

# S Series

## Hydrogen Generation Systems



MODEL	S20	S40
	On-site hydrogen generator in an integrated, automated, site-ready enclosure. Load Following operation automatically adjusts output to match demand.	
<b>ELECTROLYTE</b>	Proton Exchange Membrane (PEM) - caustic-free	
<b>HYDROGEN PRODUCTION</b>		
Net Production Rate		
Nm <sup>3</sup> /hr @ 0°C, 1 bar	0.53 Nm <sup>3</sup> /hr	1.05 Nm <sup>3</sup> /hr
SCF/hr @ 70°F, 1 atm	20 SCF/hr	40 SCF/hr
SLPM @ 70°F, 1 atm	9.4 SLPM	18.8 SLPM
kg per 24 hours	1.14 kg/24hr	2.27 kg/24hr
Delivery Pressure - Nominal	13.8 barg / 200 psig	
Power Consumed per Volume of H <sub>2</sub> Gas Produced	6.7 kWh/Nm <sup>3</sup> 17.6 kWh/100 ft <sup>3</sup>	
Purity (Concentration of Impurities)	99.9995% (Water Vapor < 5 ppm, -65°C(-85°F) Dewpoint, N <sub>2</sub> < 2 ppm, O <sub>2</sub> < 1 ppm, All Other Undetectable)	
Turndown Range	0 to 100% net product delivery	
Upgradeability	N/A	
<b>DI WATER REQUIREMENT</b>		
Rate at Max Consumption Rate	0.47 L/hr 0.13 gal/hr	0.94 L/hr 0.25 gal/hr
Temperature	5°C to 35°C / 41°F to 95°F	
Pressure	1.5 to 4 barg / 21.8 to 58.0 psig	
Input Water Quality	ASTM Type II Deionized Water required, < 1 micro Siemen/cm (> 1 megOhm-cm) ASTM Type I Deionized Water preferred, < 0.1 micro Siemen/cm (> 10 megOhm-cm)	
<b>HEAT LOAD AND COOLANT REQUIREMENT</b>		
Cooling	Air-Cooled; Ambient Air, 5°C to 40°C (41°F to 104°F)	
Max. Heat Load from System	2.2 kW 7,507 BTU/hr	4.3 kW 14,673 BTU/hr
<b>ELECTRICAL SPECIFICATIONS</b>		
Recommended Breaker Rating	8 kVA	12 kVA
Electrical Specification	205 to 240 VAC, single phase, 50 or 60 Hz	

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<b>INTERFACE CONNECTIONS - Consult Installation Manual for details -</b>		
H <sub>2</sub> Product Port	1/4" CPI™ compression tube fitting, SS	
H <sub>2</sub> /H <sub>2</sub> 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	RS 232, Ethernet	
<b>CONTROL SYSTEMS</b>		
Standard Features	<ul style="list-style-type: none"> <li>Fully automated, push button start/stop</li> <li>E-stop</li> <li>On-board H<sub>2</sub> leak detection</li> </ul>	
Remote Alarm	Form C relay 2A/30VDC rated switching	
Remote Shutdown	Circuit breaker shunt trip	
<b>ENCLOSURE CHARACTERISTICS</b>		
Dimensions, W x D x H	Product Est. Shipping	31" x 38" x 42" / 79 cm x 97 cm x 107 cm 38" x 45" x 52" / 97 cm x 114 cm x 132 cm
Weight	Product Est. Shipping	475 lbs / 216 kg 650 lbs / 295 kg
IP Rating	IP 22	
<b>ENVIRONMENTAL CONSIDERATIONS -Do Not Freeze-</b>		
Standard Siting Location	Indoor, level ± 1°, 0 to 90% RH non-condensing, Non-hazardous/non-classified environment	
Storage/Transport Temperature	5°C to 60°C / 41°F to 140°F	
Ambient Temperature Range	5°C to 40°C / 41°F to 104°F	
Altitude Range- Sea Level	1520 m / 5000 ft	
Ventilation	Proper ventilation must be provided from a non-hazardous area, at a rate in accordance with IEC60079-10, Zone 2 NE	
<b>SAFETY AND REGULATORY CONFORMITY</b>		
Max On-board H <sub>2</sub> Inventory at Full Production	0.016 Nm <sup>3</sup> 0.6 SCF 0.0014 kg	
Cabinet Ventilation with Environment	NFPA 69 and EN 1127-1, Clause 6.2. Vent fan draws fresh air up to 28 Nm <sup>3</sup> /min (1000 ft <sup>3</sup> /min)	
Noise dB(A) at 1 Meter	< 70	
Approvals	cTUVus (UL and CSA equivalent), CE (PED, ATEX, LVD, Mach. Dir. EMC), NYFD Approval	

Specifications are subject to change. Please contact Proton OnSite for solutions to best fit your needs. Consult Proton OnSite Applications Engineering Department for proper installation guidelines.



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