

**T&C**  
Power Conversion

# AG 0313 RF GENERATOR



**300 Watts RF Power at 13.56 MHz for Industrial and Laboratory Applications.**

## FEATURING:

- **Low harmonic level at 300W  $h_{2\leq} -50$  dBc,  $h_3$  and higher  $< -55$  dBc**
- **Digital Meter, measures forward, reflected and load power simultaneously**
- **Front Panel Control of Generator and Amplifier functions**
- **Data acquisition: Status Monitoring & Power Measurement at Analog Port**
- **RS232 communication: Full Control Of Generator /Amplifier Functions**
- **AGC Power Leveling: Output Control to better than  $\pm 3$  W of set value.**
- **Pulse operation**



*Power Supply  
Front Panel View*

Generator Model AG 0313 is a robust source of RF power for laser modulation, plasma generation, general laboratory and general industrial applications.

Featuring leading edge solid state design for all generator stages and a built-in DDS signal source, it provides everything for a complete and reliable, controlled RF power delivery system. It reflects the T&C ongoing commitment to provide RF power products of the highest quality, incorporating the current requirements for complete remote control and data acquisition features

### OPERATION

The AG 0313 produces 300W of RF power at a frequency of 13.56 MHz, with low harmonic distortion. It is frequency agile and can be used over an effective range of 13.4 MHz to 13.7 MHz.

Front Panel offers a LCD display of Forward, Reflected and Load Power readings, RF Status, AGC setups and operating frequency in Generator Mode.

Power meters are calibrated into a 50 Ohm Load and are accurate when unit operates into matched load. Outside of matched condition, the model AG 0313's power measurement system provides an accurate reading of

VSWR.

When used as an amplifier, the AG 0313 is compatible with most signal and function generators, computer synthesizer cards and it accurately reproduces all waveforms within its output and bandwidth limits.

The Forced-air cooling system and the internal power supply are designed to permit operation over a wide range of temperature and global AC line conditions.

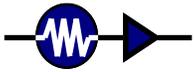
The AG 0313 is built to withstand a +5 dBm (1.1Vp-p) Input signal. The unit amplifies the inputs of AM, narrow band FM and pulse modulations.

### OUTPUT PROTECTION

AG 0313 is protected by its internal monitoring system for 315 Watts of total Forward Power and 50 Watts of Reflected Power. This will protect the generator output stage from extreme mismatch at the Output.

### GENERAL

T&C's products are designed to be reliable, compact and light in weight. The use of conservatively rated components ensures high reliability and eliminates the need for periodic retuning.



# AG 0313 Specifications



## Class Of Operation

Class B

## Frequency Of Operation

13.56 MHz default. Adjustable from 13.4 MHz to 13.7 MHz

## Frequency Stability

0.005%

## RF Power Output

>300 Watts into 50 Ohm  
(FWD limit set for 315W)

## Operation with external signal: Output as amplifier in MGC BURST Mode

0dBm IN (Required!)

2VDC CTL IN pin 5 = 200W +/-3W

## Output as amplifier in AGC Mode

Typical range 0dBm IN +/- 1 dB

1VDC CTL IN pin 5 = 100W scale

## Input Drive Source(amplifier)

Signal or function generator, analog computer input capable of up to 1 Vp-p @ 50 Ohm

## Internal RF Source

DDS oscillator: 13.4 to 13.7 MHz,  
1kHz resolution,

13.56 MHz default (start-up) frequency

## Input and Output Impedance

50 Ohm

## Input VSWR

1.2:1 max

## Output VSWR

3:1 max

## Output VSWR Protection

50 Watts max reflected power limit. Automatic, limits typically within 0.5 ms after reverse power reaches 50 Watts or power amplifier current preset limit.

## Harmonic Level @ 300W

Better than - 40 dBc for 2-nd harmonic, any other > -45 dBc

## Spurious Output

- 50 dBc noise level at RF Out or better

## Output Blanking

For pulsed applications, T&C amplifiers and generators offer blanking of the output signal for minimum noise RF spectrum

## Dynamic Power Range

0 to 300W, settings within +/- 3W

## RF Output Settings & Control

- Front Panel EDITOR and function switches for manual control,
- RS232 port for GUI or other computer communication. Rear Panel.
- SubD 25 Analog and Digital I/O . Port power scale 1V=100W. Rear Panel

## RF Power Meter accuracy

± 3% typical

## Output Blanking (Pulsing)

For pulsed applications, T&C amplifiers and generators offer blanking of the output signal for minimum noise RF spectrum.  
Less than 1µs Rise/Fall time

## BURST - internal

Pulse range: 1 to 500 usec  
Period: 1 to 50 milliseconds  
User settings via GUI and RS232

## BURST - external

DC to > 200 kHz. User defined BURST scheme via SubD-25.  
See analog port description for more details.

## SWEEP Operation

13.4 to 13.7 MHz. Min time 10 ms, max 10s. Settings and activation from GUI only.

## RF Power Margin

$(\text{Open Loop Max Power}/\text{Rated Power})^{-1} \cdot 100$   
28 %

## RF Connectors

INPUT BNC Female  
OUTPUT N Female  
Rear Panel

## AC Power Source

100 to 120 VAC, 200 to 240 VAC, +/- 10%,  
47 - 63 Hz  
broad input voltage, with no adjustment required

## AC Power Connection

IEC Standard Power Entry followed by RFI filter.  
Filter range 0.1 to 30 MHz min.

## AC Circuit Protection

Internally fused on the main DC Power Supply, 15A.

## AC Input Current (RMS)

**RF Out nominal 300W:**

$I \leq 8.5A @ 115V / I \leq 4A @ 220V$

**Maximum: 12A**

## Cooling

Forced air, temperature controlled, heatsink temperature monitored via RS232 GUI interface.

## Acoustic level:

45dBa @ Max Fan Speed @ temp.

## Case

Designed to meet EMI and RFI shielding requirements steel chassis, blackened.  
Front Panel: T&C off-white.

## Dimensions

H135mm x W211mm x L445mm  
( 5.25" x 8.3" x 17.5" )

## Weight

14.8 kg, 32.5 lbs.

## Mounting

Half Rack, 3U high. Optional: Rack Mount Kit, Adapter Kit, Coupling Screws.

## Environmental conditions

**Temp.:** 10° to 35° C ambient

**Humidity:** 80%

Equipment intended for ISM applications in laboratory and light industrial environment.