



FEATURES

- Converts synthesized L-Band (950-1750 MHz) to the DBS-Band (17.3 - 18.1 GHz)
- Phase-locked oscillator to external 10MHz reference
- Fully meets IESS 308/309 Phase/Noise requirements
- Output power from 1 watt to 4 W
- Robust, Weatherproof package
- Power feed (DC) via coaxial cable
- Compact packaging
- Protection against thermal runaway and out-of-lock condition
- CE Marking

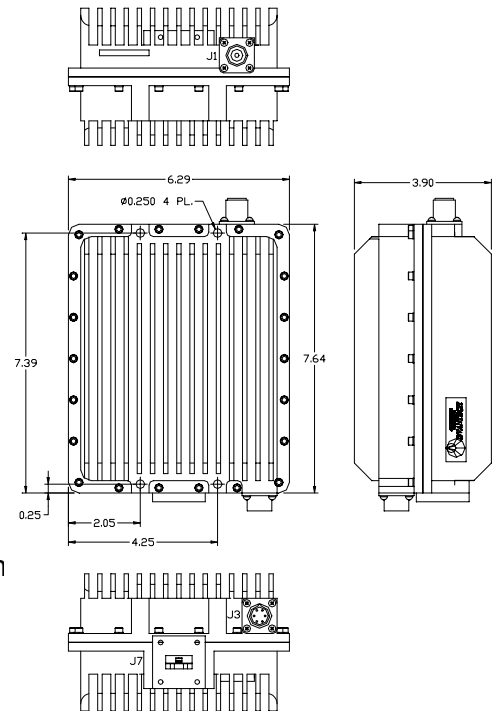
OVERVIEW

SSPB-100DBSK® is Advantech's new family of hubmount block up-converter transmitters operating in the DBS Ku-Band. The SSPB-100DBSK® BUCs are used in conjunction with either an indoor L-Band modem or transceiver. The SSPB-100DBSK® BUC is an integrated unit, complete with power supply, phase-locked oscillator, mixer, filter, amplifier and cooling mechanism.

Intended for outdoor installation and operation, the SSPB-100DBSK® is assembled in a robust self-contained weatherproof package and provides the utmost in convenience and efficiency.

ADVANTECH's hubmount SSPBs are constructed in a compact, air-cooled housing for outdoor operation. The units are weatherproof, thus a special equipment shelter is not required. They are the smallest fully integrated units on the market today.

The design of these units is based on Advantech's industry proven reliable solid state power amplifiers. Built-in design features and assembly methods incorporated with efficient combining techniques result in an amplifier with exceptional linearity and operating efficiency. The uses of high efficiency power supply and conservative thermal designs contribute to the trouble free operation of the unit. The SSPB-DBSK series Ku-Band block up-converters are powered using the coaxial cable which carries the L-Band input signal.



The SSPB-DBSK series Ku-Band block up-converters include an L-Band interface with the necessary filters to extract the reference frequency (10 MHz). The local oscillator is a PLO that locks automatically to a 10 MHz reference. The phase locked frequency source provides the LO for up-conversion. Following the mixing and filtering the solid state amplifier provides the required gain and output level.

Standard features include automatic over-temperature shutdown preceded by a thermal pre-alarm condition. Remote monitoring and control capability enhance provide for smooth operation. The RF inhibit feature, for out-of lock conditions, ensures that faulty operating conditions will not affect the satellite communications systems.

APPLICATION

The SSPB-DBSK series of DBS Band block up-converters convert an L-Band signal (950-1750 MHz) to the Ku-Band frequency of 17.3 to 18.1 GHz, without inversion. Designed for Ku-Band satellite up-link applications the SSPB-DBSK series are available in output power from 1W to 4W. The unit is self-contained and is intended for mounting outdoors, near the hub of an antenna.



DBS-BAND HUB-MOUNT SSPB (Solid State Power Block-Up Converter) 1W or 4W
SSPB-100DBSK® series



TECHNICAL SPECIFICATIONS	1W	2W	4W
Electrical Characteristics			
Availability in this series DBS	√	√	√
Output power (P _{SAT})	+31 dBm	+34 dBm	+37 dBm
Output power (P _{1dB}) min	+30 dBm	+33 dBm	+36 dBm
Conversion gain at max setting and ambient temperature	50 dB	53 dB	55 dB
Max. input power without damage	+2.0 dBm		
Input L-input frequency range	950 – 1750 MHz		
Output frequency range	17.3 – 18.1 GHz (no inversion)		
Gain flatness	±3.0 dB, max over 800 MHz		
Gain variation over temperature	±2.0 dB over full operating range		
Gain stability	±0.5 dB per day at constant temperature, frequency, an input level		
Input return loss (50 Ω)	1.5:1		
Output return loss (50 Ω)	2.0:1		
Spurious at rated power	-50 dBc, max		
AM/PM conversion	3°/dB typical (at P _{1dB})		
Third order IMD (2 tones 5MHz apart)	-24 dBc, max at 3 dB back-off from P _{1dB}		
Local Oscillator frequency (LO)	16.35 GHz		
Phase noise	- 60 dBc/Hz at 100Hz - 80 dBc/Hz at 10 kHz - 105 dBc/Hz at 1 MHz - 70 dBc/Hz at 1kHz - 90 dBc/Hz at 100 kHz		
LO leakage	-50 dBc @ O/P level = P _{1dB}		
External reference			
Note: For 1:1 redundant operation, internal 10MHz reference is recommended			
Reference frequency	10 MHz		
Reference frequency phase noise	-105 dBc/Hz at 10 Hz -135 dBc/Hz at 100 Hz -145 dBc/Hz at 1000 Hz		-150 dBc/Hz at 10 kHz -160 dBc/Hz at 100 kHz
Reference frequency level	0 dBm ± 5 dB		
Power Requirements			
Supply voltage	+20 to +60VDC supplied via coaxial cable (Auto range 20V to 60V)		
Power consumption (nominal)	25W	40W	80W
Method of Cooling	Convection		
Mechanical Characteristics			
Dimensions (L x W x H)	7.39"x 6.29" x 3.90" (18.77 x 15.97 x 9.90 cm)		
Interfaces:	RF input Type N (F) RF output WR-62 contact		
Environmental Conditions			
Temperature:	Operating	-30°C to +55°C;	
	Storage	-55°C to +85°C	
Humidity	100%, condensing		
Altitude	10,000' AMSL, de-rated 2°C/1,000' from AMSL		



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