XTRD-2000C C-Band Rack-Mount High Power Amplifier

- **2250 Watts**
- **Compact Size**
- **High Efficiency**
- **Digital Display and Control Interface**
- **Power Factor Correction**
- **Linearizer Option**

XTRD-2000C digital rack-mount amplifiers are designed for fixed and mobile uplink applications and occupy only 11 rack units while providing RF output of 2000 Watts.

These high efficiency traveling wave tube amplifiers include RF gain control, a solid state pre-amplifier, RF filters, cooling, and monitor & control (M&C) systems. An integrated C-Band linearizer is available.

The dual-drawer amplifier conserves rack space and occupies only 19.25 inches (11 rack units) of a standard 19 inch rack cabinet. A complete 1:1 or 1:2 redundant TWTA system, including a redundant controller, can be mounted in a single rack.

The unit features a menu-driven front panel display and RS-232 & RS-422/RS-485 serial port interfaces for complete remote control.

Gain control is set by the front panel manual control or by computer commands sent via the remote interface(s).

The units incorporate high efficiency, multi-stage depressed collector TWTs. Reliability is enhanced because both prime power consumption and internal operating temperatures are reduced for the linear and saturated modes of operation.

The high frequency resonant conversion power supply is highly efficient and allows for quick recovery from prime power outages.

Depending upon user requirements, the high power amplifiers can be configured for single-thread, redundant, or phase combined operation.

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PERFORMANCE SPECIFICATIONS

Parameter	XTRD-2000C C-Band
FREQUENCY RANGE	5.85 -6.425 GHz
Extended frequency range	5.85 - 6.65 GHz
OUTPUT POWER	
Traveling Wave Tube	2250 W
Rated Power @ HPA Flange	2000 W
GAIN	
Large Signal, minimum	70 dB
Small Signal, minimum	75 dB
Attenuator Range (continuous)	25 dB
Maximum SSG Variation Over:	
Any Narrow Band	1.0 dB per 40 MHz
Full Band	2.5 dB
Slope, maximum	±0.04 dB/MHz
Stability, 24 Hr maximum	±0.25 dB
Stability, Temperature	±1.0 dB maximum over temperature range at any frequency
HARMONIC OUTPUT, maximum	-60 dBc
INTERMODULATION	-17 dBc maximum with two equal carriers
with two equal signals	at 4 dB total output backoff
AM/PM CONVERSION, maximum	2.5°/dB at 6 dB below rated power
NOISE POWER, maximum	
Transmit Band	-70 dBw/4 kHz
Receive Band	-150 dBW/4 kHz 3.7 to 4.2 GHz
GROUP DELAY, maximum	
Bandwidth	Any 40 MHz
Linear	0.01 nsec/MHz
Parabolic	0.005 nsec/MHz^2
Ripple	0.5 nsec Peak to Peak
RESIDUAL AM NOISE	-50 dBc to 10 kHz
maximum	-20 (1.5 - logf) dBc 10 to 500 kHz
	-85 dBc above 500 kHz
PHASE NOISE, maximum	10 dB below IESS phase noise profile AC fundamental -50 dBc Sum of all spurs -47 dBc
VSWR	
Input, maximum	1.3:1
Output, maximum	1.3:1

PRIME POWER

208 VAC ± 10% Three Phase, 4 Wire, 47-63 Hz

8500 VA Maximum

0.95 Minimum Power Factor

OPTIONS

- Extended Frequency Coverage: 5.85-6.725 GHz
- 220/380 VAC ± 10% Three Phase, 5 Wire, 47-63 Hz
- 240/415 VAC ± 10% Three Phase, 5 Wire, 47-63 Hz
- 1:1, 1:2, 1:N Redundancy
- Variable Phase Combined
- Integrated Linearizers

CE COMPLIANT

ENVIRONMENT

NONOPERATING TEMPERATURE RANGE	-50° C to +70° C
OPERATING TEMPERATURE RANGE	-10° C to +50° C
HUMIDITY	Up to 95% Noncondensing
ALTITUDE	10,000 feet MSL maximum
SHOCK AND VIBRATION	Normal Transportation
COOLING	Forced Air 275 CFM (typical)

