



MT2500

ANTENNA MOUNT TRAVELING WAVE TUBE
LOW POWER AMPLIFIER

THE RUGGED AND ECONOMICAL SOLUTION
FOR UPLINK APPLICATIONS

X-BAND: 200W



AVAILABLE SYSTEM OPTIONS:

- MT2511 1+1 Redundant System
- Other Configurations Available Upon Request

AVAILABLE AMPLIFIER OPTIONS:

- L-Band Block Upconverter
- Switchover Control
- Internal Linearizer
- Mounting Configurations
- Remote Panel
- Hand-Held Local Controller
- Fiber Optic Input (L-Band)
- External Block Downconverter
- Transceiver Package

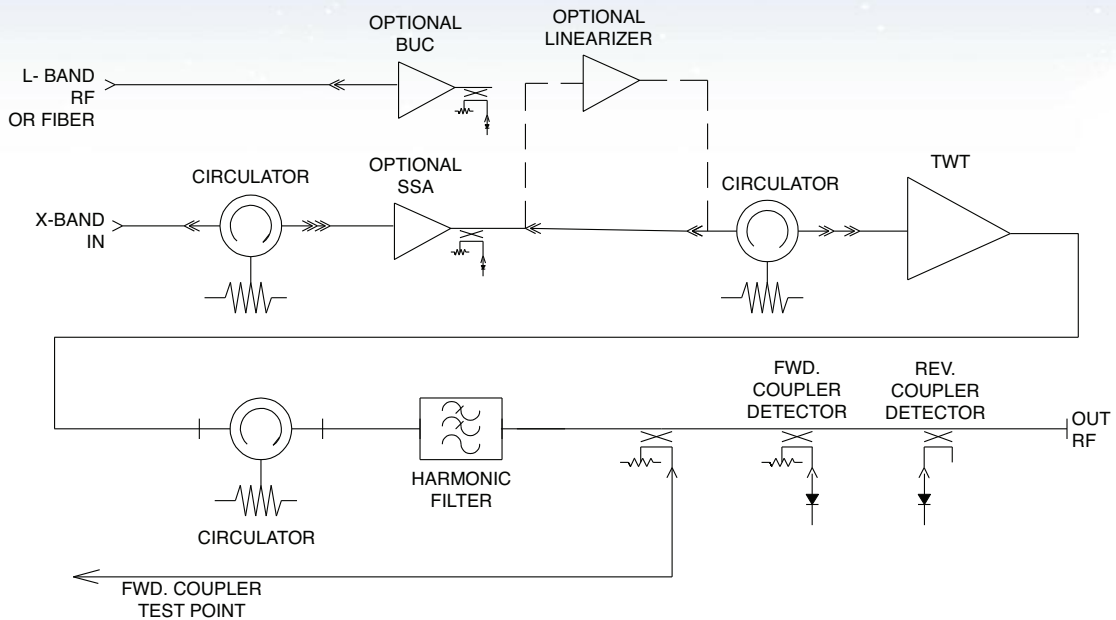
FEATURES:

- Compact Weather-Resistant Package
- Extensive Diagnostic Capability
- Designed to Meet MIL-188-164A
- Software Communications Configuration for Both Remote and Computer Interfaces
- Continuous Attenuator Adjustment shown in dB
- Auto Power Control and Status
- Rugged Construction for Extreme Environments
- Event Log

ISO 9001



RF BLOCK DIAGRAM



CONTROL AND STATUS CAPABILITIES

TYPE	FUNCTION	
Controls	<ul style="list-style-type: none"> Power ON RF Inhibit* Remote/Computer Units Select Transmit/Standby 	<ul style="list-style-type: none"> Reset Auto Power* Attenuation* Clear Event Log Time & Date
Displays (Remote & Computer Only)	<ul style="list-style-type: none"> RF Inhibit* RF Forward Power Proportional Filament Delay 	<ul style="list-style-type: none"> Tube Drive Power* RF Reflected Power Helix Current Tube Temperature
Adjustable Parameters	<ul style="list-style-type: none"> Auto Power* RF Reflected Power Alarm RF Low Alarm 	<ul style="list-style-type: none"> Tube Overdrive Alarm* Tube Temperature Alarm RF High Alarm Attenuation*
Alarms	<ul style="list-style-type: none"> RF High RF Reflected Power Tube Temperature 	<ul style="list-style-type: none"> RF Low Tube Overdrive*
Faults	<ul style="list-style-type: none"> Summary RF Reflected Power Helix Run Current 	<ul style="list-style-type: none"> Summary Tube Overdrive* WG Pressure Tube Temperature User Interlock

