

ACG SERIES

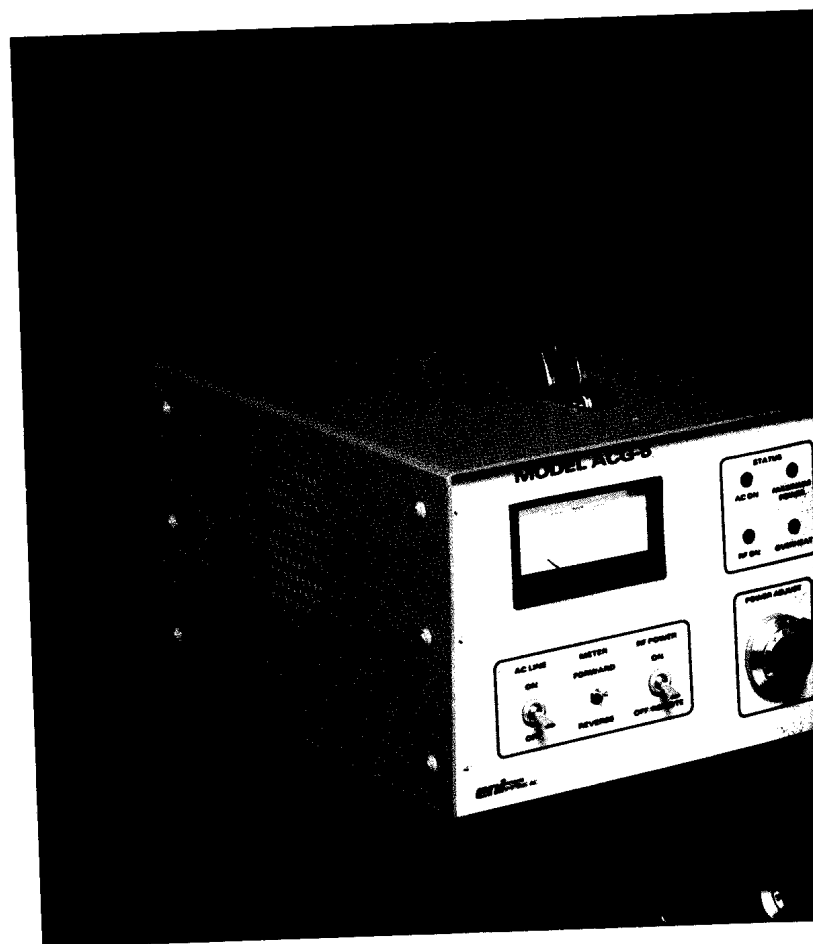
The ACG Series Generators incorporate the results of our extensive research and development program to reduce the size and weight of "full feature" air-cooled plasma generators to the absolute minimum. This has been accomplished without sacrificing the performance or reliability of our field proven design concepts. By "full feature" we mean that the ACG Series include all of the most requested OEM features to provide a high degree of system compatibility, power level control and reliability. These generators incorporate a conservatively rated 100% solid state design for continuous duty operation, computer compatible remote control functions and readout, accurate RF power control, fast pulse mode operation, unconditional stability with mismatch foldback protection, hybrid combined power amplifier stages for increased operational reliability and built-in servicing diagnostics.

AUTOMATIC POWER CONTROL The reliable operation of any solid state power generator is directly influenced by the sophistication of its power control circuitry. The ACG Series automatic power control module measures forward RF power, reflected RF power and the current draw of each RF power amplifier module. Should any of these parameters exceed preset limits, the automatic power control will immediately fold back the RF power output so that all components remain within their safe operating limits. Besides assuring safe operation of the generator, the automatic power control provides constant RF power output level to within $\pm 3\%$ of the matched power setting regardless of the plasma load VSWR. In addition, the automatic power control eliminates output power drift due to line voltage variations, component aging and reduces output hum and ripple to insignificant levels.

COMPUTER COMPATIBILITY The ACG Series Generators are provided with an external computer interface bus that is compatible with TTL logic levels. This interface bus permits remote RF power level control from off to full power, indicates when the unit is developing maximum power and indicates lack of air cooling or RF power. In addition, external analog voltages are available at the interface, providing for both forward and reverse power readouts. These voltages are calibrated at precisely 1.00 volt per kilowatt to allow a digital voltmeter to read power directly in kilowatts.

SAFE, EASY MAINTENANCE The built-in servicing diagnostics permits a service technician to read out the voltage and current draw of each individual module on the front panel meter. Should service be required, plug-in modules are incorporated to facilitate easy replacement. The very low DC voltages used in the ACG Series greatly reduces the potential hazards associated with servicing when compared with vacuum tube equipment.

