

Fuel Cell Power Systems - System

Design/Testing

ANSI/CSA America FC1 Fuel Cell Power Systems (United States)

CAN/CSA-IEC 62282-3-100:15 Fuel Cell Technologies -Part 3: Fuel Cells (Canada)

CEN/CENELEC EN 50465 Gas appliances – Combined heat and power appliance on nominal heat input inferior or equal to 70 kW (European Union)

IEC 62282-3-100 Stationary Fuel Cell Systems - Safety (International)

BS EN 62282-3-100:2012 Stationary Fuel Cell Systems - Safety (European Union & UK)

DIN EN 62282-3-100:2012 Stationary Fuel Cell Systems - Safety (Germany & EU)

KS C IEC 62282-3-100 Stationary Fuel Cell Power Systems - Safety (Korea)

OVA/ONORM EN 62282-3-100:2013 Stationary Fuel Cell Systems - Safety (Austria & EU)

SANS 62282-3-100:2014/IEC 62282-3-100:2012 Fuel cell technologies Part 3-100: Stationary fuel cell power systems – Safety (South Africa)

IEC 62282-3-400 Stationary fuel cell power systems - Small stationary fuel cell power system with combined heat and power output (International)

JIS C 8801 General Rules for Phosphoric Acid Fuel Cell Power Generating System (Japan)

DVGW VP119 Preliminary Basic Rules for Testing Fuel Cell Gas Appliances 70 kW (Germany)

JIS C 8821 General Rules for Small Polymer Electrolyte Fuel Cell Power Systems (Japan)

JIS C 8822 General Safety Code for Small Polymer Electrolyte Fuel Cell Systems (Japan)

JIS C 8823 Testing Methods for Small Polymer Electrolyte Fuel Cell Power Systems (Japan)

GB/Z 21743-2008 Stationary proton exchange membrane fuel cell power system (China)

JIS C 8841-1 Small solid oxide fuel cell power systems Part 1: General rules (Japan)

JIS C 8841-2 Small solid oxide fuel cell power systems Part 2: General safety codes and safety testing methods (Japan)

GB/T 25447-2010 Proton exchange membrane fuel cell test system and activation system (China)

GB/T 27748.1-2011 Stationary fuel cell power system - Part 1: Safety (China)

GB/T 31036-2014 Proton exchange membrane fuel cell backup power system: Safety (China)

Fuel Cell Power Systems - Nameplates

JIS C 8803 Indication of Phosphoric Fuel Cell Power Facility

Fuel Cell Power Systems - System

Design/Testing

UL Subject 2266 Electromagnetic Compatibility, Electrical Safety, and Physical Protection of Stationary and Portable Fuel Cell Power Systems for Use with Commercial Network Telecommunication Equipment (United States and Other Locales)

IEC 62932-2-2 Flow Battery Systems for Stationary Applications – Safety requirements (International)

JIS C 62282-3-1 Stationary Fuel Cell Power Systems – Safety (Japan)

“Fuel Cell Back-Up Power Source” (China)

CNS xxxxx Stationary Fuel Cell Power Systems – Safety (Taiwan)

20130683-T-604 Stationary fuel cell power system - Safety (China)

Fuel Cell Power Systems - Nameplates

(Japan)

JIS C 8811 Indication of Polymer Electrolyte Fuel Cell Power Facility (Japan)

Fuel Cell Power Systems - Performance - efficiency, emissions, durability

ASME PTC 50 Performance Test Code for Fuel Cell Power Systems Performance (US and Other Locales)

IEC 62282-3-200 Test Method for the Performance of Stationary Fuel Cell Power Plants (International)
BS EN 62282-3-200:2012 Test Method for the Performance of Stationary Fuel Cell Power Plants (European Union & UK)

DIN EN 62282-3-200:2012 Test Method for the Performance of Stationary Fuel Cell Power Plants (Germany & EU)

KS C IEC 62282-3-200 Stationary Fuel Cell Power Systems - Performance (Korea)

OVA/ONORM EN 62282-3-200:2012 Test Method for the Performance of Stationary Fuel Cell Power Plants (Austria & EU)
SANS 62282-3-200:2014/IEC 62282-3-200:2011 Fuel cell technologies Part 3-200: Stationary fuel cell power systems – Performance (South Africa)

IEC 62282-3-201 Small stationary polymer electrolyte fuel cell power system – Performance test method

BS EN 62282-3-201:2013 Small stationary polymer electrolyte fuel cell power system – Performance test method (UK & EU)

DIN EN 62282-3-201:2014 Small stationary polymer electrolyte fuel cell power system – Performance test method (Germany & EU)

OVA/ONORM EN 62282-3-201:2014 Small stationary polymer electrolyte fuel cell power system – Performance test method (Austria & EU)

SANS 62282-3-201:2014/IEC 62282-3-201:2013 Fuel cell technologies Part 3-201: Stationary fuel cell power systems – Performance for small power systems (South Africa)

GB/T 20042.7-2014 Proton exchange membrane fuel cells Part 7: Test methods of carbon paper properties (China)