* Function available with optional SSA

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ELECTRICAL SPECIFICATIONS	X-BAND	
	200 W	
Frequency Range (F ₀) (Standard):	7.9 - 8.4 GHz	
Output Power (min.):	200 W (53.0 dBm)	
Tube Output Flange:	175 W (52.4 dBm)	
HPA Rated Output:	[*40 W Linear **100 W Linear with Linearizer]	
Gain:	(with BUC)	(w/out BUC)
Large Signal (min.):	61 dB	45 dB
Small Signal Gain (SSG) (min.):	66 dB	50 dB
SSG with optional SSA (min.):	-	76 dB
Attenuation Range with optional SSA:	30 dB	30 dB
Input Frequency (MHz):	950 - 1450	7.9 - 8.4 GHz
Maximum SSG Variation Over:		
Narrow Band:	1.0 dB/80 MHz	
Full Band:	2.5 dB/500 MHz	
Slope, Max.:	±0.04 dB/MHz	
Gain Stability:	0.25 dB	
Stability, -40 to +50°C:	±1.0 dB typ. (±2.0 dB w/optional Linearizer)	
Stability, Any 10°C Max.:	±0.75 dB	
Input VSWR:	1.30:1 max. with respect to 50 ohms	
Input VSWR (with BUC):	1.35:1 max. with respect to 50 ohms	
Output VSWR:	1.25:1 max. with respect to 50 Ohms	
Load VSWR:	2.0:1 without damage	
AM/PM Conversion:		
6 dB Below Rated Power:	2.5°/dB	
Residual AM Noise, Max.:		
To 10 kHz:	-50 dBc	
10 - 500 kHz:	-20 (1.5 + Log f kHz) dBc	
Above 500 kHz:	-85 dBc	
Harmonic Output, Max.:	-60 dBc	
Noise & Spurious, Max:		
Receive Band (Standard):	-65 dBW/4 kHz, 7.25-7.75 GHz	
Transmit Band (F ₀):	-65 dBW/4 kHz, 7.90-8.40 GHz	
Phase Noise:	10 dB below IESS Phase Noise Profile (4 dB below w/BUC)	
AC Fundamental:	-50 dBc	
Sum Of All Spurs:	-47 dBc (-41 dB with BUC)	
Intermodulation		
(for 2 equal carriers relative to single carrier rated output):	Total P ₀	IM Product
	-4 dB	-18 dBc
	-7 dB	-24 dBc
	-4 dB	-27 dBc
Typical Linearizer Option Performance:		
Group Delay:	Any 80 MHz Bandwidth	
Linear:	0.010 ns/MHz	
Parabolic:	0.005 ns/MHz ²	
Ripple:	0.500 ns p-p	
Prime Power:		
Voltage:	100 - 264 VAC, 1-phase, 47 - 63 Hz, 2 Wire	
Power Consumption:	1000 VA @ 175 W	
	870 VA @ 40 W	
Power Factor:	0.95 min.	
In-Rush:	28A max.	
Input Transients:	EN61000-4-4, 4-5, 4-11 (Surge, Fast Transients, Line Dropout)	

