



T&C
Power Conversion

AG 1017 L AMPLIFIER/GENERATOR



T&C POWER CONVERSION

Up to 500 Watts of RF Power From 10 kHz to 10 MHz For Industrial, Lab and Medical Application.

FEATURING:

- 20 kHz to 4 MHz up to greater than 500 W
- 10 kHz to 10 MHz, 200 W
- Linear Output of 200W $h3 \leq -18$ dBc
- Digital Meter, measures forward and reflected power
- 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 RF internal signal generator
- Gated Blanking of output (OPTIONAL)
- AC Line RFI filter with characteristic starting from 0.1 MHz



Power Supply Front Panel

Model AG 1017L is a robust source of RF power for ultrasonic, laser modulation, RFI/EMI, plasma generation, general laboratory and general industrial applications. Featuring leading edge solid state design for all RF amplifier 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 1017 L produces 200W of linear power over a frequency range of lower than 20 kHz to higher than 10 MHz, with low harmonic and intermodulation distortion. It operates over the entire frequency range without band switching or other adjustments. Extended range to over 10 MHz is possible with reduced output power or in AGC mode. Gain is rated at 55 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 1017L's power measurement system provides an accurate reading of VSWR.

When used as amplifier, the AG 1017L 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 1017L is built to withstand a +13 dBm (2.8Vp-p) Input signal. The unit amplifies the inputs of AM, FM, SSB, pulse and other complex modulations with < -20 dBc (h3) harmonic distortion and output power stability.

OUTPUT PROTECTION

AG 1017L is protected by its internal monitoring system for 500W of total Forward Power and 100W of Reflected Power. This will 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 1017L Specifications



Class Of Operation

Class A to 200 Watts

Frequency Of Operation

10 kHz to 10 MHz

RF Power Output

200W from 0.01 MHz to 10 MHz of continuous linear output into any load.
Up to 500W max from 0.02 MHz to 4 MHz, 50 Ohm load only, 20C, Pulsing and low duty cycle only!

Gain

55 dB $\pm$ 1 dB @ 200 W / 1.0 MHz
(-2.0 dBm input)

RF Input Drive

Typical range -20 dBm to 0 dBm, +5 dBm max

RF Input Drive for AGC

Recommended -3 dBm to 0 dBm for $\pm$ 0.3 dB gain flatness

Input Drive Source

Signal or function generator, analog output capable of up to 1 Vp-p @ 50 Ohm (+5 dBm)

Internal RF Source

DDS oscillator: 10 kHz to 10 MHz, 1kHz resolution

Input and Output Impedance

50 Ohm

Input VSWR

2:1 max

Output VSWR

3:1 max

Output VSWR Protection

100 W max reflected power limit

Harmonic Level @ 200W

Better than -20 dBc for 3rd harmonic, any other > -28 dBc

Harmonic Level @ 450W

-15 dBc

Spurious Output

-26 dBm equivalent noise level generated by internal circuits

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

$\pm$ 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 1 μ s Rise/Fall time

BURST:

Internal Settings

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

External Settings

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

SWEEP operation

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

Rear Panel RF Connectors

INPUT BNC Female
OUTPUT N Female
On Rear Panel

AC Power Connection

Non-detachable power cord anchored with compression bushing. Back Panel

AC Circuit Protection

20A, double pole switch/circuit breaker on the Front Panel. Internally fused on the main DC Power Supplies, 15A.

AC Input Current (RMS)

Typical up to 10A

15A maximum

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 steel chassis, black conductive finish.
Front Panel: T&C off-white.
Cover: T&C black.

Dimensions

H178mm x W363 mm x L388mm
(7" x 14 $\frac{1}{4}$ " x 15 $\frac{1}{4}$ ")

Weight: 25 kg (54 lbs)

Mounting

Table top, stand alone unit.
Optional: Rack Mount Kit.

Environmental conditions

Temp.: 10° to 35° C ambient

Humidity: 80%

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

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AG 1017L Performance Chart

