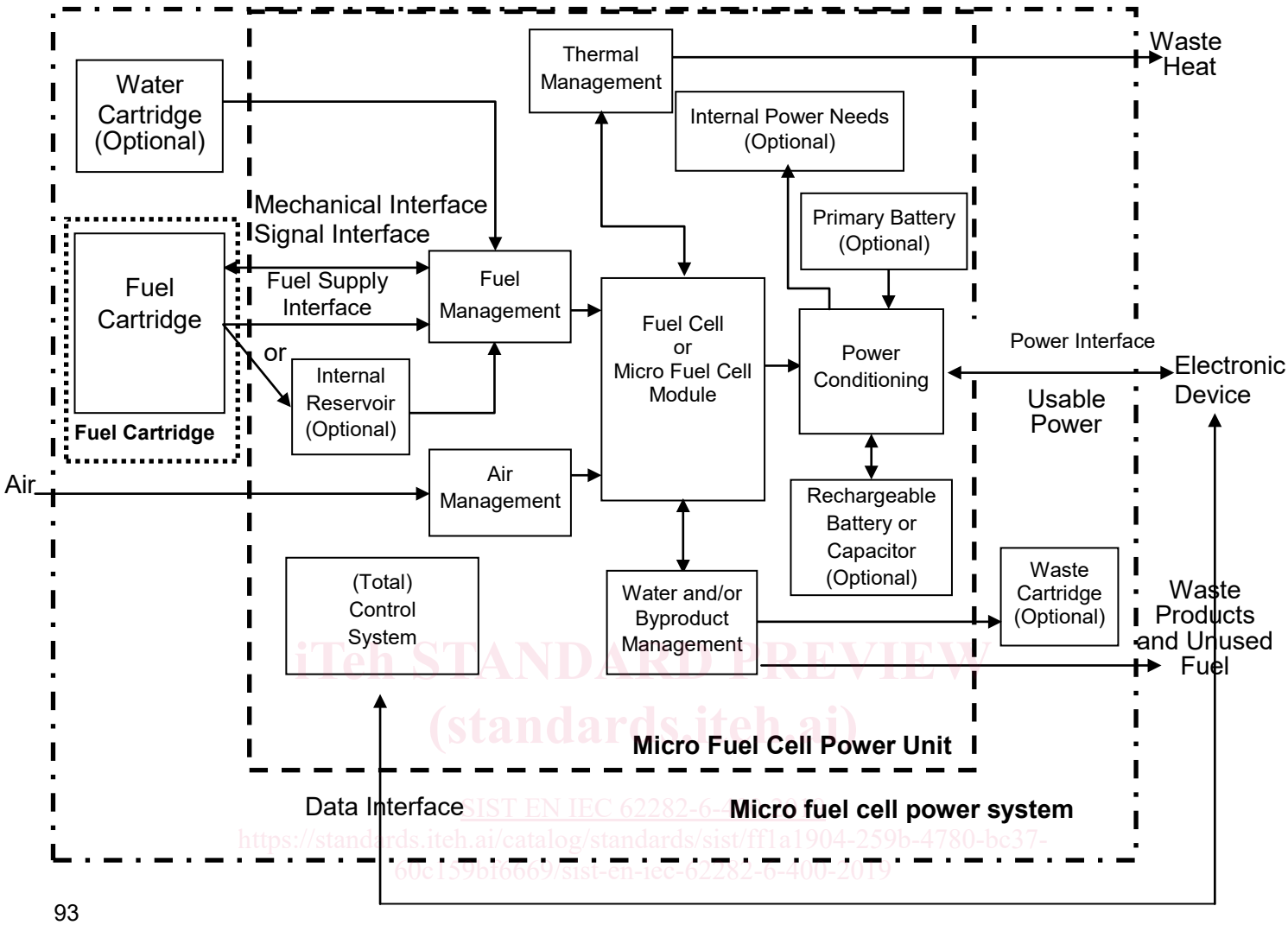

Figure 1 – Micro fuel cell power system and micro fuel cell power unit block diagram

2 Terms, definitions and abbreviations

The following referenced documents are indispensable for the application of this document. The latest edition of the referenced document (including any amendments) applies.

IEC/TC 105 62282-1 Fuel cell technologies – Part 1: Terminology

IEC/TC 105 62282-3-201 Fuel cell technology - Part 3-201: Stationary fuel cell power systems Performance test methods for small fuel cell power systems

For the purposes of this document, the following terms, definitions and abbreviations apply.

2.1 Terms and definitions

2.1.1
“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

2.1.2
“semi-integrated” micro fuel cell power system
micro fuel cell power system intended to be removabe 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.

2.1.3
"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 may have a removable cartridge for storage of fuel.

