

## X-Band Hub-mount SSPB

600W to 1000W  
SSPB-5000X™ series

### Features

- Converts synthesized L-Band to X-Band
- Integrated amplifier with an output power of 600W to 1000W
- 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
- Compact packaging
- CE Marking
- Built-in Receive Reject Filter (35 dB rejection @ 7.25 – 7.75 GHz)
- MIL-STD-188-164A latest revision compliant

### Overview

The SSPB-5000X series are hub-mount up-converter transmitters, operating in the X-Band. The SSPB-5000X is an integrated unit, complete with power supply, phase-locked oscillator, mixer, filter and cooling mechanism.

Intended for outdoor operation, the SSPB-5000X provides the utmost in convenience and efficiency. Other SSPBs are also available for higher powers or for operation at other up-link frequencies.

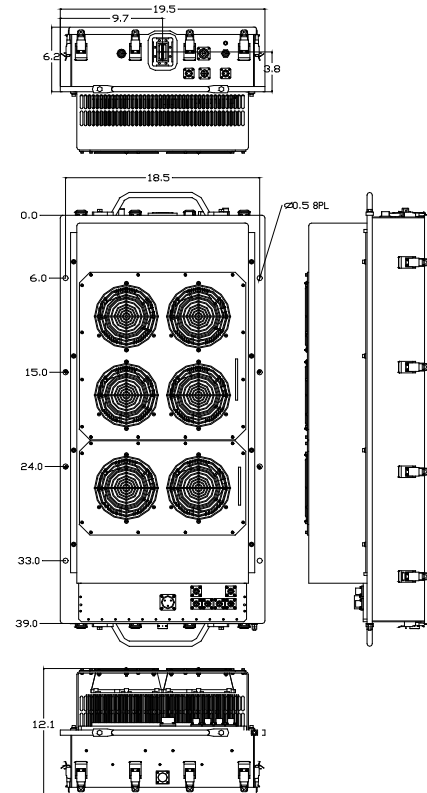
The design of these units is based on Advantech Wireless industry proven reliable solid-state high power amplifiers. Built-in design features and assembly methods incorporated with efficient combining techniques result in an amplifier with exceptional linearity and operating efficiency. The use of high 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-5000X series convert an L-Band signal to the X-band frequency. Designed for X-Band satellite up-link applications, the SSPB series are available in output power from 10W to 1000W. The SSPB5000X series are fully integrated units with 600W to 800W output power designed for mounting outdoors, near the hub of an antenna.

Advantech Wireless SSPB product line includes variety of units operating in various satellite band frequencies with full range of output power levels.



### Options

- Additional high performance external Receive Reject Filter
- Internal High Stability 10MHz Reference
- Redundant System
- Remote M&C panel (Ethernet port optional)

### Redundancy

The SSPB-5000X series are available in redundant configuration with single Monitor and Control interface.

Redundancy kits are required for redundant operation

## X-Band Hub-mount SSPB

| Technical Specifications   | 600W   | 700W  | 800W               | 1000W   |
|--|--|---|--------------------|---------|
| <b>Electrical Characteristics</b>                                      |  |   |                    |         |
| Output power (P <sub>SAT</sub> )                                       | +58 dBm  | +58.5 dBm   | +59 dBm            | +60 dBm |
| Output power (P <sub>1dB</sub> ) min                                   | +57 dBm  | +57.5 dBm   | +58 dBm            | +59 dBm |
| Conversion gain @ max gain setting                                     | 78 dB  | 78.5 dBm  | 79 dB              | 80 dB   |
| L-Band input frequency   | 950 - 1450 MHz   |   |                    |         |
| RF Output frequency  | 7.9 - 8.4 GHz  |   |                    |         |
| Gain flatness  | ± 2.0 dB max full band, 0.3 dB/10 MHz                                    |   |                    |         |
| Gain variation temperature   | 3.0 dB p-p max -30°C to +55°C  |   |                    |         |
| Gain adjustment range  | 20 dB  |   |                    |         |
| Input return loss  | 18 dB, min   |   |                    |         |
| Output return loss   | 20 dB, min   |   |                    |         |
| Noise Power Density  | -70dBm/Hz in TX band, -110 dBm/Hz in RX band                             |   |                    |         |
| Spurious at rated power  | -60 dBc, max   |   |                    |         |
| Harmonics at rated power   | -75 dBc, max   |   |                    |         |
| AM/PM conversion   | 2.5°/dB typical (at P <sub>1dB</sub> )                                   |   |                    |         |
| Third order IMD (2 tones)  | -24 dBc, max at 3 dB back-off from P <sub>1dB</sub>                      |   |                    |         |
| Local Oscillator frequency (LO)  | 6.950 GHz  |   |                    |         |
| LO leakage   | -20 dBm  |   |                    |         |
| Phase noise*   | -60 dBc/Hz at 10Hz<br>-65 dBc/Hz at 100Hz<br>-73 dBc/Hz at 1000Hz        | -83 dBc/Hz at 10 kHz<br>-93 dBc/Hz at 100 kHz<br>-110 dBc/Hz at 1 MHz                       |                    |         |
| Group Delay<br>(Over any 40 MHz):                                      | Linear<br>Parabolic 0.003 ns/MHz <sup>2</sup> , max<br>Ripple            | 0.02 ns /MHz, max   | 1 nsec p-p, max    |         |
| <b>External reference</b>  |  |   |                    |         |
| Reference frequency  | 10 MHz   |   |                    |         |
| Reference frequency phase noise  | -115 dBc/Hz at 10 Hz<br>-135 dBc/Hz at 100 Hz<br>-148 dBc/Hz at 1000 Hz  | -150 dBc/Hz at 10 kHz<br>-160 dBc/Hz at 100 kHz   |                    |         |
| Reference frequency level  | 0 dBm ± 5 dB   |   |                    |         |
| (For 1:1 redundant operation, internal 10MHz reference is recommended) |  |   |                    |         |
| <b>Power Requirements</b>  |  |   |                    |         |
| AC input voltage   | 220 VAC (47-63 Hz)   |   |                    |         |
| Power consumption (nominal)  | 3500W  | 4500W   | 5700W              | 6300W   |
| <b>Mechanical Characteristics</b>                                      |  |   |                    |         |
| Dimensions (L x W x H)   | 39" x 18.5" x 12.1" (99.00 x 47.00 x 30.70 cm)                           |   |                    |         |
| Weight (with mounting frame)   | 176 lbs (80 kg)  |   |                    |         |
| Interfaces:  | RF input Type N (F)<br>Relay port MS3112E12-10P<br>AC Line MS3102E20-19P | Redundancy MS3112E16-26P<br>RS-232 MS3112E10-6P<br>RS-485 MS3112E10-6P                      | RF output CPR-112G |         |
| <b>Environmental Conditions</b>  |  |   |                    |         |
| Temperature:   | Operating<br>Storage   | -30°C to +55°C; <i>Option 1: -40°C to +55°C; Option 2: -50°C to +50°C</i><br>-55°C to +85°C |                    |         |
| Humidity   | 100%, condensing (2" rain/hour)  |   |                    |         |
| Altitude   | 10,000' AMSL, de-rated 2°C/1,000' from AMSL                              |   |                    |         |

\* Based on internal 10MHz Reference.

Ref.: PB-SSPB-X-600W-1000W-18226

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