



489A

Microwave TWT Amplifiers

Amplification of frequencies from 1 to 12.4 GHz is accomplished in four ranges by the Hewlett-Packard medium-power, microwave amplifiers. Each delivers at least 1 watt for a 1-milliwatt input—a gain of at least 30 dB.

All four TWT amplifiers have provision for amplitude modulation, and since the internal modulation amplifier is dc-coupled, remote programming and power leveling are possible. Sensitivity is high for large output power changes from relatively small modulation signals, eliminating the need for an external modulation amplifier.

Cathode current in the TWT is monitored by a front panel meter and can be conveniently controlled by the GAIN adjustment for rated power output, or for reducing tube current to extend tube life when full output power is not required. The helix, collector, and anode current can be measured at an easily accessible test point board. Combined with the 8350 or 8620 Sweep Oscillator they make an excellent high power swept source.

Advantages

DC coupled modulation circuitry allows power leveling and remote programming.

Periodic-permanent-magnet focusing means fewer alignment problems.

Applications

Any one of the Hewlett-Packard TWT amplifier series is ideal for increasing the available RF power from a microwave sweep oscillator or signal generator when making antenna efficiency and antenna pattern measurements.

Also, they can easily extend the dynamic range of measurements up to 30 dB where RF substitution is employed in the measurement network.

RFI susceptibility tests often demand the high quality amplifying characteristics offered by this TWT amplifier series.

489A-495A Specifications

Output power: 1 watt for an input of ≤ 1 mW.

Gain: 30 dB at rated output.

Input/output: impedance, 50 Ω ; connectors, type N female.

Noise figure: ≤ 30 dB.

Amplitude modulation:

Sensitivity (typically): modulation input of > -20 V peak reduces RF output by ≥ 20 dB from dc to 50 kHz.

Frequency response (typically): dc to 500 kHz (3 dB).

Pulse response: < 1 μ s rise and fall times.

Size: 133 H x 426 W x 467 mm, (5.2" x 16.75" x 18.38").

Weight: net, 18 kg (40 lb). Shipping, 23.9 kg (53 lb).

	489A	491C	493A	495A
Frequency range (GHz)	1-2	2-4	4-8	7-12.4
Gain variation with freq. at rated output:	≤ 6 dB	≤ 6 dB	≤ 6 dB	≤ 6 dB
small signal: across any 10% of band	≤ 5 dB	≤ 5 dB	≤ 5 dB	≤ 5 dB
across full band	≤ 12 dB	≤ 12 dB	≤ 12 dB	≤ 12 dB for 300 MHz

Ordering Information

489A 1 to 2 GHz TWT Amplifier

491C 2 to 4 GHz TWT Amplifier

493A 4 to 8 GHz TWT Amplifier

495A 7 to 12.4 GHz TWT Amplifier

Opt 908: Rack Flange Kit (for all models)

Price

\$7,000

\$7,000

\$7,300

\$7,300

add \$22