



T&C
Power Conversion

AG 1014 LF AMPLIFIER/GENERATOR



T&C POWER CONVERSION

Up to 550 Watts RF Power From 50 kHz to 800 kHz For Laboratory and Industrial Application.

FEATURING:

- 50 kHz to 800 kHz up to 550 W
- Low distortion Output @ 300W, $h3 \leq -22$ dBc. Better than -29 dBc for other harmonics
- Digital Meter, measures forward, reflected and load power simultaneously
- Front Panel Control of Amplifier and Generator functions
- Data acquisition: Status Monitoring & Power Measurement at Analog Port
- RS232 communication: Full Control Of Amplifier & Generator Functions
- AGC or Power Leveling: Gain Control to better than ± 0.5 dB
- Pulse and Sweep of Internal RF oscillator



Power Supply Front Panel view

Model AG 1014 Amplifier/Generator is a robust source of RF power for ultrasonic, laser modulation, RFI/EMI, plasma generation, general laboratory and industrial applications.

Featuring leading edge solid state design in all RF amplifier stages and a built-in DDS signal source, it provides everything for a complete and reliable, finely 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 1014 produces up to 550W of RF Power over a frequency range from lower than 50 kHz to higher than 800 kHz, with low harmonic distortion. It operates without band switching or other adjustments.

Front Panel offers a LCD display of Forward, Reflected and Load Power readings, RF Status, MGC/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 1014's power measurement system provides an accurate reading of VSWR.

When used as amplifier, the AG 1014 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 1014 is built to withstand a +5 dBm (1.1Vp-p) Input signal. The unit amplifies the inputs of AM, FM, SSB and pulse modulations with low harmonic distortion and output power stability.

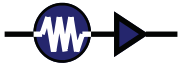
OUTPUT PROTECTION

AG 1014 is protected by its internal monitoring system for greater than 550 Watts Forward Power, 80 Watts of Reflected Power and limits Output Power Amplifier current for High VSWRs below 50 Ohms. This is intended to protect the amplifier output stage from accidental overdrive at the input and an 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.

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AG 1014 Specifications



Class Of Operation

Class "B"

Frequency Of Operation

20 kHz to 2 MHz

RF Power Output

50 Ohm load:

Up to 250W for 20 kHz to 2 MHz
Up to 400W for 20 kHz to 1.0 MHz
Up to 550 W for 50 kHz to 800 kHz
Pulse and low duty cycle!

Any load:

Up to 250W, continuous operation.

Mismatch Power Output

Continuous Load Power at 20C:

2:1 VSWR (25 Ohm) 210W minimum
3:1 VSWR (15 Ohm) 145W minimum
Limited by heat protection circuit!

Burst and Pulse mode Load Power:

3:1 VSWR, 300W minimum

Limited by Reverse Power Limiter!

Gain

57 dB @ 500W / 0.45 MHz
±1 dB 50 kHz to 2 MHz (@ 250 W)

RF Input Drive for AGC

Recommended -5 dBm to 0 dBm for
±0.5 dB gain flatness

Input Drive Source

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

Input range: -30 to 0 dBm typical,
+5 dBm maximum

Internal RF Source

DDS oscillator: 20 kHz to 2 MHz,
1 kHz resolution,
Default setting for 450 kHz.

Input and Output Impedance

50 Ohm

2:1 max INPUT VSWR

3:1 max OUTPUT VSWR

Output VSWR Protection

80 W max reflected power limit for
Load Impedance > 50 Ohm. Current
level protection for Load Impedance
< 50 Ohm.

Harmonic Level @ 300W

Better than -22 dBc for 3-d harmonic,
any other better than -27 dBc

Harmonic Level @ 500W

Better than -20dBc

Spurious Output

- 26 dBm equivalent noise level
generated by internal circuits

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

BURST operation

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

0.02 to 2 MHz. Min time 10 ms, max
10s. Settings and activation from GUI
only.

Output Blanking

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

Rear Panel RF Connectors

BNC Female

AC Power Connection

IEC Standard Power Entry followed
by RFI filter.

Filter range 0.1 to 30 MHz minimum

AC Input Current (RMS)

RF Out max 550W:

100-120 V ac, 50-60 Hz, 11 A

200-240 V ac, 50-60 Hz, 5.5 A

Product Features Power Factor
Correction (PFC)

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 AL chassis,
yellow conductive finish.

Front Panel: T&C off-white.

Cover: T&C black.

Dimensions

135mm x 254 mm x 385 mm
(H 5.25" x W 10" x L 15")

Weight:

12 kg, 26 lbs.

Mounting

Table top, stand alone unit.

Optional: Rack Mount Kit.

Environmental conditions

Temp.: 10° to 30° C ambient

Humidity: 80%

Equipment intended for ISM applica-
tions in laboratory and light industrial
environment.

