

# AG 1021

## AMPLIFIER/GENERATOR



### 100 Watts of Linear RF Power From 10 kHz to 12 MHz For Industrial, Laboratory And Medical Application.

#### FEATURING:

- 20 kHz to 4 MHz, up to 300 W of total RF Power
- 10 kHz to 12 MHz, 100 W
- Linear Output of 100W  $h3 \leq -20$  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  $\pm 0.5$  dB
- Pulse and Sweep of RF internal oscillator

Model AG1021 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 RF amplifier stages and 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 demands for complete remote control and data acquisition.

#### OPERATION

The AG 1021 produces 100W of linear power over a frequency range lower than 10 kHz to more than 14 MHz, with low harmonic and intermodulation distortion. It operates over the frequency range without band switching or adjustments. Extended range to over 20 MHz is possible with reduced output power or in AGC mode. Gain is rated at 53 dB with typical gain flatness of  $\pm 1$  dB.

Front Panel offers a LCD display of Forward, Reflected and Load Power, RF Status, MGC/AGC setups and operating frequency in Generator Mode.

Power meters are calibrated into 50 Ohms and are accurate when unit operates into matched load. Outside of matched condition, the model AG1021's power metering

system provides an accurate calculation of VSWR.

When used as amplifier, the AG 1021 is compatible with most signal and function generators, synthesizer cards and accurately reproduces all waveforms within its output and bandwidth limitations.

The Forced-air cooling and the internal power supply are designed to permit operation over a wide range of temperature and global AC line conditions.

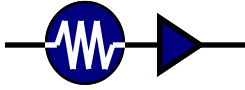
The AG1021 is built to withstand a +13 dBm (2.8Vp-p) Input signal. The unit amplifies the inputs of AM, FM, SSB, pulse and other complex modulations with  $< -20$  dBc (h3) harmonic distortion and output power stability.

#### OUTPUT PROTECTION

AG 1021 is protected by its internal control system to limits of 300W total Forward Power and 75W Reflected Power. This will protect the amplifier output stage from accidental overdrive 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 calibration.



# AG 1021 Specifications

## Class Of Operation

Class A to 100 Watts

## Frequency Of Operation

10 kHz to 20 MHz

## RF Power Output

100W from 0.015 MHz to 12 MHz of continuous linear output into any load.  
Up to 300W total power margin,  
50 Ohm resistive load only, 20C,  
Pulsing only!

## Gain

53 dB @ 100W / 1.0 MHz  
±1 dB 20 kHz to 14 MHz (100W Out)

## RF Input Drive

Typical range -30 dBm to 0 dBm,  
+5 dBm max

## RF Input Drive for AGC

Recommended -3 dBm to 0 dBm for  
±0.3 dB gain flatness

## Input Drive Source

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

## Internal RF Source

DDS oscillator: 10 kHz to 15 MHz,  
1kHz resolution

## Input and Output Impedance

50 Ohm

## Input VSWR

2:1 max

## Output VSWR

3:1 max

## Output VSWR Protection

75 W max reflected power limit

## Harmonic Level @ 100W

Better than -20 dBc for 3rd harmonic,  
any other > -30 dBc

## Harmonic Level @ 250W

-14 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

±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 1µs 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

0.01MHz to 15 MHz. Min time 10 ms,  
max 10s. Settings and activation from GUI only.

## RF Connectors

BNC Female: Front Panel

## AC Power Source

100 - 120, 200 - 240 VAC,  
+/- 10%, 47 - 63 Hz

## AC Power Connection

IEC Standard Power Entry followed by RFI filter (range 0.1MHz to 30 MHz)

## AC Circuit Protection

Internally fused on the main DC Power Supply, 15A.

## AC Input Current (RMS)

### RF Out 175W:

$I \leq 7A$  @ 115V /  $I \leq 3A$  @ 220V

### RF Out max 300W:

$I \leq 9A$  @ 115V /  $I \leq 4A$  @ 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 Panel: T&C off-white.

Cover: T&C black.

## Dimensions

H135mm x W254 mm x L385mm  
( 5.25" x 10" x 15" )

## Weight:

12 kg, ( 26 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.

**T&C Power Conversion, Inc.**  
110 Halstead Street, Suite 7  
Rochester, NY 14610, USA  
Tel: 585-482-5551  
Fax: 585-482-8487  
<http://www.TCPowerconversion.com>

## AG 1021 Performance Chart

