



## 500U1000

- 500 watts CW
- 100kHz–1000MHz
- Class A
- Portable
- Full VSWR-tolerant
- CE & RoHS Compliant
- High Efficiency

## Features

The Model 500U1000 is a solid-state, self-contained, air-cooled, broadband amplifier designed for applications where instantaneous bandwidth, high gain and linearity are required. Available in a stylish, contemporary cabinet for benchtop use or with cabinet removed for rack mounting.

The Model 500U1000, when used with a sweep generator, will provide a nominal 500 watts of RF power. Included is a front panel gain control which permits the operator to conveniently set the desired output level. The 500U1000 is protected from RF input overdrive by an RF input leveling circuit which controls the RF input level to the RF amplifier first stage when the RF input level is increased above 0dBm. The RF amplifier stages are protected from over-temperature by removing the DC voltage to them if an over-temperature condition occurs due to cooling blockage or fan failure. The Model 500U1000 is equipped with a Digital Control Panel (DCP) which provides both local and remote control of the amplifier. The DCP uses a color LCD touch screen display to indicate the operate status and fault

conditions if an over-temperature or power supply fault has occurred. The unit can be returned to operate when the condition has been cleared.

All amplifier control functions and status indications are available remotely through the included Remotes Package. The Remotes Package includes GPIB/IEEE-488 format, RS-232 hardware and fiber optic, USB, and Ethernet. The bus interface connector is located on the back panel and positive control of local or remote operation is assured by a Local/Remote switch on the front panel of the amplifier. Also included with the Remotes Package is a safety interlock circuit for use with external safety switch interlocks. This circuit prevents the amplifier from going into operate mode unless the external connection is made. A jumper plug is provided for cases where this functionality is not needed. Optional RF sample ports are available to allow for any forward and reverse power monitoring.

The export classification for this equipment is EAR99.

500U1000 TYPICAL OUTPUT POWER



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ISO 9001 Certified



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## Specifications

**INPUT FOR RATED OUTPUT (0 dBm):** 1.0 mW Max

**RATED OUTPUT POWER:**  
 0.1-350MHz: 650 watts typical, 500 watts minimum  
 350-650MHz: 525 watts typical, 400 watts minimum  
 650-1000MHz: 400 watts typical, 325 watts minimum

**POWER OUTPUT @ 3dB COMPRESSION:**  
 0.1-350MHz: 650 watts typical, 500 watts minimum  
 350-650MHz: 500 watts typical, 375 watts minimum  
 650-1000MHz: 375 watts typical, 300 watts minimum

**POWER OUTPUT @ 1dB COMPRESSION:**  
 0.1-350MHz: 550 watts typical, 400 watts minimum  
 350-650MHz: 450 watts typical, 325 watts minimum  
 650-1000MHz: 350 watts typical, 275 watts minimum

**FLATNESS:** ±2.0 dB typical, ±2.5 dB maximum

**FREQUENCY RESPONSE:** 100kHz-1000 MHz instantaneously

**GAIN (at maximum setting):** 57 dB minimum

**GAIN ADJUSTMENT (Continuous Range) (4096 steps remote):** 20 dB minimum

**INPUT IMPEDANCE:** 50 ohms, VSWR 2.0:1 maximum

**OUTPUT IMPEDANCE:** 50 ohms nominal

**MISMATCH TOLERANCE:** 100% of rated power without foldback up to 6.0:1 mismatch above which may limit to 250 watts reflected power. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. See Application Note #27.

**MODULATION CAPABILITY:** Will faithfully reproduce AM, FM, or Pulse modulation appearing on input signal.

**THIRD ORDER INTERCEPT:** 65 dBm typical

**NOISE FIGURE:** 8 dB typical

**HARMONIC DISTORTION:**  
 <-20 dBc for the output power at 1dB compression minimum limit  
 <-17 dBc for the output power at 3dB compression minimum limit

**SPURIOUS:** Minus 73 dBc typical

**PRIMARY POWER:** 200-240 VAC, 50/60Hz, 2100 watts maximum

**CONNECTORS:**  
 RF Input: N female  
 RF Output: N female

**REMOTES PACKAGE:**  
 IEEE-488: 24-pin female  
 RS-232: 9-pin subminiature D (female)  
 RS-232 Fiber optic: Type ST  
 USB 2.0: Type B  
 Ethernet: RJ-45

**Safety Interlock:** 15-pin subminiature D

**COOLING:** Forced air (self-contained fans)

**ACOUSTICAL NOISE @ 1 meter**  
 Front: 56 dBA  
 Side: 57 dBA  
 Rear: 64 dBA

**WEIGHT:**  
 With Cabinet 79.4 kg (175 lbs)  
 Without Cabinet 60.8 kg (134 lbs)

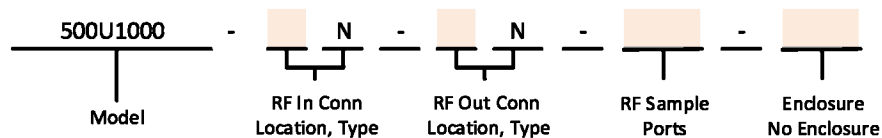
**SIZE (W x H x D), 19" 8U Rack:**  
 With cabinet: 50.3 x 38.1 x 74.9 cm (19.8 x 15 x 29.5 in)  
 Without Cabinet: 48.3 x 35.6 x 74.9 cm (19 x 14.0 x 29.5 in)

**ENVIRONMENTAL:**  
 Operating Temperature: 5°C/+40°C  
 Storage Temperature: -20°C/+50°C  
 Operating Altitude: Up to 2000M  
 Shock and vibration: Normal Truck Transport

**REGULATORY COMPLIANCE:**  
 EMC EN 61326-1  
 Safety UL 61010-1  
 CAN/CSA C22.2 #61010-1  
 CENELEC EN 61010-1  
 RoHS DIRECTIVE 2011/65/EU

**EXPORT CLASSIFICATION:** EAR99

## Ordering Options



CONNECTOR LOCATION	
Front	F
Rear	R

RF SAMPLE PORTS	
No RF Sample Ports	NSP
RF Sample Ports Front	SPF
RF Sample Ports Rear	SPR

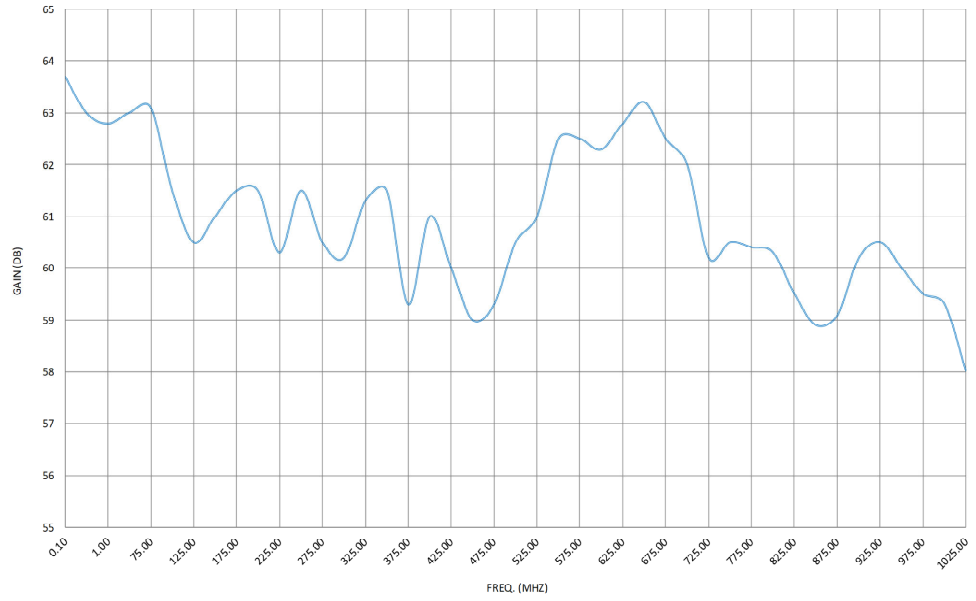
ENCLOSURE	
Enclosure	E
No Enclosure	NE

Contact your AR RF/Microwave Instrumentation Sales Associate for specific model configuration pricing.

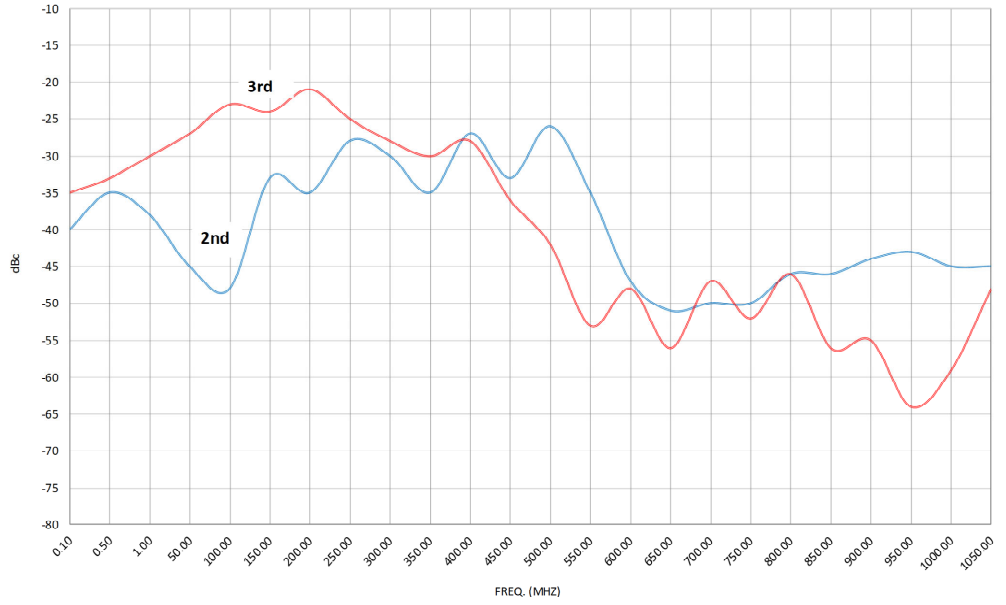
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TYPICAL GAIN @ -20 DBM INPUT



