

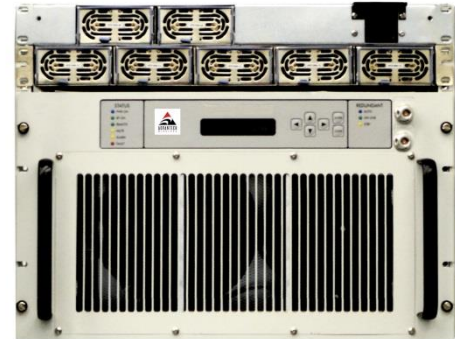
# 1250W Ku-Band Indoor BUC/SSPB/SSPA Second Generation GaN Technology



SSPA	ARMAg-K	5200-SapphireBlu™ series
SSPB (BUC)	ARMUg-K	5200-SapphireBlu™ series

## SapphireBlu™ UltraLinear™

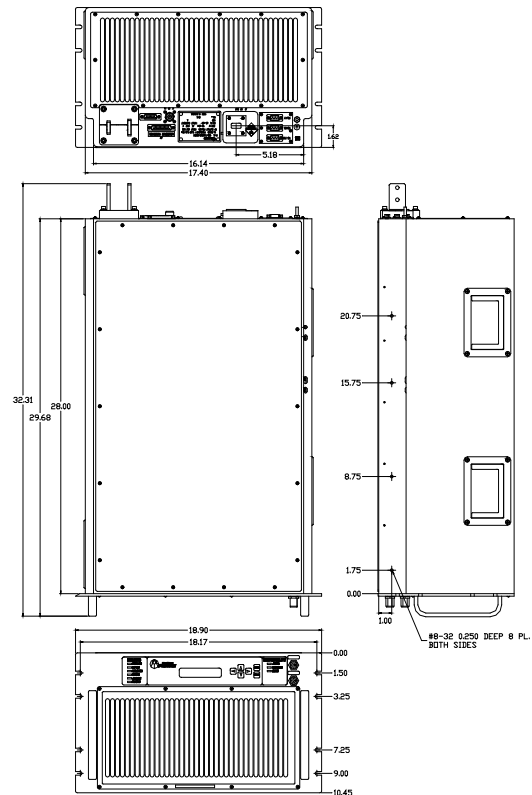
- High power density in a compact indoor package
- UltraLinear™, designed for Multi Carrier Operations
- High Performance GaN Technology SSPA Indoor design concept
- High Reliability, High Linearity, Low Energy Consumption



## The Ultimate Solution for Direct to Home TV

- Exceeds all barriers between Klystrons, TWTs and SSPAs
- Save Millions of dollars in Energy Cost, Satellite Bandwidth, CAPEX
- Can cover multiple transponders, full DVB-S2 enabled
- Indoor Package, MIL-STD-188-164A Compliant
- Redundant Ready, Power Expandable to 2-5 KW by phase combining

- We can now saturate all transponders of an entire satellite and obtain maximum bandwidth/power efficiency! (using modular RF concept)
- 2 years warranty, due to increased GaN Technology reliability
- Backed by over 25 years of Indoor SSPA design and manufacturing



## 1250W Ku-Band Indoor BUC/SSPB/SSPA Second Generation GaN Technology

Technical Specifications			
Output Power	1250W		
$P_{SAT}$ , PA Module	+60.7 dBm nominal		
$P_{SAT}$ , at Flange	+58.5 dBm nominal		
$P_{1dB}$	+58.0 dBm minimum		
$P_{LINEAR}$	+57.0 dBm minimum		
	PLINEAR is the maximum combined transmit power of two equal amplitude continuous wave (CW) carriers 5MHz apart, when the third order intermodulation product power is <-30 dBc @ 1.0 x symbol rate for QPSK/OQPSK/8PSK modulation.		
Operating Frequency	KS 14.0 – 14.500 GHz	KX 13.75 – 14.5 GHz	
L-Band input (BUC)	KS 950 – 1450 MHz	KX 950 – 1700 MHz	
Gain	SSPA 68 ± 3 dB	SSPB (BUC) 78 ± 3 dB	
Gain adjustment range	20 dB in 1.0 dB steps		
Gain flatness over 500 MHz	SSPA: 2 dB p-p max	SSPB (BUC): 3 dB p-p max	
Gain slope over 40 MHz	± 0.3 dB max		SSPB (BUC) ± 0.5 dB max
Gain variation over temperature	± 1.5 dB max		
Input Impedance and VSWR	50 Ω SSPA 1.3:1	SSPB (BUC) 1.4:1	
Output VSWR	1.3:1		
Noise power density	-75 dBm/Hz in Transmit Band, -145 dBm/Hz in Receive Band (10.95 GHz – 12.75 GHz)		
Spurious at $P_{LINEAR}$	SSPA: -65 dBc max	SSPB (BUC): -60 dBc max	
Harmonics	-50 dBc @ $P_{LINEAR}$		
AM/PM conversion	<1.0°/dB $P_{LINEAR}$		
Third order intermod (two tones)	-25 dBc two signals 5 MHz apart at total +57 dBm Plinear, versus each carrier		
Group delay	Ripple 0 – 10 kHz	1 nsec p-p max over any 40 MHz band	
Residual AM Noise	10 kHz – 500 kHz	-45 dBc	
	10 kHz – 500 kHz	-20 (1.25 + log F) dBc	F = Frequency in kHz
	500 kHz – 1 MHz	-80 dBc	
SSPB (BUC)			
Local Oscillator freq.	KS –13.050 GHz		KX – 12.800 GHz
Internal Reference frequency (optional)	10 MHz		
Phase Noise	Aging/day	±2 × 10 <sup>-10</sup>	Aging/year ±5 × 10 <sup>-8</sup> Stability ±2 × 10 <sup>-8</sup> over temp range
		-53 dBc/Hz at 10 kHz	-73 dBc/Hz at 1000Hz
External Reference Frequency phase noise (max)		-63 dBc/Hz at 100Hz	-93 dBc/Hz at 100 kHz
		-120 dBc/Hz at 10Hz	-150 dBc/Hz at 1000Hz
		-135 dBc/Hz at 100Hz	-160 dBc/Hz at 100 kHz
			-155 dBc/Hz at 10 kHz
Weight & Dimensions			
Dimensions (L x W x H)	19" Rackmount 6 RU + 2 RU Power supply 28" deep		
Weight	198 lbs (90 kg)		
AC input voltage	190 – 265 VAC (47-63 Hz)		
Power consumption (nominal)	3.8KW at 46 dBm	5KW at 56 dBm	6.5KW at $P_{SAT}$
Interfaces	Input (RF or L-Band): N type female	AC line: IEC 320 Inlet	
	Output Sample Port: N type female	RF output: WR75 Cover	
	RS485/ Ethernet: DB9/RJ45		
Environmental	Temperature	Operating 0°C to +50 °C	
		Storage -55°C to +85 °C	
	Humidity	5% to 95% non condensing	
	Altitude	10,000' AMSL, de-rated by 2 °C/1000' from AMSL	

Ref.: PB-SAPPH-2G-Ku-Rack-1250W-18145

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