TERRASAT Communications, Inc.

C-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 10 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
- RS485 Serial Port

Available in standard, Palapa, or Insat 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 C-band Transceivers are the most powerful in their class. Terrasat guarantees the rated output power across the 575 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 (950-1525 MHz), an external 10 MHz frequency reference, FSK carrier with M&C, and a DC supply voltage (10W or lower BUC).

L-band to C-band block conversion allows transmission and reception of all transponders on the satellite enabling multiple transponder operation with a single Outdoor Unit (ODU). The C-band PowerPlus BUC is available in power levels from 5W through 60W 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.

C-Band PowerPlus Transceiver Specifications

Electrical - Block Upconverter			
Input Connector (L-band IF, external reference, FSK, and DC)			N-type Female
IF Input VSWR / Impedance			1.5:1 max / 50 ohms
IF Input Frequency - Standard C-band / Palapa, Insat C-band			950-1525 MHz / 1150-1450 MHz respectively
External Reference Input			10 MHz @-8 dBm to +3 dBm
RF Output Interface			CPR-137G
RF Output Frequency - Standard C-band			5.850-6.425 GHz
Palapa C-band			6.425-6.725 GHz
Insat C-band			6.725-7.025 GHz
Rated Output Power (P1dB across temperature range and operating band)			
5W			+37 dBm
10W			+40 dBm
20W			+43 dBm
40W			+46 dBm
60W			+47.8 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)			
5W			58 dB min.
10W			61 dB min.
20W			64 dB min.
40W			67 dB min.
60W			69 dB min.
Gain Flatness (575 MHz, 36 MHz, 1 MHz)			3 dB, 1 dB, 0.25 dB p-p max.
Gain Variation over Temperature			3 dB p-p max.
SSB Phase Noise - Offset	External Reference		RF Output
10 Hz	-120 dBc/Hz		-35 dBc/Hz
100 Hz	-130 dBc/Hz		-72 dBc/Hz
1 kHz	-143 dBc/Hz		-82 dBc/Hz
10 kHz	-152 dBc/Hz		-90 dBc/Hz
100 kHz	-155 dBc/Hz		-100 dBc/Hz
1 MHz	-155 dBc/Hz		-110 dBc/Hz
RS-485 / FSK Protocol			9600 baud, 8 data bits, no parity, 1 stop bit
Serial Port Interface			7 Pin Female Circular Connector
DC Input Connector (20W & above)			7 Pin Male Circular Connector
BUC DC Supply	+24 +/-4 VDC	or	+48 +/-11 VDC
5W	2.7A max @ 24VDC		1.4A max @ 48VDC
10W	4.5A max @ 24VDC		2.3A max @ 48VDC
20W	na		5.0A max @ 48VDC
40W	na		7.5A max @ 48VDC
60W	na		9.5A max @ 48VDC
Electrical - LNB			
RF Input Interface	CPR-229G		
RF Input Frequency			
Standard C-band	3.625-4.200 GHz		
Palapa C-band	3.400-4.200 GHz		
Insat C-band	4.500-4.800 GHz		
Noise Figure	35 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 - Standard C-band	950-1525 MHz		
IF Output Frequency - Palapa / Insat bands	950-1725 MHz / 960-1260 MHz respectively		
1 dB Compression Point (P1dB)	0 dBm min		
Small Signal Gain (at 25 deg. C)	59 dB min		
SSB Phase Noise - Offset	External Reference		RF Output
100 Hz	-134 dBc/Hz		-65 dBc/Hz
1 kHz	-144 dBc/Hz		-75 dBc/Hz
10 kHz	-152 dBc/Hz		-85 dBc/Hz
100 kHz	-155 dBc/Hz		-90 dBc/Hz
Environmental / Mechanical			
Operating Temperature	-40 deg C to +60 deg C		
	Size		Weight
5W-10W BUC	13.5"(L)x7.2"(W)x3.9"(H)		11 lbs. (5Kg)
20W-60W BUC	14.2"(L)x7.2"(W)x7.93"(H)		18 lbs. (8.2Kg)
LNB	7.5"(L)x3.9"(W)x2.8"(H)		1.1 lb. (0.5Kg)
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)x7.2"(H)		15.5 lbs. (7Kg)

*Specifications are subject to change without notice

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TERRASAT Communications, Inc.

SATCOM SERVICES
www.satcom-services.com
Mike Termondt
mike@satcom-services.com
Phone: 1.805.649.1384
Fax: 1.805.649.1174