



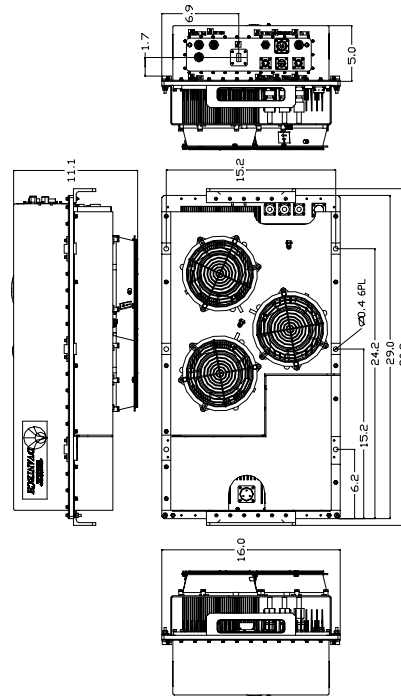
(Solid State Power Block-Up Converter)

300W to 500W
SSPB-4000C® series



Features

- Converts synthesized L-Band to C-Band (see table A)
- Integrated amplifier with an output power from 300W to 500W (see table A)
- Phase-locked oscillator to external 10MHz reference
- High linearity (low intermodulation products)
- Weatherproof package
- Remote Monitor & Control
- Protection against thermal runaway and out-of-lock conditions
- Output sample monitoring port
- Built-in power supply
- Built-in Harmonic Filter
- Compact packaging
- CE Marking



Overview

The SSPB-4000C® series are hub-mount up-converter transmitters, operating in the C-Band. The SSPB-4000C® is an integrated unit, complete with power supply, phase-locked oscillator, mixer, filter and cooling mechanism. Intended for outdoor operation, the SSPB-4000C® provides the utmost in convenience and efficiency. They are the smallest fully integrated units on the market today. Other SSPB's are also available for higher powers or for operation at other up-link frequencies.

The design of these units is based on ADVANTECH AMT™ industry proven reliable solid-state high 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 use of high efficiency power supply and conservative thermal designs contribute to the trouble-free operation of the amplifier.

Built-in microprocessor controller provides the capability for serial port interfaces (RS232/485) for remote monitoring and control.

Application

The SSPB-4000C® series convert an L-Band signal to the C-band frequency (see table A). Designed for C-Band satellite up-link applications, the SSPB C series are available in output power from 10W to 1000W. For higher power Advantech provides phase-combined systems. The SSPB-4000C® series are fully integrated units from 300W to 500W output power designed for mounting outdoors, near the hub of an antenna.

Table A

Band	RF Band (GHz)	IF Band (MHz)	Output Power (W)	LO (GHz)
CL	4.400 – 5.000	950 – 1550	300 - 400	3.450
CP	6.425 – 6.725	1025 – 1325	300 - 400	5.400
CI	6.725 – 7.025	1225 – 1525	300 - 400	5.500
CR	5.725 – 6.025	950 – 1450	300 - 500	4.775
CS	5.850 – 6.425	950 – 1525	300 - 500	4.900
CX	5.850 – 6.725	950 – 1825	300 - 400	7.675

*Other frequency sub-bands are available. Please consult factory.

Options

- Internal High Stability 10 MHz Reference
- Redundant system
- Remote M&C panel (Ethernet port optional)

Redundancy

The SSPB-4000C® series are available in redundant configuration with a single Monitor and Control interface.



Technical Specifications

300W

400W

500W

Electrical Characteristics

Availability in this series			
CS, CR	√	√	√
CX, CI, CP, CL	√	√	Note 1
Output power (P _{SAT})	+55 dBm	+56 dBm	+57 dBm
Output power (P1dB) min	+54 dBm	+55 dBm	+56 dBm
Conversion gain @ maximum setting at ambient temperature	75 dB	76 dB	77 dB
Gain adjustment range	20 dB		
Frequency range	See table A on front page		
Frequency sense	Non-inverting except for CX band (5.85 GHz – 6.725 GHz)		
Max input power without damage	+10 dBm		
Gain flatness	±2.0 dB, max over full band, 0.3 dB/10 MHz @ 25°C		
Gain variation over temperature	±1.5 dB over full operating range		
Gain variation over 24 hours	±0.25 dB max @ constant temperature & drive level		
Input Return loss	18 dB		
Output return loss	19 dB		
Noise Power Density	-70 dBm/Hz max in TX band -140 dBm/Hz in RX band		
Spurious at rated power	-60 dB, max		
Harmonics at rated power	-70 dBc max		
AM/PM conversion at rated power	2.5°/dB max. at P1dB, 1°/dB max. at 3 dB back-off		
Third order IMD (2 tones)	-26 dBc, max @ 3 dB back-off from rated P1dB		
Local oscillator frequency (LO)	See table A on front page		
LO leakage	-20 dBm		
Phase noise	-50 dBc/Hz at 10Hz	-75 dBc/Hz at 1000Hz	-95 dBc/Hz at 100 kHz
	-65 dBc/Hz at 100Hz	-85 dBc/Hz at 10 kHz	-105 dBc/Hz at 1 MHz
Group delay (over any 40 MHz):	Linear	0.02 ns /MHz, max	
	Parabolic	0.003 ns/MHz ² , max	
	Ripple	1 nsec p-p, max	

Reference (auto-switching)

Note: In case external reference is not provided, the unit will automatically switch to internal reference. For 1:1 redundant operation, internal 10MHz reference is recommended

Reference frequency	10 MHz		
Reference frequency phase noise	-115 dBc/Hz at 10 Hz		-150 dBc/Hz at 10 kHz
	-135 dBc/Hz at 100 Hz		-160 dBc/Hz at 100 kHz
	-148 dBc/Hz at 1000 Hz		
Reference frequency level	0 dBm ± 5 dB		

Power Requirements

AC input voltage	190 to 265 VAC (47-63 Hz)		
Power consumption (nominal)	1700W	2200W	2700W

Mechanical Characteristics

Dimensions (L x W x H)	35.00" x 19.50" x 14.95" (88.90 x 49.53 x 37.97 cm)					
Weight	58 kg (128 lbs)					
Interfaces:	RF input	Type N (F)	Redundancy	MS3112E16-26P	RF output	CPR137 contact (for CL series - Type N (F))
	Relay port	MS3112E12-10P	RS-232	MS3112E10-6P		
	AC Line	MS3102E20-19P	RS-485	MS3112E10-6P		

Environmental Conditions

Temperature:	Operating	-30°C to +55°C; Option: E-40°C to +55°C; G: -50°C to +50°C
	Storage	-55°C to +85°C
Humidity		100%, condensing (2" rain/hour)
Altitude		10,000' AMSL, de-rated 2°C/1,000' from AMSL

Note 1. Please refer to SSPB-5000C® product datasheet

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