GB/T 27748.2 - 2013 Stationary fuel cell power system - Performance test methods (China)

GB/T 31886.1-2015 Test method about the influence of gaseous contaminant in air on performance of proton exchange membrane fuel cells - Part 1: Gaseous contaminant(s) in air (China)

GB/T 31886.2-2015 Test method about the influence of gaseous contaminant in the fuel hydrogen on the performance of proton exchange membrane fuel cells - Part 2: Gaseous contaminant(s) in hydrogen (China)

JIS C 8802 Test Method for Durability of Phosphoric Acid Fuel Cell Power Facility (Japan)

State of California Regulations Emission Regulations

JIS C 8825 Testing Methods for EMC of Small Polymer Electrolyte Fuel Cell Power Systems (electromagnetic compatibility) (Japan)

JIS C 8824 Testing Methods for Environment of EMC for

Fuel Cell Power Systems - Performance - efficiency, emissions, durability

IEC 62932-2-1 Flow Battery Systems for Stationary Applications- Performance, general requirements and method of test (International)

NIST IR 7131 Test Methodology and Performance Rating Standard for Residential Fuel Cell Systems (Proposed US federal regulation)

JIS C 62282-3-2 Test Methods For the Stationary Fuel Cell Power System – Performance (Japan)

CNS xxxxx Stationary Fuel Cell Power Systems – Performance (Taiwan)

20130688-T-604 Stationary fuel cell power system – Performance test methods for small fuel cell power systems (China)

20130692-T-604 Test method for proton exchange membrane fuel cell power system at subzero environment (China)

Polymer Electrolyte Fuel Cell Systems (Japan)

JIS C 8841-3 Small Solid Oxide Fuel Cell Power Systems Part 3: Performance testing methods and environment testing methods (Japan)

JIS C 8851 Measurement Methods for 11 Mode Energy Efficiency of Small Fuel Cell Power Systems and for Annual Energy Consumption of Standard Residence (Japan)

Fuel Cell Power Systems - Subsystems - Fuel Cell Modules

CSA International Component Acceptance Service No. 33 Proton Exchange Membrane Fuel Cell Stacks (United States & Canada)

IEC 62282-2 Ed. 2 (2012-03) Fuel Cell Modules (International)

BS EN 62282-2:2012 Fuel Cell Modules (European Union & UK)

DIN EN 62282-2:2013 Fuel Cell Modules (Germany & EU)

KS C IEC 62282-2 Fuel Cell Technologies - Part 2: Fuel Cell Modules (Korea)

OVA/ONORM EN 62282-2:2013 Fuel Cell Modules (Austria & EU)

SANS 62282-2:2014/IEC 62282-2:2012 Fuel cell technologies Part 2: Fuel cell modules (South Africa)

CAN/CSA C22.2 No. 62282-2:07 Fuel Cell Technologies-Part 2: Fuel Cell Modules (Canada)

JIS C 8831 Safety Evaluation Test for Stationary Polymer Electrolyte Fuel Cell Stack (Japan)

JIS C 8832 Performance Test for Stationary Polymer Electrolyte Fuel Cell Stack (Japan)

GB/T 20042.2-2008 Proton Exchange Membrane Stacks (China)

GB/T 29838 - 2013 Fuel Cell Modules (China)

Fuel Cell Power Systems - Subsystems - Fuel Cell Modules - Subscale Testing

GB/T 20042.3-2009 Proton exchange membrane fuel cell - Part 3: Test method for proton exchange membrane (China)

GB/T 20042.4-2009 Proton exchange membrane fuel cell - Part 4 : Test method for electrocatalysis (China)

GB/T 20042.5-2009 Proton exchange membrane fuel cell - Part 5 : Test method for membrane electrode assembly (China)

GB/T 20042.6-2011 Proton exchange membrane fuel cell - Test method of bipolar plate properties (China)

GB/T 28817-2012 Single cell test methods for proton exchange membrane fuel cell (China)

GB/T 31035-2014 Test methods for proton exchange membrane fuel cell stack at subzero environment (China)

GB/T 31036-2014 Single cell/stack performance test methods for solid oxide fuel cells (SOFC) (China)

GB/Z 27753-2011 Test method for Adaptability to Operating Conditions of Membrane Electrode Assembly Used in PEM Fuel Cells (China)

Fuel Cell Power Systems - Subsystems - Fuel Cell Modules

CSA America FC4 Fuel Cell Modules (Holding location for future standard)

IEC 62282-2-201 – Fuel Cell Modules - Performance (International)

Fuel Cell Power Systems - Subsystems - Fuel Cell Modules - Subscale Testing

IEC/TS 62282-8-101 Energy storage systems using fuel cell modules in reverse mode – Solid oxide single cell and stack performance including reversing operation (International)

IEC/TS 62282-8-102 Energy storage systems using fuel cell modules in reverse mode – Solid oxide single cell and stack performance including reversing operation (International)

IEC/TS 62282-8-201 Energy storage systems using fuel cell modules in reverse mode – Solid oxide single cell and stack performance including reversing operation (International)

