NM PLUS RACK HYDROGEN GENERATOR

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CARRIER GRADE

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DESCRIPTION

The VICI DBS® NM Plus Rack instrument combines the reliability of the hydrogen generator with an optional zero air generator into a 19" rack. The generator can be installed in any suitable 19" static or mobile cabinet. This simple but effective instrument can supply all your FID gas and carrier gas requirements. Designed as a hazard free alternative to high pressure cylinders, all that is required is deionized water, compressed air and a standard electrical supply for weeks of continuous operation. Utilizing our proprietary Proton Exchange Membrane (PEM) inside a 100% titanium cell provides superior generator performance and cell longevity. The unique high pressure permeation membrane drying system eliminates the requirement for desiccant cartridges and the associated downtime and cost. Innovative software control allows unrivaled operational performance and safety as well as the additional options of auto water feed, remote networking and cascading for built in redundancy. With a maximum output capacity of 1350 mL/min, one generator can supply up to 33 FIDs. The compact design allows the generator to be installed directly in the laboratory eliminating the requirement for long gas lines and guaranteeing the delivery of high purity gas to your instrument.

A sophisticated control system connected to an easy to use touch screen control continuously monitors vital operating parameters to ensure a safe and consistent performance. Built in sensors will shut the generator down if internal/external leaks are present, contaminated water, low water or over pressure. This is why VICI DBS generators meet the strict safety guidelines to be certified for CE, FCC and MET (CSA and UL compliant).

Compressed air is prefiltered then purified using a state of the art combined heated catalyst module. The resultant air is free from total hydrocarbons to <0.1 ppm, making it ideal for all FID applications. These levels assure high sensitivity, a flat stable baseline and no ghost peaks.

INCREASE EFFICIENCY

A constant gas supply with a guaranteed purity, eliminates interruptions of analysis to change cylinders and reduces the amount of instrument re-calibration required.

ENHANCE PERFORMANCE

Gas generators can be installed in the lab close to the instrument, eliminating the need for long gas lines from external cylinder supplies. A constant guaranteed high purity gas supply improves stability and ensures greater reproducibility of results.

IMPROVE SAFETY

Gas is produced on demand, which allows for the safe use of the hydrogen generator when cylinders are prohibited or regarded as potentially dangerous. Sophisticated software control and full alarm capability, including for hydrogen leaks, gives the user full control of the gas supply.

ENHANCE RESULTS

Hydrogen as a carrier gas is faster and more sensitive than expensive helium, with run time savings of 25% to 35% without a decline in resolution. The use of hydrogen as a carrier gas allows lower temperature elution, thus extending the life of the chromatograph column.

APPLICATIONS

ANALYZER APPLICATIONS

- Process GC analyzers detector fuel, oxidant gas
- Emissions test analyzers fuel gas, oxidant gas
- Stack gas analyzers fuel gas, oxidant gas

OTHER LAB APPLICATIONS

- On-board gas supply for mobile laboratories

ZERO AIR OPTION

This model has a Zero Air option.
Ask your representative for more information.

BENEFITS

Eliminates dangerous high pressure cylinders | Ideal for all 19"cabinet applications | Removes the logistics, inconvenience, downtime and costs of a cylinder system | Flow capacity to match your specific instrument demands | Ideal for all GC detector applications | Exceeds the requirements for the most demanding GC applications | Superior hydrogen production with reliable long life cell | Minimal maintenance | PC monitoring | Peace of mind | Improve your laboratory work flow and productivity

FEATURES

Produces a continuous supply of hydrogen & zero air | 19" rack housing | On-demand supply 24/7 | H2 Flow rate: 100 to 1350 mL/min - zero air flow rates up to 5 L/min | H2 Purity: >99.99996% zero air purity, 0.1 ppm of hydrocarbons | Pressure: 11 barg (160 psig) | Proprietary 100% titanium cell technology | Unique permeation membrane drying system | USB connectivity | 2-year complete cell and product warranty | Easy to install, operate and maintain

