

# Portable Fuel Cells

## Consumer, Industrial & OEM Solutions

# OEM Product Development

Horizon has been partnering with industry leaders to develop and manufacture "Powered by Horizon" fuel-cell integrated power supplies under their brands, and for sales to their customer base. As part of a collaborative product R&D partnership, Horizon can make use of its various technology platforms in fuel cells and hydrogen storage to craft special custom designs for its clients.

**HYMERA** 150W-200W portable fuel cell power systems  
 Sold by The Linde Group, a leading supplier of bottled hydrogen gas



Introducing Hymera, a new hydrogen powered fuel cell generator for portable power applications. Developed and manufactured by Horizon for BOC (Linde Group), Hymera is one of the world's first commercially viable low carbon alternative to small petrol/diesel generators, providing up to 200 watts of peak power whenever and wherever you need it.

Hymera is available in either a 10V DC or 30V DC variant. This makes Hymera extremely versatile and suitable for a wide variety of applications including temporary lighting, traffic management systems, power tool charging, instrumentation, illuminated signage, environmental monitoring, to name but a few. The military, emergency services, rail repair, construction, security & surveillance, marine and local authorities are just some examples of the market segments that would benefit from using Hymera for their off grid portable power requirements.



Contact [sales@horizonfuelcell.com](mailto:sales@horizonfuelcell.com), to submit your custom product design enquiry now.



# HYDROSTIK

Reversible Metal Hydride Cartridge

HYDROSTIK cartridges contain a special metal alloy that absorbs hydrogen gas like a sponge, making it part of the metal alloy complex as a solid hydride. The system is reversible, making the cartridge refillable using HYDROFILL hydrogen stations or bottled industrial hydrogen. Although they were designed to look like batteries, HYDROSTIK cartridges only store energy (Wh), and do not deliver power (W). When HYDROSTIK cartridges are connected to a fuel cell devices, fuel cells generate power by combining hydrogen released from HYDROSTIK with oxygen from the air.



HYDROSTIK cartridge	
Type	Solid state metal hydride
Capacity	10L hydrogen
H2 cartridge size	Ø22 x 88 mm
H2 cartridge weight	105 g
H2 refueling method	HYDROFILL refueling system Refueling from bottled industrial gas

# HYDROFILL

Hydrogen refueling system for HYDROSTIK

The HYDROFILL personal hydrogen station is designed to provide an easy and automatic refilling solution for HYDROSTIK metal hydride cartridges. Add pure water and connects to the AC grid or DC solar or wind power solutions for a renewable hydrogen experience. HYDROFILL is an alternative to bottled hydrogen refilling of cartridges and starts the evolution towards larger systems.



HYDROFILL Specifications	
Stack type	Proton Exchange Membrane electrolysis cell
Water input	De-ionized or distilled water only
Hydrogen generation capacity	Up to 3L/H
Purity	99% (designed for HYDROSTIK cartridges)
Input Voltage	DC: 10-19V
Rated Power	<23W
Hydrogen Output Pressure	0-3.3MPa
Dimensions	145(W)X208(H)X153(D)mm
Weight	1.8kg±5%
Power Supply	110-240 VAC/50-60Hz (AC adaptor supplied)
Outlet specification	Designed for HYDROSTIK

# MiniPak

Handheld fuel cell charger (USB)



## Charges iPhone

and other devices including:  
 BlackBerry, NOKIA, MOTOROLA,  
 LG, HTC, SAMSUNG, SONY & MORE.

## APPLICATIONS:

- Off-grid energy for handheld devices
- Recharging communication equipment
- Basic lighting & entertainment use
- Camping / adventure travel
- Emergency power for natural disasters



The MINIPAK is a universal portable fuel cell charger and power extender compatible with a variety of portable electronics. This unique product is positioned to address gaps in providing energy "on the go" for power-hungry device users, as well to provide as a low cost energy storage option for emergencies and long duration off-grid power users.

MINIPAK fuel cell charger	
Rated Net Power	Up to 2W
Output Voltage	3.8V-5V DC
Size (Dimensions)	13in(4.5x2.7x1.1 in) 214 cm <sup>3</sup> (11.5x6.9x2.7cm)
Weight (without cartridge)	4.2 oz / 120g
Weight (with cartridge)	7.4 oz / 210g
Electrical Interface	USB 5V
User Interface	LED status indicator
Operating Environment	0-35°C

## Standard USB accessories



- USB flashlight**
- Focus-adjustable flashlight (0.5W)
  - Lifetime up to 3,000 hours



## Cellphone charging adaptor tips

Includes 5 interchangeable adaptor tips to charge most cellphones and portable devices.

# HYDROPAK

50-100W portable solution for emergency power

The HYDROPAK uses low cost, high capacity energy storage cartridges that do not self-discharge over years of storage, stores energy at a lower cost than lead acid battery equivalent products. The energy cartridge is plug and play: no need to add water. No hydrogen is stored inside when it is not used, making it easy to carry anywhere. The system can run indoors with no harmful emissions, is quieter, lighter and smaller than generators. The HYDROPAK makes for an ideal emergency preparedness or camping and outdoors solution.

HYDROPAK system specifications	
Rated DC output	50 W
Max DC output	100 W
Nominal DC Voltage	14V x 1 / 12V x 1 / 5V x 2
Charging Current	3.6A@14V / 4.2A@12V / 500mA@5V
Dimensions (w x h x d)	21.5 x 24.5 x 10.2(cm)
Weight without Cartridge	2.3kg
Weight with Cartridge	3.0kg

HYDROPAK cartridge specifications	
Energy Capacity	Runtime @ 50W / 30W / 10W
	3h / 5h / 12h 160Wh



# HYDROMAX 150

PORTABLE FUEL CELL POWER



The HYDROMAX converts the proprietary Horizon solutions directly into electrical current. This direct conversion is performed with no moving parts, completely silently and without creating any pollutants. The fuel cell is therefore extremely efficient, clean and environmentally friendly.

HYDROMAX 150 Specifications	
Max. nominal power	180 W
Nominal voltage	12 V
Max. nominal charging current at 12V	15 A
Recommended battery capacity at 12V	100-350 Ah
Weight	10kg
Noise level (at 10m distance)	25 dB(A)
Nominal fuel consumption	1.25 L/kWh
Quiescent current draw	20 mA
Max recommended altitude	Up to 3000 m
Dimensions (L x W x H)	400 x 185 x 250 mm