





## RT LOGIC UPCONVERTERS

### OVERVIEW





RT Logic provides a variety of Upconverter modules as standard Commercial-Off-The-Shelf (COTS) products. These modules are designed for use within the T400 line of chassis, and are easily combined with our modular signal processing and modem products. The Upconverter modules are hot-swappable and interchangeable; any version of an Upconverter or Downconverter module can be installed within any Radio Frequency (RF) slot of a T400 chassis.

Block Upconverter modules provide conversion from an L-band, 720 MHz, or 1200 MHz Intermediate Frequency (IF) to the selected RF output band. Frequency-agile tunable modules provide conversion from a 70 MHz IF to S-band or L-band. The L-band outputs from the Frequency-agile Upconverters are directly compatible with the L-band inputs of the Block Upconverter modules.

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	Ku-Band Block	X-Band Block	720 MHz To X-Band	1200 MHz To X-Band
Input Frequency	950 MHz To 1700 MHz	950 MHz To 1450 MHz	520 MHz To 920 MHz	1000 MHz To 1400 MHz
Output Frequency	13.75 GHz To 14.5 GHz	7.9 GHz To 8.4 GHz	8.02 GHz To 8.42 GHz	8.0 GHz To 8.4 GHz
Frequency Step Size	NA	NA	NA	NA
Gain	31 dB	20 dB $\pm$ 3 dB	20 dB	20 dB
Gain Adjustment	25 dB Range In 0.2 dB Steps	35 dB In 0.5 dB Steps	40 dB In 1 dB Steps	40 dB In 1 dB Steps
Output Compression Point	+15 dBm	+13 dBm	+7 dBm	+7 dBm
Amplitude Response	$\pm$ 0.25 dB Over 85 MHz	$\pm$ 1.0 dB Over 120 MHz	$\pm$ 2 dB Over 200 MHz	$\pm$ 2 dB Over 200 MHz
Group Delay Variation	$\pm$ 1 ns Over 85 MHz	$\pm$ 1 ns Over 120 MHz	$\pm$ 1 ns Over 350 MHz	$\pm$ 1 ns Over 350 MHz
SSB Phase Noise	10 Hz	-45 dBc/Hz	-65 dBc/Hz	-70 dBc/Hz
	100 Hz	-70 dBc/Hz	-70 dBc/Hz	-80 dBc/Hz
	1 kHz	-78 dBc/Hz	-72 dBc/Hz	-87 dBc/Hz
	10 kHz	-90 dBc/Hz	-73 dBc/Hz	-95 dBc/Hz
	100 kHz	-105 dBc/Hz	-110 dBc/Hz	-125 dBc/Hz
	1 MHz	-115 dBc/Hz	-124 dBc/Hz	-135 dBc/Hz
	10 MHz	-125 dBc/Hz	-128 dBc/Hz	-140 dBc/Hz
DSB Integrated Phase Jitter (100 Hz To 10 MHz)	1.4° RMS	1.4° RMS	0.3° RMS	0.3° RMS
Spurious (Signal-Related)	-65 dBc In-Band, -60 dBc (0.1 to 20 GHz)	-90 dBc At 0 dBm Out	> -60 dBc	> -60 dBc
Spurious (Non-Signal Related)	-70 dBm In-Band	> -90 dBm	> -60 dBm	> -60 dBm
Gain Stability	$\pm$ 0.25 dB Over 24 Hours	$\pm$ 0.25 dB Over 24 Hours	$\pm$ 0.25 dB Over 24 Hours	$\pm$ 0.25 dB Over 24 Hours
Spectrum Inversion	Non-Inverting	Non-Inverting	Non-Inverting	Non-Inverting

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(CONTINUED)**

	<b>C-Band Block</b> 	<b>S-Band Agile</b> 	<b>L-Band Agile</b> 	<b>UHF</b> 
Input Frequency	950 MHz To 1525 MHz	50 MHz To 90 MHz	70 MHz	70 MHz
Output Frequency	5.85 GHz To 6.425 GHz	1650 MHz To 2400 MHz	950 MHz To 2150 MHz	243 MHz To 318 MHz
Frequency Step Size	NA	1.0 MHz	1.0 MHz	1.0 MHz
Gain	20 dB	15 dB	10 dB Max	30 dB
Gain Adjustment	Fixed	30 dB Range	30 dB In 1 dB Steps	63 dB Range In 1 dB Steps
Output Compression Point	+10 dBm	10 dBm	+6 dBm	11 dBm
Amplitude Response	±0.5 dB Over 85 MHz	±1 dB Over 36 MHz	±1.5 dB Over 36 MHz	±0.5 dB Over 8 MHz
Group Delay Variation	±1 ns Over 85 MHz	±0.5 ns Over 1 MHz	±0.5 ns Over 1 MHz	TBD
SSB Phase Noise	10 Hz	-55 dBc/Hz	-70 dBc/Hz	-65 dBc/Hz
	100 Hz	-75 dBc/Hz	-90 dBc/Hz	-75 dBc/Hz
	1 kHz	-85 dBc/Hz	-95 dBc/Hz	-85 dBc/Hz
	10 kHz	-92 dBc/Hz	-94 dBc/Hz	-94 dBc/Hz
	100 kHz	-105 dBc/Hz	-92 dBc/Hz	-97 dBc/Hz
	1 MHz	-115 dBc/Hz	-119 dBc/Hz	-122 dBc/Hz
	10 MHz	-125 dBc/Hz	-132 dBc/Hz	-135 dBc/Hz
DSB Integrated Phase Jitter (100 Hz To 10 MHz)	0.65° RMS	1.4° RMS	1.2° RMS	1.2° RMS
Spurious (Signal-Related)	-60 dBc In-Band	-60 dBc In-Band	-60 dBc In-Band	-70 dBc In-Band
Spurious (Non-Signal Related)	-90 dBm In-Band	-65 dBm In-Band	-80 dBm In-Band	-60 dBm In-Band
Gain Stability	±0.25 dB Over 24 Hours	±0.25 dB Over 24 Hours	±0.25 dB Over 24 Hours	±0.25 dB Over 24 Hours
Spectrum Inversion	Non-Inverting	Non-Inverting	Non-Inverting	Non-Inverting

RT Logic Upconverters (and associated CPU, Downconverters, and processing products) are typically packaged in a 1U, 2U, or 5U cPCI chassis. The 2U version is pictured here.



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