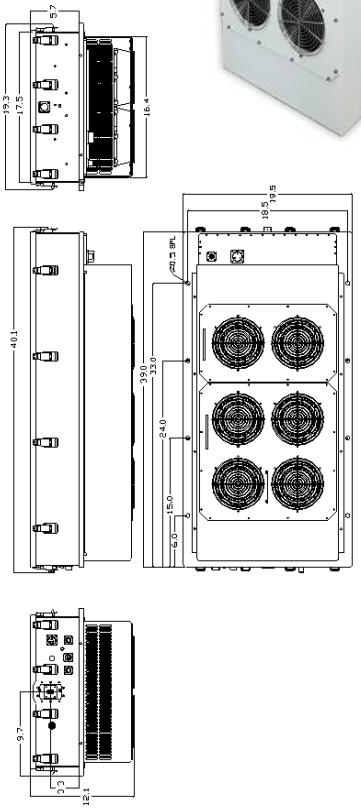
300W/ 400W/ 500W Ku-Band GaAs BUC/ SSPB/ SSPA



300W to 500W
AWM-5000K™ series
AWMA-5000K™ series

Features

- Full range of output power up to 500W in a single package
- High linearity
- Redundant ready with no external controller
- Full M&C capability via RS485 or Ethernet port
- Forward and Reflected power monitoring
- Output Sample Port
- Redundant Systems shipped fully tested, assembled and tested
- Infinite VSWR protection with automatic high reflected power shutdown
- Built-in Receiver Reject Filter
- Weatherproof construction

Overview

Advantech Wireless Ku-Band line of Amplifiers and BUCs are intended for satellite up-link applications. The design of these units is based on Advantech's proven techniques resulting in high linearity and operating efficiency. Conservative thermal design contributes to the high MTBF for these units. Full monitor and control is provided via the serial or Ethernet ports. Special features such as automatic over-temperature shutdown and high-reflected power protection contribute to a trouble free operation.

The AWM-K/AWMA-K series is available in output power from 16W to 500W. Higher power operation may be provided using external phase combining techniques offering an output power up to 800W. Please contact factory for more details.

The full set of accessories made available will facilitate the integration of these units in any application.

Redundancy

Advantech Wireless Ku-Band line of Amplifiers and BUCs may be configured to operate in 1:1 or 1:2 redundancy mode. No extra controller is required for the redundancy operation as the built-in controller in each unit provides this function. For 1:1 redundancy operation, in addition to the two units (operating and standby) a special redundancy kit is required. For 1:2 redundancy operation another redundancy kit is needed in addition to the three units. The kits include the waveguide switches, terminations, splitter, interconnecting cable assemblies and mounting frames.

Table A

Band*	RF Band (GHz)	L-Band Input for BUC (MHz)	LO for BUC (GHz)	Output Power (W)
KS	14.00 - 14.50	950-1450	13.05	300 - 500
KX	13.75 - 14.50	950-1700	12.80	300 - 500
KL	12.75 - 13.25	950-1450	11.80	300 - 500

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

Options

- 1:1 or 1:2 Redundant configuration
- Phase combined systems for higher power
- L-Band input (SSPB/BUC operation)

Accessories

- Antenna Mounting kits
- External Receive Reject Filter
- Remote M&C panel

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Table B

SSPA/SSPB (BUC) Line							
Rated Power W	Psat dBm	P1dB dBm	Gain (dB) (minimum)		Power consumption W (nominal)	Weight	Dimensions
			SSPA	BUC			
300	+55	+54	+65	+75	2500	176 lbs (80 kg)	39.00"x18.5"x12.1" 990x470x307mm
400	+56	+55	+66	+76	3500		
500	+57	+56	+67	+77	4000		

General Specifications	
Operating Frequency	See table A
L-Band input (BUC)	See table A
Output Power	See table B
Gain	See table B
Gain adjustment range	20 dB in 0.1 dB steps
Gain flatness over full band	± 1dB max (SSPA); ± 2dB max. (SSPB/BUC)
Gain slope over 40 MHz	± 0.3dB max. (SSPA); ± 0.6dB max. (SSPB/BUC)
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	1.25:1
Noise power density	-70 dBm/Hz in Transmit Band, -145 dBm/Hz in Receive band (10.95 – 12.75 GHz)
Spurious at P1dB	-65 dBc max
Harmonics	-40 dBc @ P1dB, -50 dBc @ P1dB -3 dB max (-60dBc with Ext filter)
AM/PM conversion	2.5°/dB at P1dB
Third order intermod (two tones)	-25 dBc at 3 dB total back-off from rated P1dB
Group delay	Linear: 0.02 nsec/MHz max Parabolic: 0.003 nsec/MHz^2 max Ripple : 1 nsec p-p max
Residual AM Noise	0 – 10 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 frequency	See table A
Reference frequency	10 MHz
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
External Reference Frequency phase noise (max)	-115 dBc/Hz at 10Hz -148 dBc/Hz at 1000Hz -160 dBc/Hz at 100 kHz -135 dBc/Hz at 100Hz -150 dBc/Hz at 10 kHz
Power Requirements	
AC input voltage	220 VAC 47 – 63 Hz
Power consumption	See table B
Mechanical Characteristics	
Weight & Dimensions (L x W x H)	See table B
Interfaces	Input (RF or L-Band): N type female AC line: MS3102 type Output Sample Port: N type female RS232 serial port: MS3112E10-6P RF output: WR75 cover RS485/Ethernet: MS3112 type Discrete port: MS3112E16-26P Redundancy: MS3112E14-12P
Environmental Conditions	
Temperature: Operating Storage	-30°C to +55°C Option 1: -40°C to +55 °C Option 2: -50°C to +55 °C -55°C to +85°C
Humidity	100%, condensing (2" rain/hour)
Altitude	10,000' AMSL, de-rated 2°C/1,000' from AMSL

NORTH AMERICA

USA
info.usa@advantechwireless.com

CANADA
Info.canada@advantechwireless.com

EUROPE

UNITED KNGDOM
info.uk@advantechwireless.com

RUSSIA & CIS
info.russia@advantechwireless.com

SOUTH AMERICA

info.latam@advantechwireless.com

BRAZIL
info.brazil@advantechwireless.com

ASIA

info.asia@advantechwireless.com

INDIA
info.india@advantechwireless.com