

Hydrogen

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# L/M Series Hydrogen Generator

*Hydrogen On-Demand  
When You Need It,  
Where You Need It*

- Unlock your Energy Transition by eliminating high hydrogen logistic costs
- Meets ISO 14687-2019 fuel cell standards and PEM fuel cell power specifications
- Modular, compact, and scalable hydrogen production: from 235kg/d to multi-1,000+kg/d



## Hydrogen on Demand

Our methanol-to-hydrogen generator products are simple, robust, and cost-effective. They produce pure fuel cell grade hydrogen anywhere you need it, in real-time, as required by H<sub>2</sub> demand. No expensive and volume-intensive high-pressure hydrogen storage is required.

# L/M Series Hydrogen Generators

*The Methanol-to-Hydrogen Fuel Delivery Solution.*

On-site hydrogen generation can remove the cost and complexity of expensive electrolyzers, and the challenges associated with manufacturing, transporting, and storing bulk liquid or compressed hydrogen.

Our hydrogen generators are designed to provide a clean, scalable hydrogen solution that grows with your fleet operations and delivers the lowest overall cost of hydrogen for the station operator.

## Applications:

- Distributed (grid-independent) FCEV/BEV charging stations
- Hydrogen fueling stations

## Advantages:

- **Solves the H<sub>2</sub> Challenge** – On-demand fuel cell grade hydrogen production enables adoption of fuel cell power solutions
- **No Hydrogen Storage** – Eliminates the need for stored hydrogen (gaseous or liquified)
- **Future Proof** – Modular, scalable H<sub>2</sub> output
- **Efficient** – High energy efficiency > 80%
- **Low-Cost Feedstock** – Uses low-cost methanol/DI water feedstock
- **Meet decarbonization goals** – Clean emissions with zero NO<sub>x</sub>, zero SO<sub>x</sub>, and zero particulate matter (PM). Net zero CO<sub>2</sub> emissions using renewable methanol feedstock
- **Versatile** – Designed for cyclic and variable operations
- **Low noise and vibration** – Allows placement near sensitive areas

<b>SYSTEM ARCHITECTURE</b>	
H <sub>2</sub> Generator System H <sub>2</sub> Purifier	Includes feedstock pump and reformer, air blower, H <sub>2</sub> purifier, controls Proprietary bi-metallic membrane purifier
<b>H<sub>2</sub> PRODUCT</b>	
Output Purity H <sub>2</sub> Buffer Tank Delivery Pressure	1800 sLm   9.8kg/hr (max output per unit) >99.99% with <0.2 ppm CO, <2.0ppm CO <sub>2</sub> (meets ISO 14687-2019 purity standard) 0.7-2.0 barg   10-30 psig
<b>EFFICIENCY</b>	
Feedstock Consumption Efficiency at Stead State Optimal	132 L/hr   34.8 gal/hr average at 1,800 sLm hydrogen production > 80%
<b>CONTROL OPTIONS</b>	
Controls Communication Protocol Operating Modes Remote Access	Woodward LECM control package CAN - SAE J1939 Automated or Manual Optional: Access to Wi-Fi required for remote access
<b>ELECTRICAL POWER REQUIREMENTS</b>	
Cold Startup Mode Hot Standby H <sub>2</sub> Production Mode Minimum Power to H <sub>2</sub> Generator	≤ 7 kW at 200 VDC/VAC (Constant), < 0.2 kW at 24 VDC ≤ 1 kW at 24 VDC ≤ 2 kW at 200 VDC/VAC (avg. power consumption), < 0.2 kW at 24 VDC ≈ 35 A at 200 VAC, 35A at 24 VDC
<b>STARTUP TIME</b>	
From Ambient Temperature From Hot Standby	Typically <10 hrs depending on system power conditions and ambient temperature < 5 min to H <sub>2</sub> production; < 30 min to rated H <sub>2</sub> production
<b>ENVIRONMENT</b>	
Temperature Range Maximum Altitude	+5°C to 45°C   41°F to 113°F 2,500 m   8,200 ft
<b>DIMENSIONS</b>	
Physical Size (W x D x H) Weight	(2 m x 1 m x 1.55 m) = 3.2 m <sup>3</sup>   (79.5 in x 39.25 in x 61.2 in) = 110.5 ft <sup>3</sup> 1,550 kg   ≈3,400 lbs
<b>FEEDSTOCK REQUIREMENTS</b>	
Methanol/Water DI Blend Ratio Methanol Specifications De-Ionized Water Specifications	Premixed   Methanol 62.5+/- 0.5 wt% with balance DI water Methanol must meet IMPCA purity standard DI water must ≥ 14MΩ-cm

\* Specifications subject to change.

