

Falcon Series Frequency Converter Module

L-Band to Ku-Band Block Upconverter

L-Band to Ku-Band block upconverter module with variable gain and slope.

The 1U chassis has the capacity for up to four hot-swap frequency converter modules. These can be all upconverters, all downconverters or a mix of both.

Frequency Converter Module



Frequency Converter Module

Compact form factor allowing multiple modules to be housed in the Genus chassis. Each module occupies 4 slots in the chassis.

Redundancy Configurations

Field-replaceable 2+1 or 1+1 redundant configuration

Hot Swap & Replaceable

RF Frequency Converter modules

Variable Gain & Slope

For balancing input signals.

Frequency Conversion

Up conversion from L-Band to Ku-Band.

Chassis Options

Local control & monitoring

via HMI high resolution touchscreen

Resilience

from dual redundant hot-swap power supplies & field replaceable CPU & HMI

Compact indoor & outdoor

chassis options, which can be part populated

Secure protocols

with SNMPv3 and HTTPS

Flexible Module Configurations

choose from a mixture of up and down converters with different operating frequencies.

Remote control & monitoring

via RJ45 Ethernet port with SNMP & web browser interface

Field replaceable Internal reference source

and external reference inject port with auto detection



Indoor Chassis



Outdoor Unit

Frequency Upconverter Module - RF Parameters		
Model Numbers	FN-U-K1L1-24407AA-XXXX	
Size	4 slots wide	
Redundancy	Supported (based on chassis configuration)	
Input Frequency Range	1150—2150 MHz	
Output Frequency Range (User selectable frequency range via software command)	Mode 1: 12.75—13.75 GHz or Mode 2: 13.5—14.5 GHz (user selectable)	
Mean Conversion Gain	Max. 35 ± 2.0 dB / Min. 0 ± 2.0 dB	
Gain Step Size	0.25 ± 0.15 dB	
Gain Flatness	Full band: ± 1.5 dB Any 40MHz: ± 0.3 dB	
Slope Compensation	0—6 dB (Pivot Point 2150 MHz)	
Slope Control Steps	1 dB	
Input Return Loss (L-band)	Typ. - 18 dB / Min. -14 dB	
Output Return Loss (Ku-band)	Typ. -18 dB / Min. -14 dB	
Noise Figure At max. gain	Typ. 10 dB / Max 12 dB	
Input Power Range	-75 to -30 dBm	
OP1dB At max. gain	Typ. +12 dBm / Min. +10 dBm	
OIP3 At max. gain	Typ. +22 dBm / Min. +20 dBm	
Internal Reference Stability	$\pm 5 \times 10^{-8}$ over 0 to 50°C	
Phase Noise (Typical Values)	@10 Hz offset	-70 dBc / Hz
	@100 Hz offset	-80 dBc / Hz
	@1 KHz offset	-90 dBc / Hz
	@10 KHz offset	-98 dBc / Hz
	@100 KHz offset	-101 dBc / Hz
	@1 MHz offset	-110 dBc / Hz
Spurs In-band (Measured at -5 dBm output)	Carrier related (>1MHz offset)	< -60 dBc
	Non-carrier related	< -60 dBm
Spurs Out-of-band (Measured at -5 dBm output)	Carrier Related	< -60 dBc
	Non-carrier related	<-80 dBm
LO Breakthrough	< -80 dBm	
Image Rejection	> 60 dB typical	
External Reference Input Frequency	10MHz or 100MHz (auto detection)	
External Reference Input Level	+3 dBm ± 3 dB	
Mute	60 dB	
Number of conversion stages	Dual	
Spectral Inversion	Non-inverting	
IF Monitor	Yes. Internal RF detector monitored	
Spec version	0.1	

Frequency Upconverter Module - RF Parameters		
Model Numbers	FN-U-K1L1-24407AB-XXXX	
Size	4 slots wide	
Redundancy	Supported (based on chassis configuration)	
Input Frequency Range	Mode 1: 950—1950 MHz or Mode 2: 950—1700 MHz (user selectable)	
Output Frequency Range (User selectable frequency range via software command)	Mode 1: 12.75—13.75 GHz or Mode 2: 13.75—14.5 GHz (user selectable)	
Mean Conversion Gain	Max. 35 ± 2.0 dB / Min. 0 ± 2.0 dB	
Gain Step Size	0.25 ± 0.15 dB	
Gain Flatness	Full band: ±1.5 dB Any 40MHz: ±0.3 dB	
Slope Compensation	0—6 dB (Pivot Point 2150 MHz)	
Slope Control Steps	1 dB	
Input Return Loss (L-band)	Typ. - 18 dB / Min. -14 dB	
Output Return Loss (K-band)	Typ. - 18 dB / Min. -14 dB	
Noise Figure At max. gain	Typ. 10 dB / Max 12 dB	
Input Power Range	-75 to -30 dBm	
OP1dB At max. gain	Typ. +12 dBm / Min. +10 dBm	
OIP3 At max. gain	Typ. +22 dBm / Min. +20 dBm	
Internal Reference Stability	± 5 x 10-8 over 0 to 50°C	
Phase Noise (Typical Values)	@10 Hz offset	-70 dBc / Hz
	@100 Hz offset	-80 dBc / Hz
	@1 KHz offset	-90 dBc / Hz
	@10 KHz offset	-98 dBc / Hz
	@100 KHz offset	-101 dBc / Hz
	@1 MHz offset	-110 dBc / Hz
Spurs In-band (Measured at -15 dBm output)	Carrier related (>1MHz offset)	< -60 dBc
	Non-carrier related	< -60 dBm
Spurs Out-of-band (Measured at -15 dBm output)	Carrier Related	< -60 dBc
	Non-carrier related	< -80 dBm
LO Breakthrough	< -80 dBm	
Image Rejection	> 60 dB typical	
External Reference Input Frequency	10MHz or 100MHz (auto detection)	
External Reference Input Level	+0dBm ± 10dB	
Mute	60 dB	
Number of conversion stages	Dual	
Spectral Inversion	Non-inverting	
IF Monitor	Yes. Internal RF detector monitored	
Spec version	0.2	

Note 1: The specification is subject to regular reviews and will be updated from time to time as part of our continuing product development and improved spec accuracy.

Note 2: Operation beyond the quoted limits stated above may cause instantaneous and permanent damage.

Note 3: All specs are for 50 Ohm connectors unless detailed otherwise.