NM PLUS HYDROGEN GENERATOR

VICI DBS
www.vicidbs.com

CARRIER GRADE

North America & South America contact:

VICI DBS USA

tel: 1 713-263-6970
fax: 1 713-263-6971
web: www.vicidbs.com

Europe, Asia, Africa, & Australia/Oceania contact:

VICI AG INTERNATIONAL

tel: 41 41 925-6200
fax: 41 41 925-6201
web: www.vicidbs.com

DESCRIPTION

The VICI DBS® NM Plus hydrogen generator offers the optimum combination of safe operation, reliability and performance. Designed as a hazard free alternative to high-pressure cylinders, all that is required is deionized water 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 permeation membrane drying system eliminates the requirement for desiccant cartridges along with the associated downtime and cost. The final purification stage uses a no maintenance cold dual dynamic regeneration system which increases the purity to +99.99999%. 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 GCs. 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 instruments.

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).

INCREASE EFFICIENCY

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

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.

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 users full control of the gas supply.

ENHANCE PERFORMANCE

Gas generators can be installed in the laboratory 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.

FEATURES

Produces a continuous supply of H2 | On-demand supply 24/7 | Flow rate: 100 to 1350 mL/min | Purity: +99.99999% | Pressure: 11 barg (160 psig) | Proprietary 100% titanium cell technology | Unique permeation membrane drying system | Cold dual dynamic regeneration dryer | USB connectivity | 2-year complete cell and product warranty | Easy to install, operate and maintain

BENEFITS

Eliminates dangerous high pressure cylinders helping to keep your employees safer | Removes the logistics, inconvenience, downtime and costs of a cylinder system | Flow capacity and purity to match your specific instrument demands | Ideal for all GC detector applications | Meet and exceeds the requirements for the most demanding GC applications | Superior hydrogen production with reliable long life cell | Minimal maintenance - low cost of ownership | PC monitoring for maintenance, diagnostics and remote connection | Peace of mind | Improve your laboratory work flow and productivity

OPTIONS

I/O board | Remote control software (RS232 or USB) | Cascading hardware (standard or high purity) | Automatic water refill

APPLICATIONS

GC APPLICATIONS

- GC carrier gas
- GC/MS carrier gas
- GC fuel gas
- GC-ELCD & HALL reaction gas

ANALYZER APPLICATIONS

- Total Hydrocarbon Analyzer (THA) fuel gas
- Chemisorption/ Physisorption measurement gas

SPECTROSCOPY APPLICATIONS

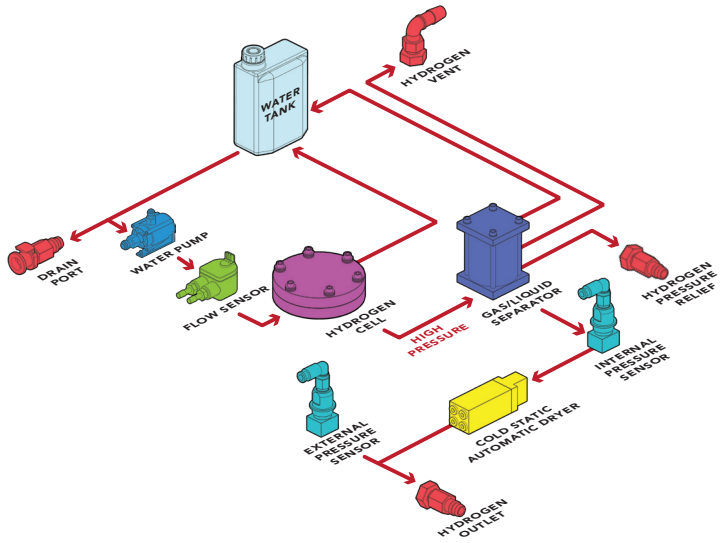
- ICP-MS Collision cell reaction gas

OTHER APPLICATIONS

- Chemical Vapor Deposition Instrumentation (CVD) aid deposition process
- Plasma Cleaning Instrumentation (UCP)
- High Efficiency Process Gas
- Hydrogenation Reactors
- Hydrogen Fuel Cells
- Weather Balloon Filling
- Electronic Nose (eNOSE)
- 3-D Chromatography

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 an exclusive cold static automatic drying system. 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.



MODELS & SPECS	NM PLUS 100	NM PLUS 160	NM PLUS 250	NM PLUS 300	NM PLUS 400	NM PLUS 500	NM PLUS 600	NM PLUS 1000	NM PLUS 1350
Flow mL/min	100	160	250	300	400	500	600	1000	1350
Purity	+99.99999%								
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								
Internal water tank (liters)	2.5								
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)	100	120	165	205	210	220	255	385	410
Dimensions mm (inches)	230W x 480H x 370D (9W x 19H x 15D)								
Weight kg (lbs)	14 (31)	14 (31)	15 (33)	15 (33)	15 (33)	16 (35)	16 (35)	17 (37.5)	18 (39.5)
Shipping dimensions mm (in)	580W x 570H x 400D (22.8W x 22.4H x 15.7D)								
Shipping weight kg (lbs)	18 (39.5)	18 (39.5)	19 (42)	19 (42)	19 (42)	20 (44)	20 (44)	21 (46)	22 (48)
Operating temp °C (°F)	15 to 35 (59 to 95)								
Outlet connection	1/8" Compression								
Certification	CE, FCC, MET (UL and CSA compliant)								
OPTIONS									
Auto water refill	Continuous water feed from an external water supply								
Cascading	Up to 10 units – built in redundancy for guaranteed up-time								
Interface	RS232/RS485, external contacts, PC control and intranet								

ORDERING INFORMATION (for best service, please call to discuss your application before placing your order).

NM PLUS 100		NM PLUS 160		NM PLUS 250	
DB-PNM100-EU	230-240V/50-60Hz	**DB-PNM160-EU**	230-240V/50-60Hz	**DB-PNM250-EU**	230-240V/50-60Hz
DB-PNM100-US	115V/60Hz	**DB-PNM160-US**	115V/60Hz	**DB-PNM250-US**	115V/60Hz
DB-PNM100-JP	100V/60Hz	**DB-PNM160-JP**	100V/60Hz	**DB-PNM250-JP**	100V/60Hz
NM PLUS 300		**NM PLUS 400**		**NM PLUS 500**	
DB-PNM300-EU	230-240V/50-60Hz	**DB-PNM400-EU**	230-240V/50-60Hz	**DB-PNM500-EU**	230-240V/50-60Hz
DB-PNM300-US	115V/60Hz	**DB-PNM400-US**	115V/60Hz	**DB-PNM500-US**	115V/60Hz
DB-PNM300-JP	100V/60Hz	**DB-PNM400-JP**	100V/60Hz	**DB-PNM500-JP**	100V/60Hz
NM PLUS 600		**NM PLUS 1000**		**NM PLUS 1350**	
DB-PNM600-EU	230-240V/50-60Hz	**DB-PNM1000-EU**	230-240V/50-60Hz	**DB-PNM1350-EU**	230-240V/50-60Hz
DB-PNM600-US	115V/60Hz	**DB-PNM1000-US**	115V/60Hz	**DB-PNM1350-US**	115V/60Hz
DB-PNM600-JP	100V/60Hz	**DB-PNM1000-JP**	100V/60Hz	**DB-PNM1350-JP**	100V/60Hz