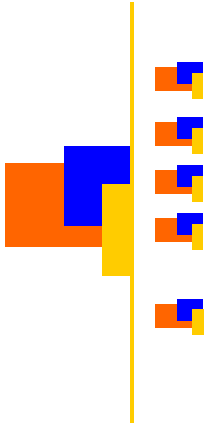




# HELIUS HVT<sup>TM</sup> RF POWER SYSTEMS



*RF POWER SYSTEMS  
FOR  
PLASMA PROCESSING*



- Freestanding rack cabinet design**
- Analog & serial bus interface**
- Stable RF power amplifier design**
- Reliable HV power supply using air cooled transformers**
- Internal data logging & event reporting**

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The **Helius** HVT RF power system is specifically designed for continuous use in semiconductor, industrial and R&D plasma processing applications. Proven solid state and vacuum tube RF amplifier topologies enable stable output into dynamic plasma load conditions while providing reliable operation. A transformer based high voltage power supply is employed to convert the AC mains power into the voltages required by the solid state exciter and the high power RF amplifier.

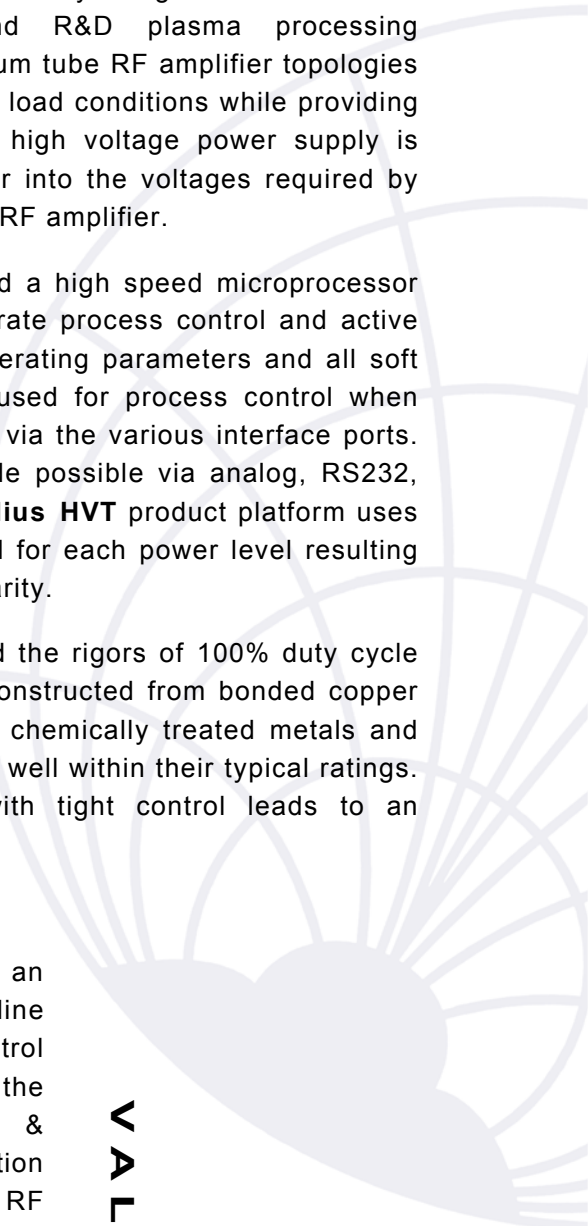
The **Helius** control system is built around a high speed microprocessor and memory module. This provides accurate process control and active hardware management. Many internal operating parameters and all soft (or hard) faults may be monitored and used for process control when directed to the process system controller via the various interface ports. Connectivity to the user's system is made possible via analog, RS232, DeviceNet or Profibus interfaces. The **Helius HVT** product platform uses internal RF control sensors are optimized for each power level resulting in a high degree of control vs. output linearity.

All subsystems are designed to withstand the rigors of 100% duty cycle industrial environments; heat sinks are constructed from bonded copper plate, enclosures are manufactured from chemically treated metals and electrical components selected to operate well within their typical ratings. Active thermal management coupled with tight control leads to an unparalleled MTBF rating.

Today's high technology industries demand a product that has an excellent value vs. price rating. The **Helius** HVT product line meets this criteria. In addition, we include advanced control features and RF system performance. **Manitou** offers the complementary MTK & **Accu-Match™** products (manual & automatic impedance matching networks) and interconnection devices (cables & output switch modules) to complete the RF power system package. These products are designed to operate with all types of plasma source loads.

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

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Operation and programming of the **Helius HVT** is accomplished through the use of the touch switches and three axis rotary encoder wheel. The encoder's push motion is used to scroll through the various display screens while the rotary action is used for selecting the values. Membrane touch switches are also used during programming as well as to actuate the RF Output, Reset Faults and manually operate the **Accu-Match** module,

Display of critical operating values and diagnostics is accomplished via a blue-white graphical LCD display. Discrete, multi colored LED indicators are provided on the left side of the panel to indicate faults and system status.

## INTERFACE

The **Helius HVT** includes as standard both Analog & RS232 I/O connections. Profibus and DeviceNet interfaces are offered as an option. The serial interfaces offer both system control as well as a streaming data output of critical operating and diagnostic parameters. The analog I/O affords an inexpensive method by which the **Helius** can be connected to a process system controller.

Typical Analog signals are: RF On, Selection of output regulation, Fault, RF output metering, DC Bias level metering, Output level set, RF On/Off, and Pulse mode input.

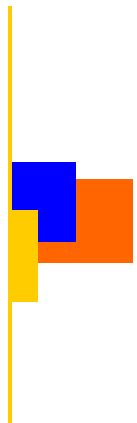
The serial interface includes the same signals as the Analog port in addition to: Internal temperature measurements, RF amplifier operating voltage & currents, Internal "soft" failure activities, cooling fan rotation faults, and other software programmable diagnostics.

**Accu-Match** diagnostic and operational signals are typically available via the **Helius** serial interfaces.

A separate connection is used for the user's safety interlock.

Forced air *and* forced air/water cooling ensure that optimal component operating temperatures are maintained. To ensure long life time all cooling fans are managed by onboard digital controls offering a sleep mode during idle periods and variable speed to meet the thermal need. The fan management system also includes active faults upon locked rotor and over temperature fault conditions.

## FEATURES



<b>Maximum Output Power (Watts)</b>	1500 > 40,000 watts
<b>RF Output Connection</b>	1500 Watts - Type N Female / 10kW & above contact factory
<b>AC Mains Power Requirements</b>	1500 watts - 200>240VAC 50/60Hz 500VA 1PH 10kW & above 208 or 480 VAC 3PH
<b>Cooling Method</b>	1500 watts - Forced Air 10kW & above forced air and water
<b>Product Weight (Lbs)</b>	TBD
<b>Product Dimensions</b>	19" electronics rack cabinet
<b>Part Number</b>	Issued at time of order placement

The table shown above lists typical specifications. Manitou Systems offers the Helius HVT as OEM and custom products. All specifications including frequencies, special packaging and application specific options are determined at the time of order placement. Please consult the factory for additional information.

All models (unless otherwise specified) offer the following features as standard:

- 50 Ohm output impedance.
- Reflected power tolerance of 25 to 40% (of forward power) based on model.
- Programmable process presets.
- 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: