

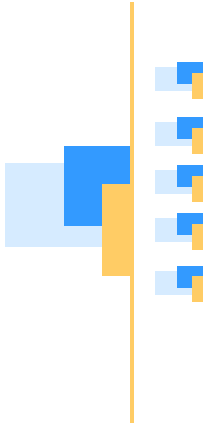


# DELTA GLOW *integrated*™

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*HIGH ENERGY  
PLASMA SOURCES  
FOR  
MATERIALS  
PROCESSING*



- Complete chamber mount design
- Analog control interface
- Easy to service plasma reactor tube & seals
- High gas conversion efficiency
- Internal impedance matching network

CONCEPT

The Manitou Systems **Delta Glow *integrated*** High Energy RF Plasma source is our most complete plasma processing solution for semiconductor and industrial processes. The **Dgi** is designed using a field proven 13.56MHz RF power generator coupled to a manually adjusted impedance matching network. The RF power generator module is capable of providing 600 watts of continuous output. An inductively coupled plasma source (ICP) transfers the RF power to the plasma discharge through a dielectric reactor tube.

Its physical design enables mounting on top of the chamber as a primary plasma source for deposition and chamber cleaning or underneath the chamber for use as an abatement tool. It may even be used as pass through source to process materials in a linear fashion.

The **Delta Glow *integrated*** control system is built using circuits typically employed in our line of stand alone RF power generators. Various outputs enable the users control system to operate and monitor the status of the process. Faults are monitored using the opto-isolated outputs. The **Dgi** is compliant with typical industry accepted regulations.

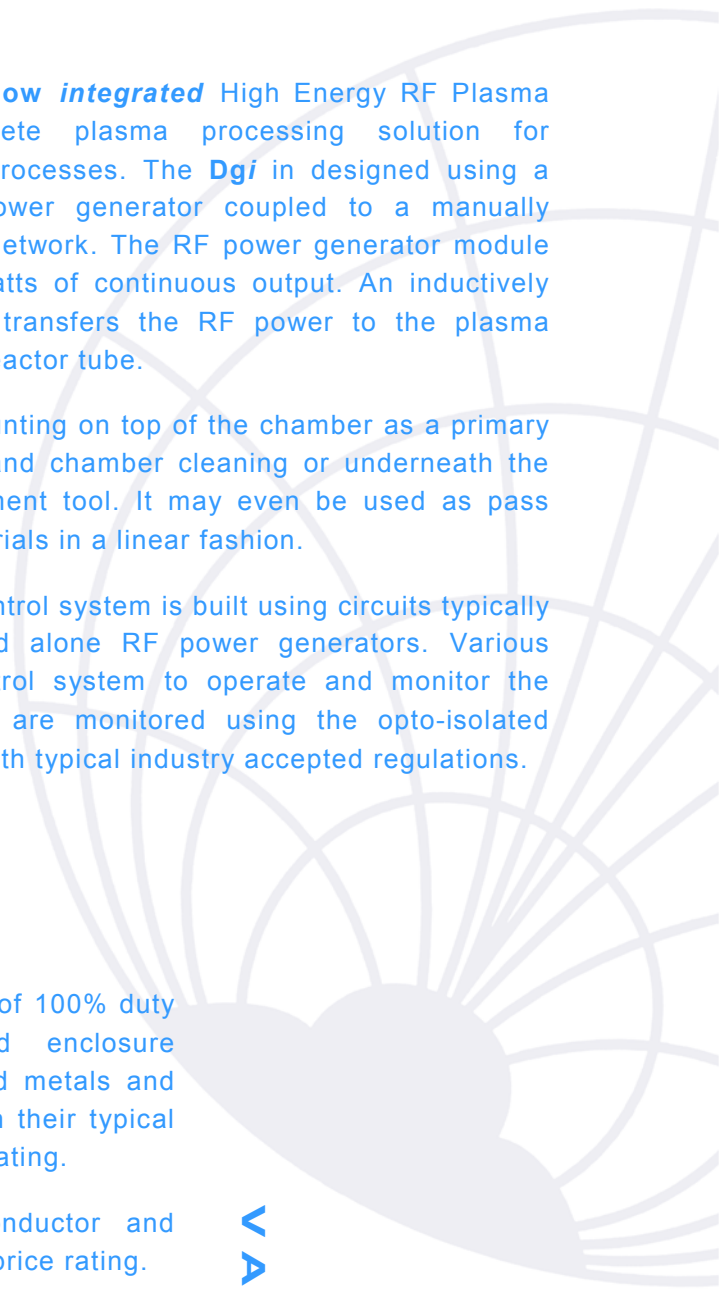
All subsystems are designed to withstand the rigors of 100% duty cycle industrial environments; heat sinks and enclosure components are constructed from chemically treated metals and electrical components selected to operate well within their typical ratings. Tight control leads to an unparalleled MTBF rating.