MODELS & SCECS	NM PLUS 100 RACK	NM PLUS 160 RACK	NM PLUS 250 RACK	NM PLUS 300 RACK	NM PLUS 450 RACK
Flow mL/min	100	160	250	300	450
Purity	>99.99996%				
Dew point at 7 barg (100 psig)	-73°C (-99.4°F)				
Outlet pressure barg (psig)	1.4 to 11 (20 to 160)				
Technology	PEM (Proton Exchange Membrane) - 100% Titanium cell				
Drying system	No maintenance cold dual dynamic regeneration system				
Deionized water quality	Minimum < 1 micro S/cm @25°C - 1 Mohm-cm@25°C - ASTM II Recommended < 0.2 microS/cm @25°C - 5 Mohm-cm @25°C - ASTM II				
External water tank (liters)	External 5 liter bottle and internal pump				
Safety	Automatic shut down - internal/external hydrogen leak, overpressure and low water				
Display	Touch screen with operating parameters, system status and safety alarms				
LED indicators	Power on/off, system ready, errors				
Interface	USB mod A				
Electrical supply	110-120V 60Hz / 220-240V 50Hz				
Power consumption (watts)	90	115	125	150	180
Dimensions mm (in)	19" rack W - 3U H - 500 D (19.6)				
Weight kg (lbs)	19 (41.9)			21 (46.2)	
Shipping dimensions mm (in)	720W x 375H x 565D (28.3W x 14.7H x 22.2D)				
Shipping weight kg (lb.)	23 (50)			25 (55)	
Operating temp °C (°F)	15 to 35 (59 to 95)				
Outlet connection	1/8" Compression				
Certification	CE, FCC, MET (UL and CSA compliant)				
OPTIONS					
Zero Air module	1.8 or 5 L/min				
External water tank	19" rack 5 liter (2U) or 10 liter (3U) tank				
Cascading	Up to 10 units – built in redundancy for guaranteed up-time				
Interface	RS232/RS485, external contacts, PC control and intranet				

MODELS - HYDROGEN	NM PLUS 500 RACK	NM PLUS 600 RACK	NM PLUS 1000 RACK	NM PLUS 1350 RACK
Flow mL/min	500	600	1000	1350
Purity	>99.99996%			
Dew point at 7 barg (100 psig)	-73°C (-99.4°F)			
Outlet pressure barg (psig)	1.4 to 11 (20 to 160)			
Technology	PEM (Proton Exchange Membrane) - 100% Titanium cell			
Drying system	No maintenance cold dual dynamic regeneration system			
Deionized water quality	Minimum < 1 micro S/cm @25°C - 1 Mohm-cm@25°C - ASTM II Recommended < 0.2 microS/cm @25°C - 5 Mohm-cm @25°C - ASTM II			
External water tank (liters)	External 5 liter bottle and internal pump			
Safety	Automatic shut down - internal/external hydrogen leak, overpressure and low water			
Display	Touch screen with operating parameters, system status and safety alarms			
LED indicators	Power on/off, system ready, errors			
Interface	USB mod A			
Electrical supply	110-120V 60Hz / 220-240V 50Hz			
Power consumption (watts)	200	300	400	500
Dimensions mm (inches)	19" rack W - 3U H - 500 D (19.6)			
Weight kg (lbs)	21 (46.2)		22 (48.5)	
Shipping dimensions mm (in)	720W x 375H x 565D (28.3W x 14.7H x 22.2D)			
Shipping weight kg (lbs)	25 (55)		26 (57)	
Operating temp °C (°F)	15 to 35 (59 to 95)			
Outlet connection	1/8" Compression			
Certification	CE, FCC, MET (UL and CSA compliant)			
OPTIONS				
Zero Air module	1.8 or 5 L/min			
External water tank	19" rack 5 liter (2U) or 10 liter (3U) tank			
Cascading	Up to 10 units – built in redundancy for guaranteed up-time			
Interface	RS232/RS485, external contacts, PC control and intranet			

OPERATING DIAGRAM

Hydrogen is produced from the hydrolysis of deionized water across a PEM (proton exchange membrane), housed in a 100% titanium cell. The output hydrogen is dried via a dual stage process, a gas liquid separator and a unique dual no maintenance automatic dryer. In addition to water all that the generator requires is a standard connection and supply of electricity for a continuous 24/7 supply of high purity hydrogen. Consumable items are limited to the replacement of a deionizer bag every six months.