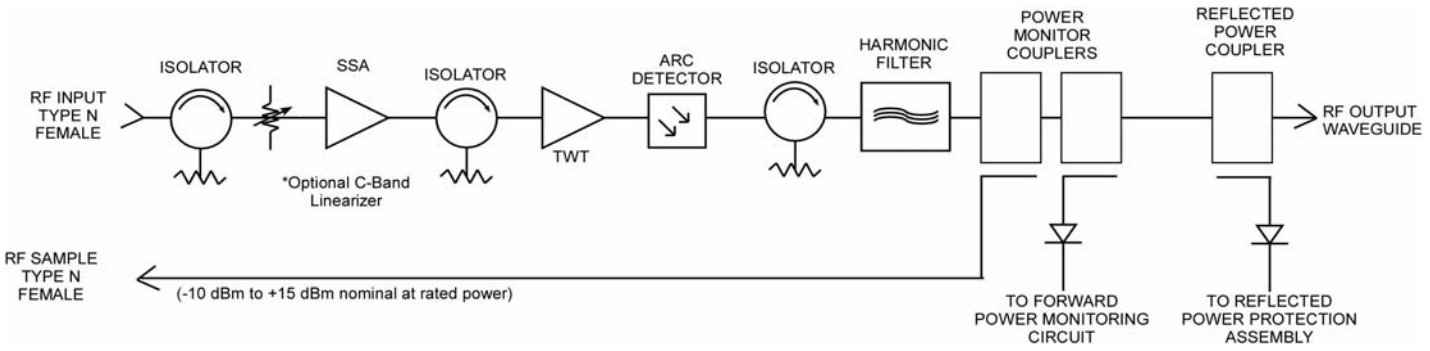
INTERFACE

TYPE		FUNCTION		
CONTROLS	Local	Local/remote	AC Power ON/OFF	
	Local and Remote	Gain	Reflected Power Alarm/Fault	Units (Watts, dBm, dBw)
		Heater Standby ON/OFF	Frequency Select	Fault Reset
		Minimum Power Alarm/Fault	High Voltage ON/OFF	Lamp Test
		Maximum Power Alarm/Fault	Audio Alarm ON/OFF	
STATUS	Front Panel LEDs	Power	Heater Standby	Heater Time Out (FTD)
		Local Mode	Remote Mode	Standby
		High Voltage	Summary Fault	
	Front Panel Digital Display	Power Out	Reflected Power	Fault: High VSWR High voltage Helix Current TWT Temperature
		TWT Temperature	Helix Current	
		Helix Voltage	Heater Hours	
		Beam Hours	Attenuator Setting	
		Units Selection		
	Dry Form-C Relay Contacts (Two)	Summary Fault		
COMPUTER SERIAL PORT	Hardware Interface	2 ports: RS-232 & RS-422/RS-485		
	Xicom Command Set	ASCII Commands		
RF SAMPLE PORT COUPLING		-47 dB Nominal		

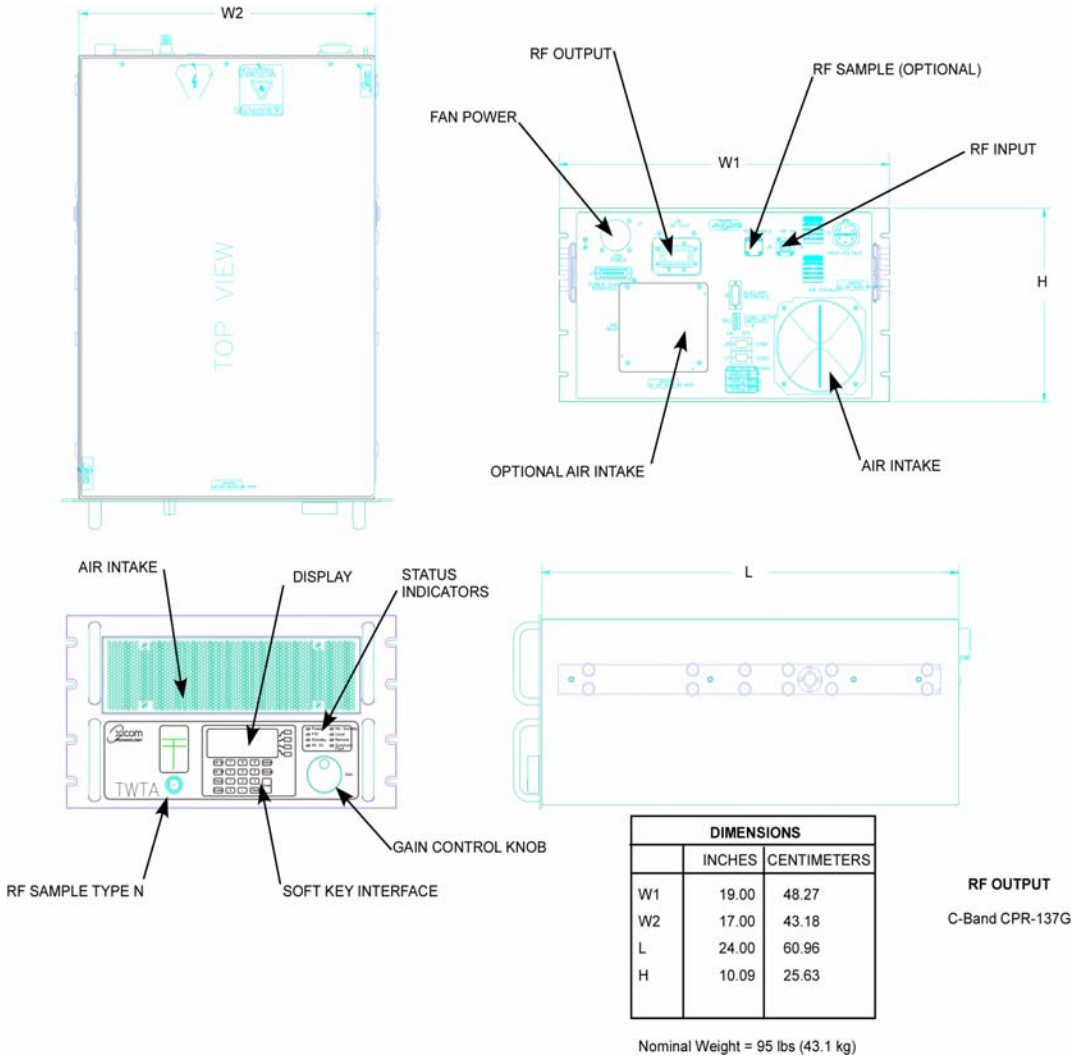
XTRD-2000C High Power Amplifiers

xicom TECHNOLOGY

Block Diagram



Outline Drawing



DIMENSIONS		
	INCHES	CENTIMETERS
W1	19.00	48.27
W2	17.00	43.18
L	24.00	60.96
H	10.09	25.63

RF OUTPUT

C-Band CPR-137G

Nominal Weight = 95 lbs (43.1 kg)

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