



T&C
Power Conversion

AG 0613 RF GENERATOR



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

FEATURING:

- **Low harmonic level at 550W $h_{2\leq 50}$ dBc, h_3 and higher < -55 dBc**
- **Digital Metering: 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 ± 3 W of set value.**
- **Pulse operation**



Generator Model AG 0613 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 0613 produces 600W 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 0613's power measurement system provides an accurate reading of VSWR.

When used as an amplifier, the AG 0613 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.

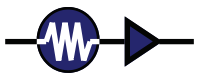
The AG 0613 is built to withstand a +5 dBm (1.1Vp-p) Input signal. The unit amplifies the inputs of AM, narrow band FM and pulse modulations.

OUTPUT PROTECTION

AG 0613 is protected by its internal monitoring system for 610 Watts of total Forward Power and 80 Watts of Reflected Power. This will protect the generator output stage from extreme mismatch at the Output.

GENERAL

T&C generators 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 0613 Specifications



Class Of Operation

Class B

Frequency Of Operation

13.56 MHz default. Adjustable from 13.3 MHz to 13.8 MHz

Frequency Stability

0.005%

RF Power Output

>600 Watts into 50 Ohm
(FWD limit set for 610W)

Operation with external signal:

Output as amplifier in MGC BURST Mode
0dBm IN (Required!)
(Set at 4VDC CTL IN pin 5 = 400W +/-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: 13.3 to 13.8 MHz,
1kHz resolution,
13.56 MHz default (start-up) frequency

Input and Output Impedance

50 Ohm

2:1 max INPUT VSWR

3:1 max OUTPUT VSWR

Output VSWR Protection

80 Watts max reflected power limit.
Automatic, limits typically within 0.5 ms
after reverse power reaches 75 Watts or
power amplifier current preset limit.

Harmonic Level:

@ 550W: Better than - 50 dBc for 2nd
harmonic, h3 and higher > -55 dBc

Spurious Output

- 50 dBc noise level at RF Out (generated
by internal circuits)

Dynamic Power Range

0 to 600W, settings within +/- 5W

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 de-
tails.

SWEEP Operation

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

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

Output Control Interfaces (Communications)

SubD 25 Analog and Digital I/O .
D-COM "Digital Communication" Port:
(Optional)
RS-232
RS-485
USB

Power Monitor Scale Selection

User selectable levels down to 1 watt (in
three (3) Scales) within tenths of watt
accuracy.
Available scales:
1V=100W
5V=full power
10V=full power

RF Power Margin

(Open Loop Max Power/Rated Power)-1)*100
28 %

RF Connectors

INPUT BNC Female
OUTPUT N Female
Rear Panel

AC Power Source

100 to 240 VAC, +/- 10% PFC, 47 - 63 Hz
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 at 600W:
 $I \leq 6.5A @ 220V$
Maximum: 11.5A

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 shield-
ing requirements steel chassis, black-
ened.
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 applica-
tions in laboratory and light industrial
environment.

