



Ku-Band PowerPlus Transceivers

PowerPlus Advantages

Guaranteed rated output power across the entire operating temperature range and frequency band.

Low phase noise.
Exceeds IESS308/309 requirements by a minimum of 5 dB.

Multiple transponder operation with a single ODU.

Compact single enclosure design eliminates external booster amplifier and waveguide.

Full Monitor and Control Capabilities

- FSK through TX IFL
- RS/485 Serial Port

Available in standard and extended Ku bands.

Designed for reliability, high performance, and low cost.

Tested over -40 to +60 degrees C operating temperature range.

Temperature compensation minimizes gain variations over temperature.



Terrasat's PowerPlus L-band to Ku-band Transceivers are the most powerful in their class. Terrasat guarantees the rated output power across the 500 MHz operating band from -40 to +60 degrees C. The BUC and SSPA are combined into a single, compact package for an easier and more reliable installation. Integrated M&C via FSK on the IFL cable and RS485 serial port with our bundled BUCMon software complete the package. An optional Interface Unit (IFU) adds an Ethernet port and unlocks a broad range of system configurations and enhanced M&C capability including AGC, slope equalization, and transmit system auto-calibration.

The PowerPlus transceiver line consists of satcom Block Upconverters (BUC), Low Noise Block converters (LNB), Interface Units (IFU), and a range of power supplies. The PowerPlus BUC is designed to interface with any of a growing number of L-band modems. A single coaxial InterFacility Link cable carries L-band IF (950-1450 MHz), an external 10 MHz frequency reference, FSK carrier with M&C, and a DC supply voltage (8W or lower BUC).

L-band to Ku-band block conversion allows transmission and reception of all transponders on the satellite enabling multiple transponder operation with a single Outdoor Unit (ODU). The Ku-band PowerPlus BUC is available in power levels from 2W through 20W with rated output power guaranteed at P1dB over the entire specified operating range.

L-band technology simplifies the ODU design resulting in fewer components, lower cost, higher reliability, higher performance, and easier installation. The compact package makes direct feedhorn mounting possible. A universal mounting bracket is available for higher power BUCs and power supplies.

All Terrasat L-band products are manufactured in our Morgan Hill, CA facility and undergo rigorous testing and burn-in so that you are assured of a high quality product.

Ku-Band PowerPlus Transceiver Specifications

Electrical - Block Upconverter

Input Connector (L-band IF, external reference, PSK, and DC)	N-type Female	
IF Input VSWR / Impedance	1.5:1 max / 50 ohms	
IF Input Frequency	950-1450 MHz	
External Reference Input	10 MHz @ -8 dBm to +3 dBm	
RF Output Interface	WR-75 Coax with groove	
RF Output Frequency - Extended Ku-band	13.75-14.25 GHz	
Standard Ku-band	14.00-14.50 GHz	
Rated Output Power (P1dB across temperature range and operating band)		
2W	+33 dBm	
4W	+36 dBm	
8W	+39 dBm	
16W	+42 dBm	
20W	+43 dBm	
IMD3 (2 carriers, 30KHz apart, each at rated power minus 9 dB)	<-30 dBc	
In-band Spurious	<-23 dBm	
Small Signal Gain (IF to RF)		
2W	54 dB min.	
4W	57 dB min.	
8W	60 dB min.	
16W	63 dB min.	
20W	64 dB min.	
Gain Flatness (500 MHz, 16 MHz, 1 MHz)	3.4B, 1 dB, 0.25 dB p-p max.	
Gain Variation over Temperature	3.4B p-p max.	
SSB Phase Noise - Offset	External Reference	RF Output
10 Hz	-120 dBc/Hz	-35 dBc/Hz
100 Hz	-130 dBc/Hz	-45 dBc/Hz
1 kHz	-143 dBc/Hz	-75 dBc/Hz
10 kHz	-152 dBc/Hz	-85 dBc/Hz
100 kHz	-155 dBc/Hz	-95 dBc/Hz
1 MHz	-155 dBc/Hz	-110 dBc/Hz
RS 485 / PSK Protocol	9600 baud, 8 data bits, no parity, 1 stop bit	
Serial Port Interface	7 Pin Female Circular Connector	
DC Input Connector (16 & 20W)	7 Pin Male Circular Connector	
BUC DC Supply	+24 +/-4 VDC	or +48 +/-11 VDC
2W	1.8A max @ 24VDC	1.0A max @ 48VDC
4W	3.6A max @ 24VDC	1.5A max @ 48VDC
8W	na	3.0A max @ 48VDC
16W	na	6.5A max @ 48VDC
20W	na	7.5A max @ 48VDC
Electrical - LNB		
RF Input Interface	WR-75 Coax with groove	
RF Input Frequency		
Band 1	10.95-11.70 GHz	
Band 2	11.70-11.20 GHz	
Band 3	12.25-12.75 GHz	
Noise Figure	75 deg. K max at 25 deg. C	
IF Output Connector	F-type Female	
External Reference Input	10 MHz @ 0 to -10 dBm	
IF Output Frequency - Band 1	950-1700 MHz	
IF Output Frequency - Band 2 & 3	950-1450 MHz	
1 dB Compression Point (P1dB)	+5 dBm min.	
Small Signal Gain (at 25 deg. C)	55 dB min.	
SSB Phase Noise - Offset	External Reference	RF Output
100 Hz	-134 dBc/Hz	-63 dBc/Hz
1 kHz	-144 dBc/Hz	-73 dBc/Hz
10 kHz	-152 dBc/Hz	-83 dBc/Hz
100 kHz	-155 dBc/Hz	-93 dBc/Hz
Environmental / Mechanical		
Operating Temperature	-40 deg. C to +60 deg. C	
	Size	Weight
2W-4W BUC	12.4"(L)x7.2"(W)x3.51"(H)	11 lbs. (5Kg)
8W-20W BUC	13.2"(L)x7.2"(W)x3.93"(H)	19 lbs. (8.6Kg)
LNB	6.5"(L)x2.7"(W)x1.7"(H)	0.8 lbs. (0.36Kg)
ODU Power Supply without fan	12.2"(L)x7.2"(W)x2.8"(H)	12.5 lbs. (5.7Kg)
ODU Power Supply with fan	12.2"(L)x7.2"(W)x2.7"(H)	15.5 lbs. (7Kg)

*Specifications are subject to change without notice.

External Data Sheet 02/20/03



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