Product Brochure

Terrastream™ 20W / 40W Ka Dual-Band Block Upconverter

WBAD-020G01 / WBAD-040G01

Field-Proven Performance

Wavestream's Terrastream™ 20W and 40W Ka Dual-Band GaN Block Upconverters (BUC) lead the Industry in linear power for a feedmount-ready package, ensuring the maximum available power at the feed flange.

These amplifiers provide the ability to cover multiple frequency bands with a switchable upconverter in an Industry-leading small, rugged, outdoor package. The Ka Dual-Band BUC offers 30 dB of step attenuation, serial communication for Monitor and Control, and DC input power.

Features

- 40W Ka-band BUC providing >20W of linear power
- 20W Ka-band BUC providing >10W of linear power
- State of the art GaN Technology
- Ruggedized package weighing 3.5 lb (1.6 kg)
- Covers Commercial and Military Bands in 1000 MHz bands

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

- Higher output power with less energy usage
- Proven reliability and efficiency
- Reduced lifecycle maintenance costs
- Compact footprint to meet critical space and weight limitations

20W / 40W Ka Dual-Band Terrastream™ BUC

Technical Specifications

RF Specifications	20W BUC	40W BUC
Saturated Output Power:	+43 dBm (nominal)	+46 dBm (nominal)
Linear Output Power - (Band 1): **- Spectral Regrowth** DVB-S2 waveform using 8PSK, symbol rate 5.0MSymb/sec with roll off of 25% @1.5 times the symbol rate: -25 dBc	> +40.0 dBm	> +43.0 dBm
Linear Output Power (Band 2), defined by MIL-STD-188-164: **- Spectral Regrowth** (For QPSK at 1.5x and OQPSK at 1.0x rate offset at 3 dB back-off from Saturated Output Power): -30 dBc	> +40.0 dBm	> +43.0 dBm
- Third Order Intermodulation: (Third order intermodulation product relative to combined power of two carriers at 3 dB total power back-off from Saturated Output Power): -25 dBc	> +40.0 dBm	> +43.0 dBm

RF Specifications

Transmit Frequency:
Band 1: 29.0 GHz - 30.0 GHz
Band 2: 30.0 GHz - 31.0 GHz
IF Frequency:
Band 1: 950 MHz - 1950 MHz
Band 2: 1000 MHz - 2000 MHz
Frequency Reference (10 MHz on IF):
0 dBm ± 5 dB
Small Signal Gain:
57 dB (nominal)
Gain Adjustment:
30 dB in 0.25 dB steps nominal
Gain Variation:
- Over frequency at fixed temp: 3 dB p-p over 1000 MHz
- Over temp at fixed frequency: 3 dB p-p over operating range

Saturated Output Power:
+41.5 dBm (nominal)

Phase Noise:
- 10 Hz: -32 dBc/Hz
- 100 Hz: -62 dBc/Hz
- 1 kHz: -72 dBc/Hz
- 10 kHz: -82 dBc/Hz
- 100 kHz: -92 dBc/Hz
- 1 MHz: -102 dBc/Hz
- 10 MHz: -112 dBc/Hz

Noise Power Density Transmit:
-75 dBm/Hz (maximum)
Noise Power Density Receive:
-156 dBm/Hz (maximum)
Output Spurious: -60 dBc

Interfaces

IF Input Connector:
Type N Female
IF Input Impedance: 50 Ohms
IF Input VSWR:
1.5:1 maximum
(950 MHz - 1950 MHz)
2.0:1 maximum
(1000 MHz - 2000 MHz)
RF Output Connector: WR-28
RF Output VSWR:
1.3:1 maximum
DC Connector and M&C Connector:
12-Pin MIL Circular or optional Bias on IFL
M&C Protocol:
Serial RS-485 (SA-bus)

Power

DC Power: 22V - 48V, on 12-pin connector
DC Power Draw:
< 80W (typical)
(at Linear Output Power)

Physical

Size:
20W: 9" L x 3.6" W x 2.4" H (22.9 x 9.1 x 6.1 cm)
40W: TBD
Weight:
20W: 3.5 lbs (1.6 kg) maximum
40W: TBD
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)

Options

M&C Protocol: Serial RS-232, Contact factory for ethernet options
Other Colors are available.

Base Models

20W: WBAD-020G01
40W: WBAD-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.

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

Gilat Wavestream

DCP0000396_A
4/15/2025