

**Model 400 Tri-Band
400 Watt Tri-Band
TWT Amplifier**



Tri-band (C, X, and Ku) power from a single amplifier provides worldwide satellite uplinking flexibility. The efficient power supply, wide-band TWT and easy to use controls — housed in a compact, ruggedized rack-mounted enclosure — make this system ideally suited for fly-away and other mobile applications.

■ **Tri-Band Power**

This wideband amplifier provides a minimum of 350 watts of output flange power at either C-band (5.850 – 6.425 GHz), X-band (7.9 – 8.4 GHz) or Ku-band (13.75 – 14.50 GHz)

uplink frequencies by simple exchange of external filters.

■ **Linear C-Band**

Optimized C-band performance of the TWT allows digital operation at levels up to 4 dB higher than standard tubes.

■ **Universal Power Input**

is achieved through the use of a wide input (104 to 255 vac, 50/60 Hz) power factor correction circuit. This circuit also reduces the power consumption of the Tri-Band to 1800 volt-amperes and has enabled ETM to certify the unit to the European standards for earth stations described in ETS 300-327.

■ **Ease of Operation**

is provided by a 20-character by 4-line fluorescent display and straight-forward four button control. Complete monitoring is provided, including forward and reverse power, TWT voltages and currents, and operating temperatures.

■ **In-The-Field Reliability**

is ensured by ETM's rigorous testing program. Every ETM amplifier is subject to a 125 hour burn-in that includes temperature cycling, multiple cold starts from -20°C, and shock and vibration testing.

■ **Long Term Value**

ETM backs this amplifier with a full 2 year/9000 hour warranty designed specifically to benefit the satellite news gathering professional. After the warranty period, ETM's easy to service modular power supply design and module trade-in program keep your maintenance costs low.

■ **Service, Service, Service**

Every ETM product is backed by worldwide service provided 24 hours a day, 7 days a week. (800) 883-4ETM or outside North America: (510) 797-1100.



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Specifications

| | | | |
|---|--|-------------------------------|--|
| Frequency Range | 5.850 – 6.425 GHz, C Band 13.75 – 14.50 GHz, Ku Band 7.9 – 8.4 GHz, X Band | Input VSWR | 1.20:1 max. |
| Output Power at the Amplifier Flange | 350 watts, minimum | Output VSWR | 1.50:1 max. |
| Amplifier Gain | 60 dB min., Ku Band 50 dB min., C-Band | Load VSWR | 1.50:1 max. – for spec. compliance 2.00:1 max. – continuous operation |
| Gain Variation | 4 dB max. – across each band 2 dB max. – optional | RF Connectors | Input: N-type Output: WRD-580 Sample Port: N-type |
| Gain Slope | .03 dB max. – over any 40 MHz | Metering | Vacuum Fluorescent Display, 4-line, 20-character, program- mable |
| Gain Stability | .25 dB/24-hours – any frequency with constant drive | Monitored Parameters | Forward Power (dBm, watts, graph), Reverse Power (dBm, watts, graph), Cathode Voltage, Helix Current, Filament Voltage, Filament Current, Collector Voltage, Grid Voltage, Cabinet Temperature (°C or °F), TWT Baseplate Temperature (°C or °F) |
| Gain Adjustment | 0 – 35 dB – continuously adjustable | User-Settable Warnings | Over Forward Power, Under Forward Power, Over Reverse Power, Over Helix Current, Over Cabinet Temperature, Over Baseplate Temperature |
| Intermodulation Products | C-Band: -24 dBc at 3 dB backoff X or Ku-Band: -24 dBc at 7 dB backoff | A-C Power | 104 – 255 vac, single-phase, 50/60 Hz, 1800 VA |
| Option | Built-in Linearizer | Mechanical | 19" wide x 5.25" high x 24" deep, 69 lbs |
| AM-to-PM Conversion | 6°/dB at rated power | Certification | Meets requirements of ETS 300-327 |
| Harmonic Output | Harmonic Filter dependent | Interface | RS-485 |
| Residual AM | <4 kHz -40 dBc 4 kHz to 500 kHz -20(1.15 + LogF) (F in kHz) max. >500 kHz -80 dBc | | |
| Phase Linearity | ±0.1 radian over any 500 MHz ±0.05 radians over any 40 MHz | | |
| Phase Noise | meets limits 1 & 2 of IESS-308 | | |
| Noise and Spurious Outputs | -65 dBW/4 kHz max. | | |
| Group Delay (in any 40-MHz band) | Linear: .05 nSec/MHz Parabolic: .01 nSec/MHz (squared) Ripple: .50 nSec/MHz (peak-to-peak) | | |



*Modular design
reduces cost of
long-term
maintenance.*



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