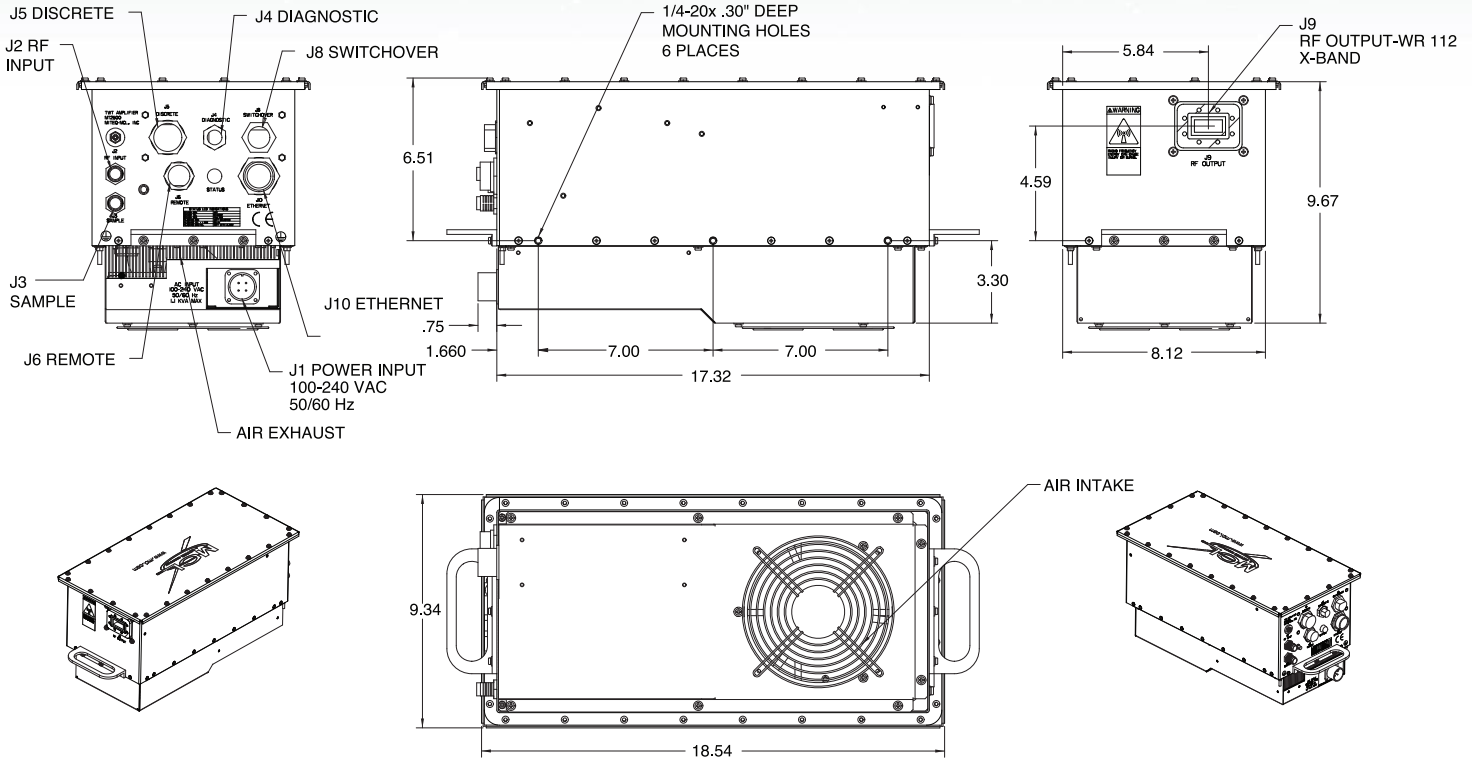
Note: Performance information is subject to change without notification. Contact MCL for the latest specifications (TN2500-1).

* Linear power as defined by MIL-STD-188-164A

** Limited by Maximum Average Power of TWT Tube

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OUTLINE DRAWINGS



ENVIRONMENTAL SPECIFICATIONS

Operating Temperature:

-40°C to +60°C

(derated 1.9°C per 1,000 ft. above sea level)

Non-Operating Temperature:

-40°C to +70°C

Relative Humidity:

100% Condensing

Operating Altitude:

10,000 ft. above sea level (3,048 m)

Non-Operating Altitude:

50,000 ft. above sea level (15,240 m)

Vibration:

MIL-STD-810E, Method 514.4

Shock:

10g, 11 ms half sine

MECHANICAL SPECIFICATIONS

RF Connectors:

Input: Type N, female

Output: (Waveguide Flange)
CPR-112G

Installed Weight:

33 lbs. (15 kg) (Depending on Options)

Cooling:

Forced air, 2.0" clearance required

Acoustic Noise:

<68 dBA max. at 1 meter

PHYSICAL SPECIFICATIONS

Nominal Dimensions:

9.67" H (246 mm)

9.34" W (237 mm)

18.54" L (471 mm)

Air Flow:

72 CFM

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