



# AG 1048 LF AMPLIFIER/GENERATOR

**Up to 4,000 Watts RF Power for Industrial, Laboratory and Medical Applications.**

## **FEATURING:**

- 20 kHz to 1 MHz at greater than 4,000 Watts
- 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  $\pm 0.5$  dB
- Controllable internal DDS signal source
- Pulse and Sweep of RF internal signal generator



Model AG 1048 is a robust source of RF power for ultrasonic, laser modulation, RFI/EMI, plasma generation, laboratory and general industrial applications.

Featuring state-of-the-art design of all 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 latest standard for remote control and data acquisition.

## **OPERATION**

The AG 1048 produces 4,000 Watts of linear power (B class operation) over a frequency range from 20 kHz to over 1 MHz, with the level of harmonics typical for B class operation. It operates without band switching or adjustment. Extended range to over 2 MHz is possible at reduced power. Gain is rated at 66 dB with a typical gain flatness of  $\pm 1.5$  dB. The Front Panel offers a LCD display of Forward, Reflected and Load Power readings, RF Status,

MGC/AGC setups and operating frequency when in Generator Mode.

Power meters are calibrated into 50 Ohms and are accurate when operated into a matched load. Outside of matched condition, the model AG 1048's measurement system provides an accurate reading of VSWR.

When used as an amplifier, the AG 1048 is compatible with most signal and function generators, computer synthesizer cards and accurately reproduces all waveforms within its limits.

The Forced-air cooling system and the internal power supply are designed to support operation over most temperature and AC conditions.

The unit amplifies the inputs of AM, FM, SSB, pulse and other complex modulations with  $< -15$  dBc (h3) harmonic distortion and output power stability.

## **OUTPUT PROTECTION**

AG 1048 is protected by its internal control system for 4,000 Watts Forward and 600 Watts Reflected Power. This protects the amplifier output stage from overdrive at the input and 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 calibration.



# AG 1048 Specifications

## Class Of Operation

Class "B"

## Frequency Of Operation

20 kHz to 1 MHz

## RF Power Output

### 50 Ohm load:

Up to 4000W for 20 kHz to 1 MHz

Up to 2000W for 1 MHz to 2 MHz

Up to 800W for 2 MHz to 3 MHz

Pulse and low duty cycle!

### Any load:

Up to 3600W, continues operation.

## Gain

63 dB @ 4000W / 0.5 MHz

±1.5 dB 20 kHz to 1 MHz

## 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 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: 20 kHz to 1 MHz, 1 kHz resolution

## Input and Output Impedance

50 Ohm

2:1 max INPUT VSWR

3:1 max OUTPUT VSWR

## Output VSWR Protection

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

## Harmonic Level @ 3500W

Better than -13 dBc for 3-d harmonic, any other better than -20 dBc

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## 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=500W. 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 1 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

## RF Connectors

BNC Female: RF In

HN Female: RF Out

## AC Power Source

3 Ø "Y" connection of 120 - 240 VAC per phase/neutral rating, 47 -

63 Hz, Back Panel. Automatic range switching.

## AC Power Connection

5 wires 12 AWG Line Cord with Brown, Black, Black, Blue and Green/Yellow color code.

Local 3 phase, 5 wire connector must be provided for correct connection to power line.

## AC Input Current (RMS)

RF Out nominal 3600W:

I ≤ 44A @ 220V

RF Out max 4000W:

I ≤ 50A @ 220V

## 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 & Back Panel: T&C off-white.

Cover: T&C black.

## Dimensions

927mm x 533 mm x 520 mm

( H 36.5" x W 21" x L 20.5" )

**Weight:** 136 kg, 300 lbs.

**Mounting:** Stand alone unit.

## Environmental conditions

**Temp.:** 10° to 35° C ambient

**Humidity:** 80%

Equipment intended for ISM applications in laboratory and light industrial

## AG 1048 Performance Chart in MGC Mode

(NOTE! Flat output in AGC Mode with 0 dBm In Drive)