2.1.4
electronic device
any of such electronic devices as cellular phone, music player, digital camera, camcorder, personal digital assistant (Smartphones, laptops, tablets), mobile game machine and mobile PC, which uses a micro fuel cell power unit/system

2.1.5
(total) control system
components of the micro fuel cell power system that coordinate properties of the micro fuel cell power system and reactants using electrical, mechanical, and/or digital inputs, outputs, software, and/or functions to effect proper micro fuel cell power system start-up, operation and shutdown, when necessary

2.1.6

micro fuel cell charger

A charger, which uses a micro fuel cell power unit/system

2.2 Abbreviations

TERM	Definition
BMS	Battery management system
FMS	Fuel cell management system
BOP	Balance of plant
EPS	External power supply
MFC	Micro-fuel cell
PDA	Personal digital assistant
SBDS	Smart battery data specification
SOC	State of charge

3 Power interface

3.1 Configuration of micro fuel cell power system

Electronic devices such as notebook PCs, cellular phones, etc. generally have three options available for sourcing power to operate the device:

a) AC adapter port : sources relatively high current, but generally does not enable any data communication functions;

b) DC adaper port : sources relatively high current, but generally does not enable any data communication functions

c) battery port: sources current in the main battery port, or in the auxiliary battery port (optional), and may provide data communication functions in addition to facilitating provision of electricity to the device;

d) USB port: sources relatively low current, and generally provides data communication functions in addition to facilitating provision of electricity to or from the device.

Note There is no option for power to be fed in through the serial or parallel ports of any presently known electronic devices.

Consequently, there are three general types of configurations for power and data communication between micro fuel cell power system and electronic device contemplated by this standard:

1) stand-alone micro fuel cell power system: connected to the electronic device by way of an external connection, such as a cord or connection interface, may function in a similar manner as an AC adaptor, or may provide power (and/or data) by way of the USB port;

2) semi-integrated micro fuel cell power system: may operate in cooperation with a main battery, or an auxiliary battery in electronic device, or may function as a removable battery replacement;

3) integrated micro fuel cell power system: a micro fuel cell power system that is permanently installed in an electronic device. This type of micro fuel cell power system is outside of the scope of this standard.

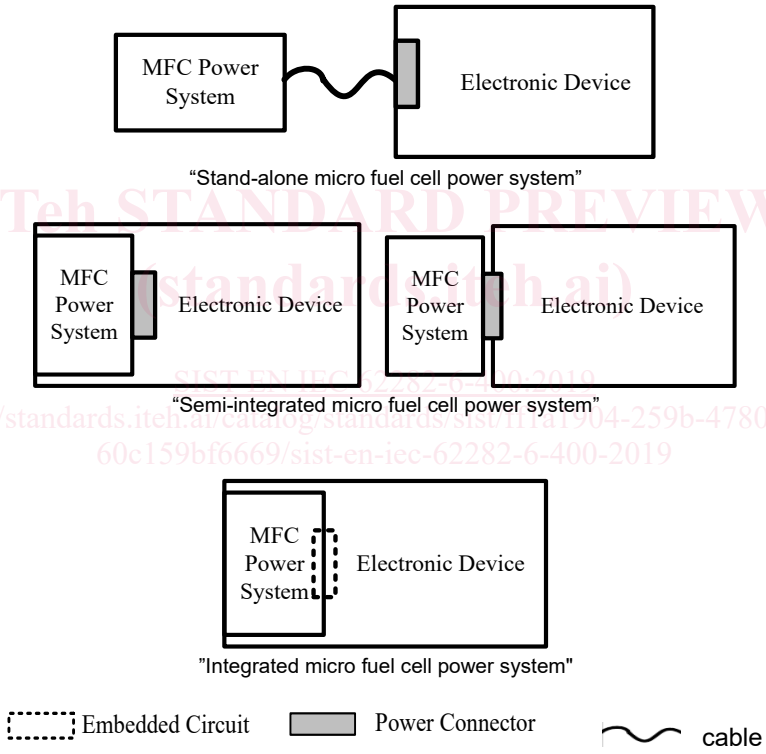

Figure 2 – Micro fuel cell power system configuration

3.2 Type of power hybridization

3.2.1 General

This subclause only applies to hybridization of micro fuel cell power systems and does not apply to micro fuel cell power systems that are not hybridized.

3.2.2 Micro fuel cell power system with internal battery

In this case, the micro fuel cell power system utilizes an internal battery within its enclosure. The micro fuel cell power system may operate as a stand alone power generator or independent power source. For start-up, the internal battery shall be rated for the power required to start the micro fuel cell power system. If the internal battery is discharged, the micro fuel cell power system will prevent start up until the internal battery is recharged or sufficient power is provided by an external source.

There are two methods to acquire the start up power for the micro fuel cell power system: