



T&C

Power Conversion

AG 06-450 LF AMPLIFIER/GENERATOR



T&C POWER CONVERSION

Up to 550 Watts RF Power For Laboratory and Industrial Application.

FEATURING:

- 200 kHz to 450 kHz up to 550 W
- Low distortion Output @ 500W, better than -40 dBc for any harmonics @ 450 kHz
- 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 06-450 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 06-450 produces up to 550W of RF Power over a frequency range from 100 kHz to 450 kHz, with low harmonic distortion. It operates without band switching or other adjustments. Gain is rated at 57 dB with a typical gain flatness of ± 1 dB. 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 06-450's power measurement system provides an accurate reading of VSWR.

When used as amplifier, the AG 06-450 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 06-450 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 06-450 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.

110 Halstead Street
Rochester, New York 14610
USA
Tel: 585.482.5551
Fax: 585.482.8487
www.tpowerconversion.com
sales@tpowerconversion.com



AG 06-450 Specifications



Class Of Operation

Class "B"

Frequency Of Operation

100 kHz to 450 kHz

RF Power Output

50 Ohm load:

400W for 100 to 450 kHz
Up to 550 W for 200 to 450 kHz

Any load:

Up to 200W , continues operation.

Mismatch Power Output

Continues 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 100 kHz to 450 kHz

RF Input Drive for AGC

Recommended -3 dBm to 0 dBm for
±0.5 dB gain flatness

Input Drive Source

Signal or function generator, analog
computer 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: 100 kHz to 450 kHz,
1 kHz resolution

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 @ 500W

450 kHz: - 45 dBc or better for any
harmonic (built-in output filter),

200 kHz: -19 dBc or better for any
harmonic (no filter effect).

NOTE! See chart for details.

Spurious Output

- 45 dBc

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

100 to 500 kHz. 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 Selec- tion

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 Connectors

RF Input—BNC Female: Back Panel

RF Output—"N" Female: Back Panel

AC Power Source

100 - 240 VAC, 50/60 Hz, +/- 10%
PFC, broad input voltage, with no
adjustment required

AC Input Current (RMS)

Maximum: 7 A

AC Power Connection

IEC Standard Power Entry followed
by RFI filter.

Filter range 0.1 to 30 MHz minimum

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:

14.6 kg, 32.5 lbs.

Mounting

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

Environmental conditions

Temp.: 10° to 40° C ambient

Humidity: 80%

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

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Rochester, NY 14610, USA

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Fax: 585-482-8487

www.TCPowerConversion.com

Sales@TCPowerConversion.com

