SPACEBRIDGE
ALL THINGS CONNECTED

SBS2000C/SBB2000C* 2000W C-Band Outdoor Multicarrier Gen III GaN SSPA/SSPB

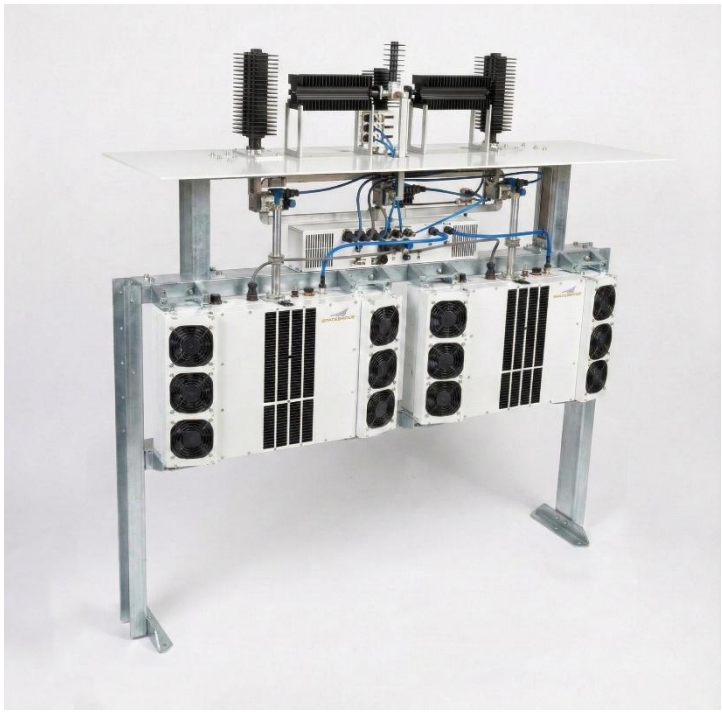
Powered by advanced Gen III GaN broadband technology, this 2000W outdoor SSPA/SSPB delivers exceptional RF performance across the full band, superior efficiency, and outstanding linearity and reliability for high-capacity applications such as multicarrier, multi-transponder TV broadcast (DTH) and HTS VSAT hub networks

Key Features

- Built-in 2:1 and 1:1 Redundancy
- Phase Combining/Fail Safe switching matrix
- High Linearity, efficiency and MTBF
- Built-in High Precision High dynamic range true and accurate RMS Output Power Meter
- Web Interface, SNMP support
- Output Overdrive Protection
- Output VSWR Protection
- Thermal overheat protection (shutdown)

Options

- SSPA or SSPB
- Standard (CS, 5.850-6.425 GHz), Extended (CX, 5.850-6.725 GHz) and Insat (CI, 6.725-7.025 GHz) bands
- Internal High-stability 10 MHz Reference
- 2U Rack mountable RCP for Phase Combining application and 2:1 or 1:1 redundancy



Built for mission-critical satellite communications, this high-performance outdoor HPA delivers outstanding linearity, efficiency, and reliability in a compact, fully integrated HPA. Comprehensive monitoring and control via Ethernet, RS-232, RS-485, and dry contacts enables seamless integration with modern network management and control systems. Its ultra-linear broadband RF architecture maximizes full satellite transponder utilization, illuminating all transponders on the same polarization and supports 256 APSK advanced modulation schemes, enabling highly efficient multicarrier and multi-transponder operation. This makes the unit ideally suited for DTH broadcast, HTS/UHTS VSAT GateWays and demanding electronic warfare applications including Electronic Countermeasures (ECM) and Electronic Attack (EA).

The rugged IP67 enclosure allows installation directly on the antenna structure or near the kingpost, eliminating waveguide loss associated with indoor installation, simplifying infrastructure and cost. Designed to operate in direct sunlight without air-conditioning, it significantly reduces CapEx for infrastructure requirements eliminating the need for nearby shelter construction and OpEx energy consumption, and maintenance costs, delivering a lower total cost of ownership.

* SSPA: SBBS2000C; SSPB (BUC): SBB2000C

All designs, specifications and availabilities of products and services presented in this bulletin are typical and subject to change without notice.

