

# ALX-20W



THE WORLD'S SMALLEST OUTDOOR 20W X-Band BUC High Temp +70C

## FEATURES:

- Hyper-Light Package Design Only 4 lbs (1.8 kg)
- Extreme Stability, Reliability and Performance
- Built-in HPA Overdrive Circuit Protection
- Built-in Optimized Linearization
- Built-in Ultra Receive Band Reject Filter
- Built-in Anti Vibration Technology
- Extreme GaN Linearity and Efficiency
- Triple protection sealed waveguide output
- Field Replaceable IP69K Rated Fans
- Fully Assembled, and Rigorously Tested in the USA
- 3-Year Warranty



## DESIGN OVERVIEW:

Amkom's X-band 7.9 - 8.4 GHz BUCs are the next generation of the world's most compact and efficient feed-horn & boom-arm mountable BUCs in the industry. They come with the following available output powers: 20W, 30W, 40W, 60W, 80W and 100W. We've chosen the best of both worlds as we implemented the most mature, proven efficient and reliable GaN High Power Amplifiers with added internal overdrive protection. We take MTBF seriously and to the next level of at least 15 years during normal operation. We've taken absolutely no compromises during each of the design stages. Each unit is designed and tested to comply with the WGS, MIL-STD-188-164, and RTCA/DO-160G. It is vigorously tested at our California facility according to our ATP (Acceptance Testing Procedure).

## PERFORMANCE SPECIFICATIONS

Operating RF Frequency	7.9 - 8.4 GHz
Operating IF frequency	950 - 1450 MHz
Local Oscillator	6.95 GHz
Rated Output Power PSAT	20W 43.0 dBm
Linear Power SR @-26 dBc PLIN	16W 42.0 dBm
IMD3 (two tones) 3 dB Back Off	-25 dBc max. 2 signal 5 MHz apart at P-LINEAR
Spectral Regrowth at P-LINEAR (QPSK at 1.5x and OQPSK at 1.0x symbol rate offset with 2 dB back-off from rated power)	-30 dBc
10 MHz External Ref. (Internal High Stability Optional)	10 MHz Ref. Level: 0 dBm +/- 5 dBm Internal Ref. Stability +/- 0.1 ppm

## COMPLIANCE INFORMATION

MIL-STD-188/164C	DO-160G	ROHS, REACH, WEEE
MIL-STD-461E		

## SPURIOUS & PHASE NOISE

In-Band/Out-band Spurious	-60 dBc max.	
Group Delay	Ripple 1 nsec point to point max.	
AM/PM Conversion	1.0°/dB max. at 3 dB output backoff	
Noise Power Density (TX)	-85 dBm/Hz	
Noise Power Density (RX)	-155 dBm/Hz	
Phase Noise (Up Converter) (Ext. Ref.)	-55 dBc/Hz @ 10 Hz	-115 dBc/Hz
	-65 dBc/Hz @ 100 Hz	-135 dBc/Hz
	-75 dBc/Hz @ 1 kHz	-150 dBc/Hz
	-85 dBc/Hz @ 10 kHz	-155 dBc/Hz
	-95 dBc/Hz @ 100 kHz	-160 dBc/Hz

## POWER CONSUMPTION

20W 43.0 dBm PSAT	95W
16W 42.0 dBm PLIN	85W

## PROTECTION

VOLTAGE	OVERTEMP	VSWR
SMART ALARMS IN THE M&C	MICROPHONIC	CURRENT

ENVIRONMENTAL SPECIFICATIONS

Environmental MIL-STD	Compliant with WGS, MIL-STD-810E
Vibration MIL-STD	STD-188-164, and RTCA/DO-160G
Operating Temperature Range	- 40° C to + 70° C
Storage Temperature Range	- 60° C to + 85° C
Fan Rating / Field Replaceable	IP69K (fan module can be purchased separately)
Humidity	100% Condensing, IP67 Rated
Shock	20 g peak, 11 msec, 1/2 sine
Altitude	21,500 ft, 6,500 m
Built-in Receive Reject Filter	Suppression by +60 dB (min)

M&C INTERFACE

Advanced Monitor & Control	Ethernet Web Page Based, SNMP, RS232/485
ALARMS	PLL LOCK, HPA, VSWR, MUTE, TX
Stealth PLIN Operation Mode	LED Shut-Off   Silenced fans
Administrative Interface (Optional)	OpenBMIP through RS-422

PART NUMBERING SYSTEM

- AL - "LIGHTWEIGHT" MODEL SERIES
- X - X-Band 7.9 - 8.4 GHz
- 20 | 30 | 40 | 60 | 80 | 100 - Rated Power in Watts
- N | F - 50 Ohm or 75 Ohm IF Input Connector Type
- M - Full M&C Option RS232/485, SNMP, Ethernet
- A - AC Power 85-260VAC (increases size and weight)
- R - 10 MHz Ref. Auto Sense | Internal Reference
- K - FSK Option
- U - Universal Mounting Bracket
- J - Weatherproof DC/RJ45 Cable Dongle
- C xxxx - Custom RAL Color Code
- L - Custom Language
- P - Custom Part number
- B - Custom Label
- G - Custom Logo
- T - Redundancy Ready
- H - High Gain (+79 dB - 82 dB)
- W - Weatherproof Pelican Style Case
- O - Other Custom Option
- X - Custom Cable



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INPUT|OUTPUT INTERFACE

IF Connector	N-type (50 Ohm)   F-type (75 Ohm)
Universal Prime Power via IF or MS/M&C Connector (7.0 A Current Limit Protection Through Coax)	+ 22 - 55 VDC
Output VSWR	1.5:1
Output Interface	CPR-112G, WR-90G, WR-112G
Input VSWR	1.5:1

GAIN

Gain (Temperature Compensated)	66 dB (min) 70 dB (typ.)
Gain Flatness 1 MHz	± 0.1 dB
Gain Flatness 36 MHz	± 0.5 dB
Gain Flatness Full Band	± 1.5 dB

MECHANICAL SPECIFICATIONS

Dimensions (DC Powered)	6.55" x 4.4" x .3" (166.5 x 112 x 76 mm) Without Connectors
Weight (DC Powered)	4 lbs (1.8 kg)

