genport 300
hybrid fuel cell

genport
Power Solutions

G300
Hybrid Fuel Cell

GENPORT 300 HFC is a portable fuel cell system (patents nr. 0000272516, nr. 0001394308, 1patent pending) with a versatile design, it maximizes power density, reduces to zero noise, thermal signature, pollution, vibration and provides a constant, reliable source of power in any off-grid context.

GENPORT 300 HFC is a hybrid electric generator based on the integration of PEMFC and Battery Technologies.

GENPORT 300 HFC can operate as Battery Charger (BC), Auxiliary Power Units (APU).

Different *fuels system* can be used with G300 HFC, such as compressed hydrogen, thermal regulated metal hydrides canisters (GH_2Box), chemical hydrides (Genfuel) supplied in cartridges; as an alternative, in order to solve definitely logistic problems for the delivery and refilling of the fuel, G300 HFC can be integrated with the off-grid renewable solar system G300 HPS.

Main Features

PLUG&PLAY hybrid fuel cell technology (patents nr. 0000272516, nr.0001394308, 1 patent pending) designed to maximize power density, reduces to zero noise, thermal signature, pollution and vibration and provides a constant, reliable source of power. Complex technology based on the combination of Proton Exchange Fuel Cell and Battery Technologies, simple to utilize. Push the button on and it runs.

VERSATILE POWER SOURCE for any lightweight, off-the-grid, high energy density application. G300 HFC can operate as Battery Charger, Auxiliary Power Units, Backup power.

MULTIFUEL UNIT easy to fill from not expert user; with a quick connect set, G300HFC can be fueled with different types of hydrogen; compressed and solid (metal, chemical hydrides) supplied in cartridges, canisters, tanks. Fuel supply can be totally avoided, integrated with the off-grid renewable energy system G300 HPS.

CLEAN AND SAFE the power electronics has been designed to provide the highest efficiency of conversion of voltage between the stack to the output. A dedicated hardware manages continuously the flow of energy among the stack and the batteries and provides a safe control against short circuit, overload current.

INDOOR zero impact emission means generation of electric energy in any indoor environment, cabin of a boat, inside a tent a camper or a tank.

OUTDOOR transportation and use in extreme environment is allowed by a rugged water proof design of the enclosure, realized in carbon fibers composites materials.

MULTI-VOLTAGE at the same time, it supplies: 24 V_{dc} / 230 V_{ac} and 24 V_{dc} / 110 V_{ac}.

WEB REMOTE MONITORING to provide detected diagnostic information about the operating conditions to users and deliver prognostic information to technical assistance, in order to prevent failures.

CE COMPLIANT to IEC 62282-5-1 (construction, test requirements, safety, portable Fuel Cell), EN 60529 (grade of protection of enclosures) EN 60529/A1 (grade of protection of enclosures) EN 61000-6-1, EN 61000-6-3 (Electromagnetic compatibility) EN 60335-1 (safety of electrical devices for domestic and industrial application).

Applications

EMERGENCY There are situations in which you cannot wait for a replacement of a power source, in which human life may depend on the capability to communicate without interruptions. Cell phones, two-way radios, charged and ready, are of vital importance during any disaster. Navigation systems, SA computers have to constantly assist rescue operators in remote locations. GENPORT 300 HFC can be utilized as battery charger. With a small cartridge of solid hydrogen as well as metal hydrides canister associated with GENPORT 300 HFC, police operators, search and rescue teams in the Alps as well as in the desert, can continue to operate with vital equipments safely powered.

MARKET PROFESSIONAL & DEFENSE A modern Army is based on highly capable soldiers. The success of these warriors will depend on sensors, communication capabilities. Power supply is the most critical system to allow the new electronic-based equipment to function effectively for a long mission. Traditional generators cause both logistical problems and threat, as associated noise, heat signature and emissions can be detected by the enemy. G300 HFC systems has been designed for a modern land warrior system; it is based on a distinctive wearable cutting-edge technology, which enables soldiers to carry fewer batteries, simplifies the logistics and provides a limited but reliable and constant power source.

G300 HFC utilized as battery chargers as well as an integrated internal power source for portable terminal communication systems, provides a constant, reliable source of power available for extended period of time, reducing to zero heat signature and noise.

TELECOMMUNICATION Remote telecommunications systems displaced in off-grid locations, such as islands or deserts, where temperature variations are relevant, coping with reduced maintenance, pile pressure on network operators to perform without fail. Off-grid installations, as well as longer UPS back-up periods, stretch the ability of current technology to cost-effectively deliver reliable performance. A conventional power solution is a noisy, bulky and high-emission diesel generator. Remote mobile telecommunications and temporary telephone booths, for which it is essential a longer autonomy time of the power source, can all benefit from fuel cell. G300 HFC can power continuously for long-term a small tactical communications system utilized in actions of rapid deployment.

INDUSTRIAL AUTOMATION MARKET The energy demand for a lightweight power source in industrial equipment has been gradually increasing over the past years. There are several categories of industrial applications that all require higher energy density sources. Industrial robots, motion control units, field instruments, remote sensors and control system devices are some of possible applications that can benefit from longer runtime, lighter weight power sources enabled by G300 HFC technology.

Technical Specification

Electrical Data

ThroughPut DC

Nominal Power	300	[W]
Maximum Power	400	[W]
Nominal Voltage	24	[V]
Nominal Current	12	[A]
Peak Current (0,1 second)	25	[A]

ThroughPut AC

Nominal Power	300	[W]
Nominal Voltage	110 - 230	[V]
Nominal current	2,7 - 1,3	[A]
Frequency	60 - 50	[Hz]

ThroughPut AC + DC

Total Nominal Power	300	[W]
Max Total Power (15 min)	400	[W]

Specification Hydrogen

Consumption Nominal Power (300W)	4,5	[sl/min]
Consumption Maximum Power (400W)	6	[sl/min]
Consumption (without load)	0,4 - 0,7	[sl/min]
Maximum Pressure inlet	16	[bar]
Minimum Pressure inlet	1	[bar]
Hydrogen Purity	>=4.0	-

Environmental Specification

Range of Operating Temperature	5 - 40	[°C]
Max Altitude	1.000	[m]

Weight and Dimension and Water Protection

IP GRADE - CLOSE (transport)	65	-
IP GRADE - OPEN (running)	20	-
Weight	19	[kg]
Dimension L x P x H	520x435x230	[mm]

Connectors

Gas connectors

H_2 supply	Staubli RBE03
Water and Air out	flexible pipe f 10 mm
H_2 purge	flexible pipe f 6 mm

Electrical connectors

24 V_{dc} plug	NEUTRIK NAC3FCB
230 V_{ac} plug	Shuko o European 2 pole
110 V_{ac} plug	US 2 pole

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Power Solutions

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