The **Delta Glow *integrated*** meets the semiconductor and technology industries demand for excellent value vs. price rating.

We also offer complementary hardware to complete the processing system including cables and remote control panels.

Manitou Systems enhances the technology package deliverable with customer site applications engineering, factory repair services and complete OEM product solutions.

VALUE



Installation and operation of the **Delta Glow *integrated*** is easily accomplished through the use of industry standard vacuum interface and electrical fittings. The unit is typically pre set for use with a single process condition using the RF power output set point control and the two plasma matching controls.

Information for all critical operating values and diagnostics is accomplished via an optional rack mount remote control panel or through the users computer control system.

INTERFACE

The **Delta Glow *integrated*** includes a standard DB-15 connector for its Analog I/O connections.

Typical Analog input signals are: RF On, safety interlock and RF output level set. Typical Analog output signals are: Cooling air Fault, Forward RF output metering, Reflected RF output metering, RF On, and Temperature fault.

The 208VAC single phase input power is connected via a fused & filtered IEC connector.

Cooling water connections are made via Swagelok™ type tube fittings.

Process gas connections are made via a 1/4" VCR fitting or through the use of a KF-50 flange adapter.

A KF-50 flange is used to connect the unit to the vacuum system. Optional OEM vacuum interface treatments are available. Please consult the factory.

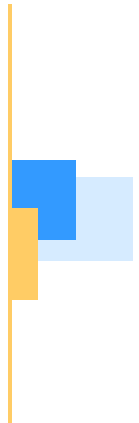
Most typical plasma processing gas combinations are supported .

Forced air *and* forced air/water cooling ensure that optimal component operating temperatures are maintained.

The plasma reactor tube and its o-ring seals are easily serviced without opening the enclosure.

RF blanking (pulsed operation) is available using an external signal generator.

FEATURES



Dgi Model #	DGi-Quartz PN 00003100	DGi-Alumina PN 00003241
Operating Frequency	13.56 MHz	
Maximum Output Power (Watts)	600	
Plasma Reactor Tube & Seals	50mm Diameter Quartz tube Viton O-rings	50mm Diameter Alumina tube
AC Mains Requirements	187>240 VAC 50/60 Hz Single Phase - IEC 320 Receptacle	
Cooling Method	Forced Air & Water	
Product Weight	20 Lbs	
Product Dimensions	14.5" Long X 9.5" Wide X 6" High	
Gas Conversion Efficiency	>90%	
Water Cooling Fittings	1/4" Swagelock	
Air Cooling	Via user's house exhaust or through an external forced air source.	
Process Gas Fitting	1/4" VCR	
Vacuum Interfaces	KF-50	
Operating Pressure Range	1 micron > 10 Torr	
Process Gas Types	Ar, NF <sub>3</sub> , O <sub>2</sub> , H, N <sub>2</sub> , Freon + others based on pressure & mixture	

The table shown above lists product models and their typical specifications. Manitou Systems also offers OEM and custom versions including special packaging and vacuum flanging. Please consult the factory for additional information.

Manufactured in the USA

*For up to date pricing and delivery information please contact us at the address below:*



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*Technical specifications are subject to change without prior notice.  
 See our web site or contact us directly for the latest specifications and pricing.*

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Represented By: