



## 677

- M1
- 5000 Watts Pulse
- 1.18GHz–1.38GHz



### Features

The Model 677 is a self-contained, forced-air-cooled, solid-state microwave amplifier designed for pulse applications at low duty factors where instantaneous bandwidth and high gain are required. The unit provides a conservative 5000 watts minimum peak RF pulse power at the amplifier output connector. Stated power specifications are at the fundamental frequency.

The Model 677 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 to offer status reporting and control capability. The display provides Forward Power and Reflected Power values plus amplifier status.

Amplifier control functions and status indications are available remotely in RS-422 format, and Ethernet. The buss interface connector is located on the back panel and positive control of local or remote operation is assured by a key-lock on the front panel of the amplifier.

The Model 677 amplifier provides readily available pulsed RF power for a variety of applications in Test and Measurement, (including EMC RF pulse susceptibility testing), Industrial and University Research and Development, and Service applications. AR also offers a broad range of amplifiers for CW (Continuous Wave) applications.

The Model 677 was developed to satisfy requirements for amplifiers in airborne radar usage/application. This model includes features such as rack mount configuration, customized frequency range, 400Hz power supply, 10W RF input, fixed gain, RS-422 communication with custom command-set and protocol, ethernet and environmental specifications.

The Model 677M1 uses a different input power for rated output.

The export classification for this equipment is 3A999.d. These commodities, technology or software are controlled for export in accordance with the U.S. Export Administration Regulations. Diversion contrary to U.S. law is prohibited.

AR RF/Microwave  
Instrumentation  
160 School House Rd  
Souderton, PA 18964  
215-723-8181

For an applications engineer call:800.933.8181

[www.arworld.us](http://www.arworld.us)



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**RATED POWER OUTPUT:** 5000 watts minimum

**INPUT FOR RATED OUTPUT:**  
 677: 40dBm (10W) maximum  
 677M1: 0dBm (1mW) maximum

**AMPLITUDE VARIATION (wrt frequency) @ 5000W:**  
±1 dB maximum; ±0.2 dB target

**FREQUENCY RESPONSE:** 1.18–1.38 GHz instantaneously

**GAIN:**  
 677: 27 dB minimum  
 677M1: 67 dB minimum

**GAIN ADJUSTMENT:** None

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

**OUTPUT IMPEDANCE:** 50 ohms, nominal

**MISMATCH TOLERANCE:** Output pulse width foldback protection at peak reflected power exceeding 2500 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance.

**PULSE CAPABILITY:**

|                        |  |
|------------------------|--|
| Pulse Width            | 0.1–60 microseconds  |
| Pulse Rate (PRF)       | 50 kHz maximum   |
| Duty Cycle             | 6% maximum   |
| RF Rise and Fall       | 30 ns max (10% to 90%).  |
| Delay                  | 2 μs maximum from pulse input to RF 90%  |
| Pulse Width Distortion | ±100 ns maximum (50% points of output pulse width compared to 50% points of input pulse width) |
| Pulse Off Isolation    | 60 dB minimum  |
| Pulse Input            | TTL level, 50 ohm nominal termination  |

**PULSE AMPLITUDE DROOP:**  
**Maximum:** <1 dB over 60 μs  
**Target:** <0.25 dB over 60 μs

**PULSE TO PULSE AMPLITUDE STABILITY (at constant PRF and pulse width):**  
**Maximum:** <0.5 dB between pulses  
 <±0.5 dB on 1000 pulse events  
**Target:** <0.25 dB between pulses  
 <±0.25 dB on 1000 pulse events

**PHASE STABILITY:**  
**Maximum:** ±5° on pulse top between 4.7μs-20μs  
**Target:** ±1° on pulse top between 4.7μs-20μs

**NOISE FIGURE:** 15 dB typical

**HARMONIC DISTORTION:** Minus 25 dBc max at 5000 watts

**SPURIOUS:** Minus 60 dBc Typ.

**PRIMARY POWER:** 100-264 VAC, 400 Hz, single phase, 1300 watts maximum

**CONNECTORS:**  
 RF Input: N (f), rear (LTX Chirp to LTU)  
 RF Output: SC (f), rear (LB TX RF)  
 RF output forward and reflected sample ports: Type N female, rear (LTU Sample)  
 Pulse Input: Type N female, rear (LTU Gate)  
 AC Power Inlet: mates to PT06E18-5S

**REMOTE INTERFACES:**  
 RS-422-mates to Bendix MS3126E12-8S (LTU Control)  
 Ethernet: RJ-45

**SAFETY INTERLOCK:** 15 pin Subminiature D

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

**ENVIRONMENTAL:**  
 Operating Temperature 0-35 deg C  
 Humidity up to 95% non-condensing  
 Storage Temperature -20°to 70° C  
 Altitude 0-10,000 ft  
 Vibration RTCA/DO-160C, Section 8.5  
 Lightning Transient RTCA DO-160C, Section 22; Level 1 and 2  
 Susceptibility MIL-STD-461C, Category A1b

**SIZE (W x H x D):** 48.3 x 31.1(7U) x 92 cm, 19 x 12.25 (7U) x 36.3 in

**WEIGHT:** 52 kg, 114.6 lbs

**EXPORT CLASSIFICATION:** 3A999.d