SANS 62282-7-1:2012/IEC/TS 62282-7-1:2010 Fuel cell technologies Part 7-1: Single cell test methods for polymer electrolyte fuel cell (South Africa)

SANS 62282-7-2:2014/IEC/TS 62282-7-2:2014 Fuel cell technologies Part 7-2: Single cell test and stack performance tests for solid oxide fuel cell (South Africa)

JIS C 8842 Single Cell and Stack - Performance Test Methods for Solid Oxide Fuel Cells (Japan)

Fuel Cell Power Systems - Subsystems - Inverters

UL 1741 Standard for Inverters, Converters, Controllers and Interconnection System Equipment for Use with Distributed Energy Resources (US and Other Locales)

JIS C 8826 Testing Methods of Power Conditioner for Grid Interconnected Small Fuel Cell Systems (Japan)

JIS C 8827 Testing Procedure of Islanding Prevention Methods for Utility Interconnected Small Polymer Electrolyte Fuel Cell Power System Power Conditioners (Japan)

Fuel Cell Power Systems - Installation

ANSI/NFPA 853 Installation of Stationary Fuel Cell Power Plants (United States)

IEC 62282-3-300 Stationary Fuel Cell Power Systems - Installation (International)

BS EN 62282-3-300:2012 Stationary Fuel Cells Power Systems – Installation (European Union & UK)

DIN EN 62282-3-300:2013 Stationary Fuel Cells Power Systems – Installation (Germany & EU)

KS C IEC 62282-3-300 Stationary Fuel Cell Power Systems - Installation (Korea)

OVA/ONORM EN 62282-3-300:2013 Stationary Fuel Cells Power Systems – Installation (Austria & EU)

SANS 62282-3-300:2015/IEC 62282-3-300:2012 Fuel cell technologies Part 3-300: Stationary fuel cell power systems – Installation (South Africa)

CAN/BNQ 1784-000 Canadian Hydrogen Installation Code (Canada)

Petroleum Association of Japan Fuel Cell System Installation Criteria (Japan)

US Department of Energy Hydrogen and Fuel Cells Permitting Guide (United States)

HYPER Project Installation Permitting Guidance for Hydrogen and Fuel Cells Stationary Applications (EU-Supported Coordinating Activity)

State of South Carolina – Hydrogen (and Fuel Cell) Permitting Act (United States – South Carolina)

GB/T 27748.3-2011 Stationary fuel cell power system - Part 3: Installation (China)

Fuel Cell Power Systems - Electrical Interfaces - With Panel Board

ANSI/NFPA 70: Article 692 - Fuel Cell Systems National

Fuel Cell Power Systems - Subsystems - Inverters

Fuel Cell Power Systems - Installation

IEC 62932-2-3 Flow Battery Systems for Stationary Applications – Installation requirements (International)

JIS C 62282-3-3 Stationary Fuel Cell Power Systems – Installation (Japan)

UK "industry/government" working group Installation Guide for Hydrogen Fuel Cells and Associated Equipment (UK)

CNS xxxxx Stationary Fuel Cell Power Systems – Installation (Taiwan)

20130684-T-604 Stationary fuel cell power system – Part 3: Installation (China)

Fuel Cell Power Systems - Electrical Interfaces - With Panel Board

Electrical Code (United States)

Fuel Cell Power Systems - Electrical Interfaces - With Grid

NFPA 110 Standard for Standby Power Systems (United States)

ANSI/IEEE 1547 Interconnecting Distributed Resources with Electric Power Systems (United States)

IEC/PAS 63547 – IEEE Standard for Interconnecting Distributed Resources with Electric Power Systems (International)

IEEE 1547.1a Standard for Conformance Test Procedures for equipment Interconnecting Distributed Resources with Electric Power Systems (United States)

IEEE 1547.2 Application Guide for IEEE 1547 Standard for Interconnecting Distributed Resources with Electric Power Systems (United States)

IEEE 1547.3 Guide for Monitoring, Information Exchange, and Control of Distributed Resources Interconnected with Electric Power Systems (United States)

IEEE 1547.4 Guide for Design, Operation and Integration of Distributed Resources Island Systems with Electric Power Systems (United States)

IEEE 1547.6 Recommended Practices for Interconnecting Distributed Resources with Electric Power Distribution Secondary Networks (United States)

IEEE 1547.7 Guide to Conducting Distribution Impact Studies for Distributed Resource Interconnection (US)

Fuel Cell Power Systems - Electrical Interfaces - With Grid

IEEE P1547.8 Recommended Practices for Establishing Methods and Procedures that Provide Supplemental Support for Implementation Strategies for Expanded Use of IEEE Standards 1547 (US)

State Interconnect Standards / Net Metering Regulations

42 states and the District of Columbia have both interconnect standards and net metering regulations

8 states have no interconnect standards

- Alabama
- Alaska
- Idaho
- Mississippi
- North Dakota
- Oklahoma
- Rhode Island
- Tennessee

4 states have no net metering regulations

- Alabama
- Mississippi
- South Dakota
- Tennessee

