



PROTON® PEM

S Series

Hydrogen Generation Systems



MODEL	S10	S20	S40
	On-site hydrogen generator in an integrated, automated, site-ready enclosure. Load Following operation automatically adjusts output to match demand.		
ELECTROLYTE	Proton Exchange Membrane (PEM) – caustic-free		
HYDROGEN PRODUCTION			
Net Production Rate Nm ³ /hr @ 0°C, 1 bar SCF/hr @ 70°F, 1 atm SLPM @ 70°F, 1 atm kg per 24 hours	0.265 Nm ³ /hr 10 SCF/hr 4.7 SLPM 0.57 kg/24hr	0.53 Nm ³ /hr 20 SCF/hr 9.4 SLPM 1.14 kg/24hr	1.05 Nm ³ /hr 40 SCF/hr 18.8 SLPM 2.27 kg/24hr
Delivery Pressure - Nominal	13.8 barg/200 psig		
Power Consumed per Volume of H ₂ Gas Produced*	6.1 kWh/Nm ³ 16.3 kWh/100 ft ³		
Purity (Concentration of Impurities)	99.9995% (Water Vapor < 5 ppm, -65°C(-85°F) Dew Point, N ₂ < 2 ppm, O ₂ < 1 ppm, all other undetectable)		
Turndown Range	0-100% net product delivery		
Upgradeability	N/A		
DI WATER REQUIREMENT			
Rate at Maximum Consumption Rate	0.235 L/hr 0.065 gal/hr	0.47 L/hr 0.13 gal/hr	0.94 L/hr 0.25 gal/hr
Temperature	5-35°C/41-95°F		
Pressure	1.5-4 barg/21.8-58.0 psig		
Input Water Quality	ASTM Type II Deionized Water required, < 1µS/cm (> 1 MΩ-cm) ASTM Type I Deionized Water preferred, < 0.1 µS/cm (> 10 MΩ-cm)		
HEAT LOAD AND COOLANT REQUIREMENT			
Cooling	Air-Cooled; Ambient Air, 5-40°C (41-104°F)		
Maximum Heat Load from System	1.1 kW 3,754 BTU/hr	2.2 kW 7,507 BTU/hr	4.3 kW 14,673 BTU/hr
ELECTRICAL SPECIFICATIONS			
Maximum Power Required within Expected System Life	3 kVA	4.5 kVA	8.5 kVA
Electrical Specification	208-240 VAC, single phase, 50 or 60 Hz		

Model	S10	S20	S40
INTERFACE CONNECTIONS – CONSULT INSTALLATION MANUAL FOR DETAILS			
H ₂ Product Port	1/4" CPI™ compression tube fitting, SS		
H ₂ /H ₂ O Vent Port	1/2" CPI™ compression tube fitting, SS		
DI Water Port	1/4" tube push-to-lock, polypropylene		
Calibration-Gas Port	N/A		
Coolant Supply Port	N/A		
Coolant Return Port	N/A		
Drain Port	1/4" tube push-to-lock polypropylene		
Electrical	Connect to on-board circuit breaker		
Communications	RJ 45, Dry Contacts		
CONTROL SYSTEMS			
Standard Features	<ul style="list-style-type: none"> • Fully automated, push button start/stop • Automatic fault detection and system depressurization 		<ul style="list-style-type: none"> • E-stop • On-board H₂ leak detection • Remote Communications
ENCLOSURE CHARACTERISTICS			
Dimensions W x D x H	Product Est. Shipping	31" x 38" x 44"/79 cm x 97 cm x 112 cm 38" x 45" x 54"/97 cm x 114 cm x 137 cm	
Weight	Product Est. Shipping	460 lbs/209 kg 635 lbs/289 kg	
IP Rating	IP 22		
ENVIRONMENTAL CONSIDERATIONS – DO NOT FREEZE			
Standard Siting Location	Indoor, level ± 1°, 0-90% RH non-condensing, non-hazardous/non-classified environment		
Storage/Transport Temperature	5-60°C/41-140°F		
Ambient Temperature Range	5-40°C/41-104°F**	5-40°C/41-104°F	
Altitude Range – Sea Level	1,520 m/5,000 ft		
Ventilation	Proper ventilation must be provided from a non-hazardous area, at a rate in accordance with IEC60079-10, Zone 2 NE		
SAFETY AND REGULATORY CONFORMITY			
Maximum On-board H ₂ Inventory at Full Production	0.016 Nm ³ 0.56 SCF 0.001 kg		
Cabinet Ventilation with Environment	NFPA 69 and EN 1127-1, Clause 6.2. Vent fan draws fresh air up to 28 Nm ³ /min (1,000 ft ³ /min)		
Noise dB(A) at 1 Meter	< 70		
Approvals	cTUVus (UL and CSA equivalent), CE (PED, Mach. Dir. EMC), ISO 22734-1		

Specifications are subject to change.

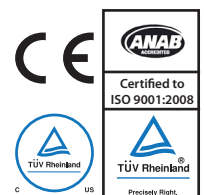
* Dependent on configuration and operating conditions.

** Optional 5-50°C (41-122°F).



www.nelhydrogen.com | +1.203.949.8697 | info@nelhydrogen.com

© 2018 Nel ASA. All Rights Reserved. Nel, number one by nature and Proton are trademarks of Nel ASA.



MADE IN USA

PD-0600-0061 Rev E