



Product Brochure

# Terrastream™ 40W Ka Wideband Block Upconverter

WBAK-040G01-0005

## Field-Proven Performance

Wavestream's Terrastream™ 40W Ka-Wideband Deck Block Up-Converter (BUC) is the newest generation of the world's most widely deployed solid state amplifier built at this power level. Wavestream delivers a full 20 Watts of linear power into the feed with a rugged unit that can be mounted directly onto the feed arm of medium aperture antennas.

The Terrastream 40W Ka-Wideband Deck BUC is designed to operate in the most extreme environments, and offers field-proven reliability to support the most demanding satellite communications applications. The Terrastream 40W Ka-Wideband Deck BUC includes L-band to Ka-band upconversion, serial / Ethernet monitor and control, adjustable attenuation and forward and reverse output power monitoring.

Weighing just 13.2 pounds, this compact unit provides the same power as its previous generation but with 52% less volume and a 60% reduction in weight.

## Features

- 20W Linear Power for Higher Data Rate Capability
- Rugged; Mounts on Feed for Simple Integration
- High Reliability
- Supports both Commercial and Military Ka Bands
- RF Frequency: 27.5 - 31.0 GHz

## Wavestream Advantages

What sets Wavestream products apart from traditional amplifier solutions is the innovative Spatial advantEdge™ technology. This unique patented technology allows for generation of higher output power in more efficient, and more compact product packages that are more reliable.

Wavestream products are optimized for Linear operation, drawing less power when backed off to help save valuable energy resources. They generate less heat, and have superior heat sinking ensuring a higher Mean Time Between Failures (MTBF) for greater reliability and lower lifecycle maintenance costs.

## Benefits

- Operates on GEO, MEO, and LEO Ka-Band Satellites
- Field proven reliability and efficiency
- Higher output power with less energy usage
- Reduced life cycle maintenance costs



Terrastream™ 40W Ka-Wideband  
BUC

# Technical Specifications

## RF Specifications

### Transmit Frequency:

Band 1: 27.5 GHz – 28.5 GHz  
Band 2: 28.25 GHz – 29.25 GHz  
Band 3: 29.0 GHz – 30.0 GHz  
Band 4: 30.0 GHz – 31.0 GHz

### IF Frequency:

Band 1: 950 MHz – 1950 MHz  
Band 2: 950 MHz – 1950 MHz  
Band 3: 950 MHz – 1950 MHz  
Band 4: 1000 MHz – 2000 MHz

### LO Frequency:

Band 1: 26.55 GHz  
Band 2: 27.3 GHz  
Band 3: 28.05 GHz  
Band 4: 29.0 GHz

### Frequency Reference

(10 MHz on IF): 0 dBm ± 5 dB

### Small Signal Gain:

70 dB ± 2.5 dB (nominal)

### Gain Adjustment:

30 dB in 0.25 dB steps (nominal)

### Gain Variation:

- Over frequency at fixed temp:  
4 dB p-p (max) over 1000 MHz
- Over temp at fixed frequency:  
3 dB p-p (max) over operating range

### Saturated Output Power:

46 dBm (nominal)

### Linear Output Power, defined by MIL-STD-188-164:

- Multi-carrier (Intermodulation):  
43 dBm
- Single-carrier (Spectral Regrowth): 43 dBm

### Phase Noise:

- 10 Hz: -33 dBc/Hz
- 100 Hz: -62 dBc/Hz
- 1 kHz: -73 dBc/Hz
- 10 kHz: -83 dBc/Hz
- 100 kHz: -95 dBc/Hz
- 1 MHz: -105 dBc/Hz
- 10 MHz: -112 dBc/Hz

### Noise Power Density Transmit:

-76 dBm/Hz (maximum)

### Noise Power Density Receive:

-156 dBm/Hz (maximum)

### Output Spurious: -55 dBc

## Physical

### Size:

13.5" L x 8.6" W x 6.5" H  
(34.3 x 21.8 x 16.5 cm)

### Weight: 13.2 lbs (6 kg)

### Operating Temperature (Ambient Air):

-40°F to +140°F  
(-40°C to +60°C)

### Relative Humidity:

100% Condensing

### Shock & Vibration:

MIL-STD-810E, method 514-4

### Altitude:

10,000 ft above sea level  
(operating)

## Interfaces

### IF Input Connector:

Type N Female

**IF Input Impedance:** 50 Ohms

### IF Input VSWR:

1.67:1 maximum

### RF Output Connector:

WR-28

### RF Output VSWR:

1.25:1 maximum

### DC Connector:

Amphenol D38999/20FC4SN

### M&C Connector:

Samtec  
SFSD-20-28-G-06.00-DR-NDX

### M&C Protocol:

Serial RS-485 (SA-bus)  
or Ethernet (OpenBMIP, SNMP,  
UDP, WebGUI)

## Power

### DC Power:

48 VDC

### DC Power Draw:

350W maximum (at Linear  
Output Power)

## Base Model

WBAK-040G01

## About Gilat Wavestream

Gilat Wavestream sets the standard in the design and manufacture of next generation high power solid state amplifiers. Wavestream's Family of Ka, Ku and X-band Solid State Power Amplifiers (SSPAs), Block Upconverters (BUCs) and transceivers provide systems integrators with field-proven, high performance solutions designed for ground mobile and fixed, gateway and airborne satellite communication systems worldwide.

These items are subject to the Export Administration Regulations (EAR), 15 C.F.R. Parts 730-774, and may not be exported or transferred to any non-U.S. person, except as authorized by the U. S. Department of Commerce.

All registered trademarks are the property of their respective companies. This brochure is being provided for informational purposes only. The details contained in this document, including product and feature specifications, are subject to change without notice and shall not bind Wavestream to a specific product or set of features related thereto.

## Contact Us

545 West Terrace Drive  
San Dimas, California 91773 USA  
T. +1 909 599 9080  
F. +1 909 599 9082

**www.wavestream.com**  
**sales@wavestream.com**

