

# APKU(S)-100W

## GaAs + GaN Technology

THE SMALLEST OUTDOOR 100W Ku-Band BUC High Temp +70C



### FEATURES:

- Robust, Light Package Design Only 9.2lbs (4.2kg)
- Extreme Stability, Reliability and Performance
- Built-in HPA Overdrive Circuit Protection
- High Temperature Mode - up to +70°C
- Built-in Optimized Linearization
- Built-in Receive Band Reject Filter
- Built-in Anti Vibration Technology
- Extreme GaN Linearity and Efficiency
- Exceeds ALL IESS-308/309 Phase Noise Standards
- Triple protection sealed waveguide output
- Field Replaceable IP68 150,000 hr Rated Fans
- Assembled and Rigorously Tested in California
- 3 Year Warranty



### DESIGN OVERVIEW:

The "PHANTOM" series Extended (13.75 - 14.5GHz) and Standard (14.0 - 14.5GHz) Ku-Band BUCs are the next generation of the World's Most efficient and compact size BUCs in the industry, weighing only 9.2lbs (4.2kg) and handling output power of 100W (min) at the Extended Ku-Band frequencies.

### PERFORMANCE SPECIFICATIONS

<b>Operating RF Frequency</b>	APKS 14.0-14.5 GHz APKU 13.75-14.5 GHz
<b>Operating IF frequency</b>	950-1450 MHz   950-1700 MHz
<b>Local Oscillator</b>	13.05 GHz   12.8 GHz
<b>Rated Output Power PSAT</b>	100W 50 dBm
<b>Linear Power SR @ -26dBc PLIN</b>	80W 49 dBm
<b>IMD3 (two tones) 3dB Back Off</b>	-25 dBc max. 2 signal 5MHz apart at P-LINEAR
<b>Spectral Regrowth at PLINEAR</b> (QPSK at 1.5x and OQPSK at 1.0x symbol rate offset with 2dB back-off from rated power)	-30 dBc
<b>10MHz External Ref. (Internal High Stability Optional)</b>	10MHz Ref. Level: 0dBm +/- 5dBm Internal Ref. Stability +/- 0.1 ppm

### COMPLIANCE INFORMATION

MIL - STD - 188/164C	MIL - STD - 461	ROHS, REACH, WEEE
MIL - STD - 810E	DO - 160 G	

### SPURIOUS & PHASE NOISE

<b>In-Band/Out-band Spurious</b>	-60dBc max.	
<b>Group Delay</b>	Ripple 1 nsec point to point max.	
<b>AM/PM Conversion</b>	1.0°/dB max. at 3 dB output backoff	
<b>Noise Power Density (TX)</b>	-85dBm/Hz	
<b>Noise Power Density (RX)</b>	-155dBm/Hz (10.95 - 12.75 GHz)	
<b>Phase Noise (Up Converter) (Ext. Ref.)</b>	-55 dBc/Hz @ 10 Hz	-115dBc/Hz
	-65 dBc/Hz @ 100 Hz	-135dBc/Hz
	-75 dBc/Hz @ 1 kHz	-150dBc/Hz
	-85 dBc/Hz @ 10 kHz	-155dBc/Hz
	-95 dBc/Hz @ 100 kHz	-160dBc/Hz

### POWER CONSUMPTION

<b>100W 50 dBm PSAT</b>	470W
<b>80W 49 dBm PLIN</b>	370W

### PROTECTION

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

## ENVIRONMENT SPECIFICATIONS

<b>Environmental MIL-STD</b>	Compliant with MIL-STD810E
<b>Vibration MIL-STD</b>	MIL-STD810F, Method 514.5 C-2 Transport
<b>Operating Temperature Range</b>	- 40° C to + 70°C
<b>Storage Temperature Range</b>	- 60°C to + 85°C
<b>Fan Rating / Field Replaceable</b>	IP 68, Field Interchangeable
<b>Humidity</b>	100% Condensing, IP67 Rated
<b>Shock</b>	20 g peak, 11 msec, 1/2 sine
<b>Altitude</b>	21,500ft, 6,500m

## M&C INTERFACE

<b>Advanced Monitor &amp; Control</b>	Ethernet Web Page Based, SNMP, RS232/485, FSK (opt.)
<b>ALARMS</b>	PLL LOCK, HPA, VSWR, MUTE, TX
<b>Stealth PLin Operation Mode</b>	LED Shut-Off   Silenced fans

## MECHANICAL SPECIFICATIONS

<b>Dimensions (DC Powered)</b>	8.5" x 5.2" x 4.54" (215x132x114 mm) Without Connectors
<b>Weight (DC Powered)</b>	9.2lbs (4.2kg)

## PART NUMBERING SYSTEM

AP - "PHANTOM" MODEL SERIES  
 KU - Universal Ku-Band 13.75 - 14.50 GHz  
 KS - Standard Ku-Band 14.0 - 14.50 GHz  
 80 | 100 | 125 - Rated Power in Watts  
 N | F - 50 Ohm or 75 Ohm IF Input Connector Type  
 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 (+79dB - 82dB)  
 W - Weatherproof Pelican Style Case  
 O - Other Custom Option  
 X- Custom Cable



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## INPUT|OUTPUT INTERFACE

<b>IF Connector</b>	N-type (50 Ohm)   F-type (75 Ohm)
<b>Universal Prime Power via 3pin Power Connector</b>	+ 85-260 VAC
<b>Aphenol PT02E-12-3P, Current Protection</b>	
<b>Output VSWR</b>	1.5:1
<b>Output Interface</b>	WR75 Sealed & Grooved
<b>Input VSWR</b>	1.5:1
<b>10MHz External Ref. (Internal High Stability +/- 0.1ppm Option Available)</b>	10MHz Ref. Level: 0dBm +/- 5dBm Internal Ref. Stability +/- 0.1 ppm

## GAIN

<b>Gain (Temperature Compensated)</b>	75dB(min) 80 dB(typ.)
<b>TX Gain Flatness</b>	± 0.75 dB max. over 40 MHz
<b>TX Gain variation 50MHz</b>	± 0.5 dB
<b>TX Gain variation 500MHz</b>	± 1.5 dB
<b>Built-in Receive Reject Filter</b>	Suppression by +20 dB (min.)

