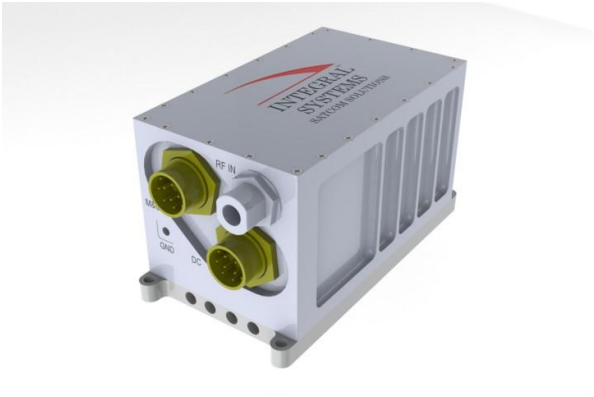
Ku-Band 40W Block Upconverter

THE INTEGRAL DIFFERENCE

COMMAND + CONTROL | SIGNAL PROCESSING + DATA COMM. | ENTERPRISE NETWORK MGMT. | COMM. INFO ASSURANCE | SERVICES

Overview

Integral Systems SATCOM Solutions division's family of Solid State Power Amplifiers and Block Upconverters are a breakthrough in size and weight reduction. This new series takes Integral Systems already industry-leading size and weight and reduces it significantly, allowing very compact systems for commercial transportable, satellite on-the-move, and also any size/weight-constrained systems.



These units offer 65dB minimum gain with temperature compensation, output power monitor with RS422 (serial communication) readout, monitor and control processor, discrete transmit/mute control, , fault protection and reporting for over-temperature, over-voltage or over-current, or loss of phase lock.

The integrated BUC with SSPA eliminates all calibration and coordination challenges of mounting, powering, communicating with, and coordinating two separate BUC and SSPA units. The outstanding efficiency of Integral Systems SSPAs and BUCs greatly reduce heat generation and power consumption, simplifying system integration challenges. Further, the smaller size, lower power, and less demanding heat management can lead to significant reductions in system cost and development effort.

Features

- Remarkably Small Size:
  - 5.25" x 3.15" x 3.25", 3.9 lbs. (component configuration)
  - 6.61" x 3.46" x 7.07", 6.0 lbs. (outdoor configuration)
- Integrated L-Band to Ku-Band Upconverter plus Power Amplifier
- Ku (14.0-14.5 GHz) or extended Ku (13.75-14.5 GHz)
- Ultra efficiency: 240W consumption (@40W RF out)
- Forward/Reverse Power Monitor and Control processor
- Gain vs. Temp. compensation
- Integrated heat-pipe baseplate
- Environmentally sealed
- Optional internal power supply

Fan Cooling and Integrated Power Supply

The base component-type configuration is a component-only configuration which requires external cooling and power supply. Option FA is an optional fan-cooling accessory; when combined with the integrated 18V-60VDC power supply, this forms a complete, plug-and-play outdoor unit. In all cases this component unit is also fully environmentally sealed and ready for outdoor use. Due to the extremely low power consumption and heat dissipation, the cooling and power supply are tiny and very low cost. Total weight with these accessories is still under 6.0 pounds, less than any competitive solution.

SPECIFICATIONS SUBJECT TO CHANGE

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INTEGRAL SYSTEMS

Ku-Band 40W BUC Electrical & Mechanical Specifications

RF Parameters	Specification			
Output Frequency Band	14.0-14.5GHz (13.75-14.5GHz for extended Ku model). Other bands available from 12.6GHz to 18.5GHz; contact factory			
Input Frequency Band	950-1450MHz (950-1700MHz for extended Ku model)			
Power Output	40W			
AM/PM Conversion @ 2dB below rated power	2.5˚/dB			
F & R Power Monitor (15 dB Range)	+/- 0.25dB			
Conversion Gain	65dB			
Gain Variation over Frequency Band	6dB max.			
Gain Variation over any 40MHz	2dB max.			
Gain Variation over Temperature	3dB max.			
Noise Figure	15dB			
Input VSWR	1.5:1			
Output VSWR	2:1			
Spurious	-55dBc			
2nd Harmonic @ 3dB below rated pwr.	-45dBc			
Phase Noise	Offset	dBc/Hz	Offset	dBc/Hz
	1kHz	-72	100KHz	-92
	10kHz	-82	1MHz	-102
Monitor & Control Parameters	**Specification**			
Discrete Mute Control Voltage ranges	enable:0-1.0V; mute:4.0-5.0V; has internal 10kohm pull-down to 0V			
Thermal Shutdown Control threshold	+85°C			
Temperature Monitor Accuracy	+/- 3°C			
Input Power Parameters	**Specification**			
With 28VDC integrated power supply With 48VDC integrated power supply	20-36VDC 36-56VDC			
Power consumption:	265 Watts at 40W out, 235 Watts at 3dB backoff			
Environmental/Physical Parameters	**Specification**			
Operating Temperature	-40°C to +70°C baseplate internal temp in component configuration -40°C to +60°C ambient air in fan-cooled configuration			
Storage Temperature	-54°C to +105°C			
RF input connector	Type N			
RF output connector	WR-75			
Power Connector	MIL-26482 Series 1 receptacle, Shell size 12, 4 pins			
Monitor/Control Connector	MIL-26482 Series 1 receptacle, Shell size 12, 10 pins			
Outline Dimensions	6.3” x 3.15” x 4.0” with integrated power supply 6.3” x 3.15” x 7.4” with supply and fan cooling			
Weight	4.4 lbs. with integrated power supply 6.0 lbs. with supply and fan cooling			