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SBS2000C/SBB2000C 2000W C-Band Outdoor Multicarrier Gen III GaN SSPA/BUC
Technical Specifications

MODELS	SBS2000CS/SBB2000CS	SBS2000CX/SBB2000CX	SBS2000CI/SBB2000CI
RF Frequency range	5.850-6.425 GHz	5.850-6.725 GHz	6.725-7.025 GHz
IF Frequency range*	950-1525 MHz	950-1825 MHz	1150-1450 MHz
LO Frequency*	4.9 GHz	4.9 GHz	5.575 GHz

RF CHARACTERISTICS		
P_{Sat} , Rated Output Power	With Phase Combining Single Thread	63 dBm / 2000 W min 60.4 dBm / 1100 W min
P_{Lin2C} , Linear Power as defined by MIL-STD-188-164C, 2 carriers		60 dBm / 1000 W min
Small Signal Gain		80 dB typ
Gain Flatness over full frequency range		± 1.5 dB max
Gain Flatness over any 40 MHz		± 0.5 dB max
Gain Control		20 dB min dynamic range, 0.1 dB steps
Gain Stability over full Temperature and Frequency ranges		± 1.5 dB max
Gain stability over 24h at constant drive and temperature		0.5 dB peak-to-peak
Linearity: IMD3 Measured with 2 equal tones 5 MHz apart		-25 dBc at total power = P_{Lin2C} -30 dBc at 6 dB total power back-off from P_{sat}
External Reference Frequency*		10 MHz, sinusoidal, multiplexed with L-band (IF In)
External Reference Level*		0 dBm, ±5 dB
External Reference SSB Phase Noise, max*		-110 dBc/Hz @ 10 Hz; -125 dBc/Hz @ 100 Hz; -140 dBc/Hz @ 1 kHz; -155 dBc/Hz @ 10 kHz; -165 dBc/Hz @ 100 kHz; -165 dBc/Hz @ 1 MHz;
Up-Converter SSB Phase Noise, max* (not present if SSPA)		-54 dBc/Hz @ 10 Hz; -72 dBc/Hz @ 100 Hz; -80 dBc/Hz @ 1 kHz; -90 dBc/Hz @ 10 kHz; -100 dBc/Hz @ 100 kHz; -112 dBc/Hz @ 1 MHz;
Integrated Phase Noise		1° RMS max
Output Spurious: In-band Out-of-band		< -60 dBc Complies with ETSI EN 301 428/430 and MIL-STD188-164C
Harmonics at P_{Lin2C}		< -60 dBc
AM/PM Conversion		2.0 °/dB max at P_{Lin1C}
Noise Power Density		Tx < - 80 dBm/Hz; Rx < - 155 dBm/Hz
Output RF Power Monitor		-50 dB, 1dB peak-to-peak flatness over frequency range, calibration chart provided

INTERFACES	
IF Input connector	50 Ohms N-type (F)
Input VSWR	1.4:1 max
RF Output Connector	CPR137 grooved, threaded 10-32 UNF
Output VSWR	1.3:1 max
RF Sample	50 Ohms N-type (F)
AC Power In	MS3102R14S-7P
M&C Interfaces: Ethernet, Serial RS-232, RS-422 & RS-485, Form-C	MS3112E14-19P
Redundancy	MS3112E14-19S

ENVIRONMENTAL	
Cooling systems	Forced Air
Temperature Operating Storage	 -40°C to +55°C -55°C to +85°C
Relative Humidity	100%, up to 4" of rain precipitation/hour
Altitude	10,000 ft (3,000 m) AMSL
Adiabatic Derating (Altitude Temperature Derating Factor)	5°C / 1000 m
Environmental	IP67 Rating

POWER**	
AC Voltage Range	195-265 VAC
Frequency Range	47-63 Hz
Power Consumption at P_{Sat}	3900 W

MECHANICAL**		
Dimensions (LxWxH)	28.63 x 19.00 x 6.49 in	727.2 x 482.6 x 164.8 mm
Weight	99 lb (45 kg)	

* Parameters marked with asterisk related to the BUC option
** Per single thread

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