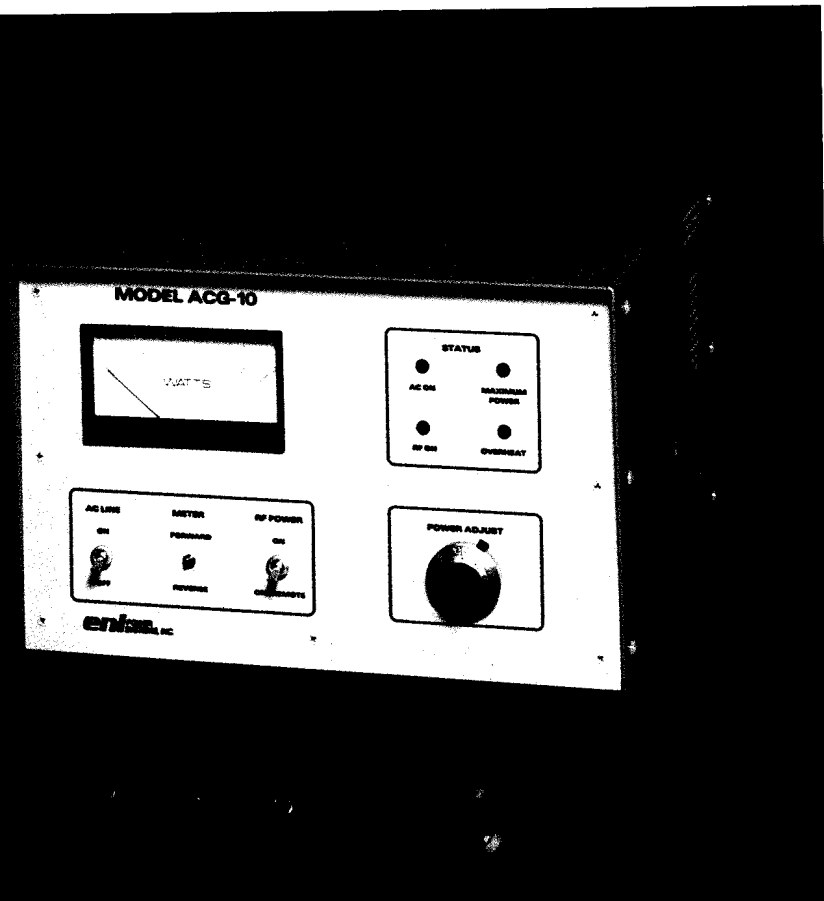
NO RFI PROBLEM The ACG Series Generators are provided with an extremely well shielded and filtered power supply virtually eliminating RF leakage. An extremely sharp low pass filter at the output of the unit insures that all harmonics are reduced to very low levels. Extensive use of shielding and RF suppression techniques permits the units to more than meet FCC requirements for ISM equipment and at the same time eliminates RF susceptibility problems for associated plasma system circuitry. These generators may be rack mounted in a 19 inch relay rack or located within the plasma system cabinet as free standing units.



MODEL	ACG-5	ACG-10
Frequency (MHz)	13.56	13.56
Max. power output (watts)	500	1,000
RF output impedance (ohms)	50	50
Power meter scale (watts) ⁽¹⁾	0-600	0-1,200
Max. reflected power (watts) ⁽²⁾	100	200
Power Requirements (50-60Hz)	100/107/115/ 200 Vac $\pm 5\%$ at 15 amps 200/208/225/ 240 Vac $\pm 5\%$ at 8 amps	200/208/ 240 Vac at 15 amps
Size (H x W x D inches)	7.8 x 11 x 15	9.9x15.5
Weight (lbs.)	56	104
RF power connector	Type "N"	Type "N"
19" Rack mounting ears	Included	Included

NOTES: (1) Meter accuracy $\pm 4\%$ of full scale.
(2) Generator will tolerate the amount of reflected power shown before folding back.

- All solid state.
- Ultra compact.
- Air-cooled.
- 13.56 MHz.
- Computer compatible.
- Mismatch protected.



POWER FOLDBACK PROTECTION: Automatic, occurs when reverse power exceeds the specified wattage, or power amplifier current exceeds a preset limit.

FREQUENCY STABILITY: $\pm .005\%$ Maximum.

POWER LEVELING: Automatic forward power leveled to $\pm 3\%$ of set power for load variation from 1:1 VSWR to ∞ :1 VSWR (within foldback limits). Power control is by front panel or remote input (switch selectable), from 1 watt to full power.

AC LINE TO POWER REGULATION: 0.25% maximum change in output power for 7.5% change in AC line voltage.

HARMONIC DISTORTION: All harmonics are more than 55dB below the fundamental. Noise, hum and ripple; more than 30dB down at maximum power output.

PULSED OPERATION: Rise time is less than 0.1ms. RF output may be controlled simultaneously for amplitude and pulse width.

COOLING: Forced air; maximum ambient temperature of 40°C.

CABINET AND SPURIOUS RADIATION: Exceeds FCC specifications.

EXTERNAL COMPUTER CONTROL INTERFACE

CONTROL/READOUT	INPUT/OUTPUT
RF power level control	0-10Vdc, positive pulse input or external potentiometer
External RF on/off control	TTL compatible; switch contacts 0V = RF off, +5V = RF on
Forward RF power readout	Calibrated at 1.00 volt per kilowatt, direct reading on digital voltmeter
Reverse RF power readout	Calibrated at 1.00 volt per kilowatt, direct reading on digital voltmeter
Maximum RF power indication	TTL compatible; 0V = normal operation, +5V = maximum power
RF power "on" indication	TTL compatible; 0V = RF off, +5V = RF on

External computer control interface connector is an Amphenol subminiature "D" #17-10150 (mating connector supplied).