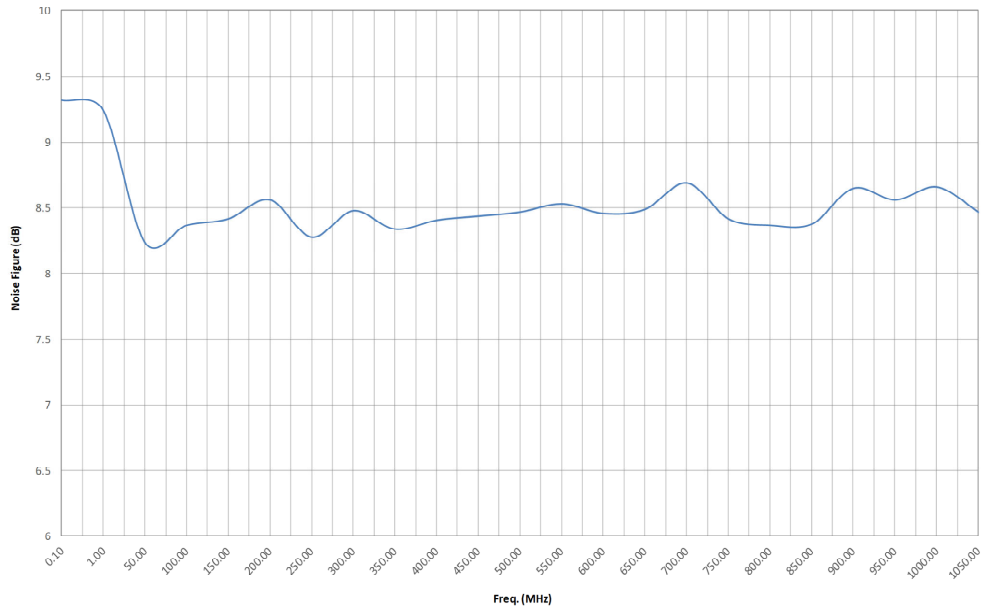
Typical Harmonics @ P1 dB compression minimum limit



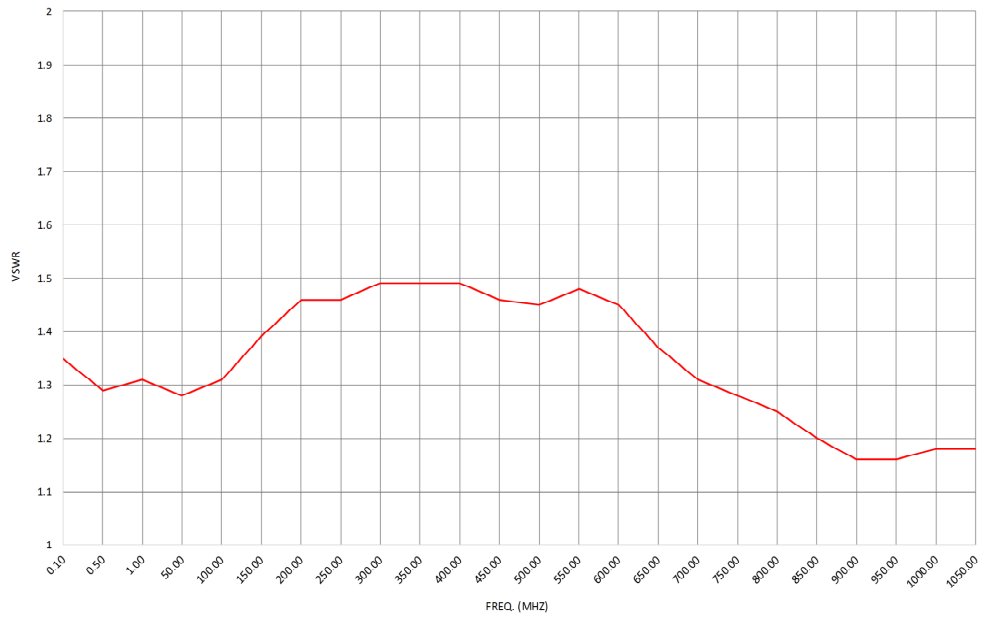
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Typical Noise Figure vs. Frequency



TYPICAL INPUT VSWR



# Envelope Drawing

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