

**OEM High Voltage Power Supply,
"Front Access"**

APPROVALS			REVISIONS			
	INITIALS	DATE	REV	DESCRIPTION	DATE	APPR
Drawn	JFG	15OCT11	1	Release	15OCT11	JFG
Engineering			2	Updated duty rating	11MAR14	JFG
Manufacturing			3	Added AGL part numbers	15APR16	JFG
Marketing						

1.0 General Description

This document describes two models of variable output high voltage power supplies (HVPS) designed for use in the GaSonics (Novellus) "A-3010" and "Iridia" semiconductor wafer fabrication tools. They are fully compliant with the electrical specifications defined in GaSonics source control drawing 61-0052 (for A-3010) and 61-2332 (for Iridia). The new model for Iridia has been qualified by Novellus for new tools and field replacements.

The unique feature of these models is that access to the internal adjustments on the control PCB assembly is at the front panel rather than the side or top. This feature greatly improves serviceability and convenience when calibrating and troubleshooting. In addition, improved internal air cooling enhances long term reliability as compared to the original designs. These models also use the same PCB assemblies and other electrical parts as used in the original, thus allowing the use of existing spare parts inventories.

The HVPS provides the anode and filament voltages for the customer-supplied magnetron which is mounted on the remote waveguide assembly. Anode voltage is delivered to the magnetron in pulses at a rate equal to twice the power line frequency (i.e. 120 pps using 60 Hz line power) by a full-wave bridge rectifier type power supply. Output power is controlled from zero to full by phase-fired SCR's.

The HVPS is enclosed in a 19" rack mount chassis. Carrying handles are provided at both the front and rear. The control PCB assembly is accessed from the top of the enclosure for calibration and alignment. A separate input is provided for a reflected power signal which is used in a power fold-back circuit to protect the magnetron from excess levels of reflected power.

2.0 General Specifications**2.1 Electrical Specifications**

Compatible Magnetron	Model 913714: Hitachi 2M121A (or equiv.) Model 913715: Hitachi 2M130 (or equiv.)
Microwave Power	Model 913714: 900 W at 100% duty 1.25 kW at 50% duty, 5 minutes max cycle on-time <i>NOTE: These duty ratings are consistent with the original design and performance of the 61-0052.</i> Model 913715: 1.8 kW at 100% duty
Output Power Control	Continuously variable from zero to full output
Output Regulation	1% max output power variation for 10% line voltage variation
Output Waveform	Pulsed at rate equal to twice the power line frequency (100 pps at 50 Hz line power, 120 pps at 60 Hz line power)
Power Supply Type	Full wave bridge rectifier, unfiltered
Input Line Voltage	190/208/220/240 VAC, single phase, 50/60 Hz, 2-wire plus ground

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Input Line Current Model 913714: 11A nominal @ 208 VAC
 Model 913715: 16A nominal @ 208 VAC

Interlocks Access cover; External

2.2 Mechanical Specifications

Line Power Connector Model 913714: 20A NEMA style L6-20P Twist-Lock plug
 Model 913715: 30A NEMA style L6-30P Twist-Lock plug
 With 6 foot type SO cord

Ground Connection ¼-20 UNC stud

Control I/O Connection 25-pin female subminiature "D"

Cooling Forced air provided by internal fan

Enclosure 19" NEMA rack mount cabinet, 4U high, 16" deep (approx.)

Weight (approx.) Model 913714: 80 lbs
 Model 913715: 130 lbs

2.3 Control Interface

Microwave On/Off Ground to enable MW power (24 VDC, 10 mA)

Mw Power Control Input 0-10 VDC, set for 10 VDC = 1200/1800 Watts output, 1%
 linearity between 100 and 1200/1800 Watts

Forward Power Signal Output 0-10 VDC, set for 10 VDC = 1200/1800 Watts output, 1%
 linearity between 100 and 1200/1800 Watts

Reflected Power Signal Output 0-10 VDC, adjustable from 100 W = 10 VDC to 1000 W = 10
 VDC. Set for 0.5 VDC = 50 Watts (non-linear)

Power Fold-back Automatically occurs when reverse power reaches set
 protection level. Set level is adjustable from 100 W to 600 W.
 Factory-set for 200 W. Requires reflected power signal from
 external customer-supplied coupler.

Mw Power On Indicator Isolated collector-emitter junction

Mw Full Power Indicator Isolated collector-emitter junction

External Interlocks Connections for external dry contacts (24 VAC, 0.5 Amps)

External Connectors BNC jacks provided for reflected power signals

Hibernate 0 VDC input disables magnetron filament and plate voltage

System Ready 15 VDC output signal when in standby or operate mode

3.0 Ordering Information

<u>Description</u>	<u>GAE P/N</u>	<u>Novellus P/N</u>	<u>Legacy GaSonics P/N</u>	<u>Legacy AGL P/N</u>
1.25 kW HV Power Supply, for A-3010	913714	n/a	61-0052	C12932-2
1.8 kW HV Power Supply, for Iridia	913715	27-425639-00	61-2332	D13765

4.0 Outline Drawing

