

Falcon Series Frequency Converter Module

L-Band to C-Band Block Upconverter

L-Band to C-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 C-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-C2L1-24440AA-XXXX	SWF-G1S-KX-109A-xxxx	SWF-G1S-KX-115-xxxx
Size		4 slots wide	4 slots wide	4 slots wide
Redundancy		Standalone module	1+1 (Note: This column denotes specs for 24440 in 1+1 configuration)	2+1 (Note: This column denotes specs for 24440 in 2+1 configuration)
Input Frequency Range		1150 - 2150 MHz		
Output Frequency Range		Mode 1 5725—6725 MHz Mode 2 5850—6850 MHz		
Conversion Gain		Max. 35 ± 1.5 dB / Min 5 ± 1.5 dB	Max. 33.9 ± 1.8 dB / Min 3.9 ± 1.8 dB	Max. 34 ± 2.1 dB / Min 4 ± 2.1 dB
Gain Step Size		0.25 ± 0.15 dB		
Gain Flatness (50 Ohm)		Full IF band: ±1.5 dB Any 40MHz: ±0.25 dB	Full IF band: ±1.8 dB Any 40MHz: ±0.55 dB	Full IF band: ±2.1 dB Any 40MHz: ±0.85 dB
Input Return Loss (RF-Band, 50 Ohm)		Typ. -18 dB / Min. -14 dB	Typ. -15 dB / Min. -11 dB	Typ. -15 dB / Min. -12 dB
Output Return Loss (IF-Band, 50 Ohm)		Typ. -18 dB / Min. -14 dB	Typ. -15 dB / Min. -11 dB	Typ. -15 dB / Min. -12 dB
Noise Figure At max. gain		Typ. 8 dB / Max 10 dB	Typ. 9.5 dB / Max 11.5dB	Typ. 9.5 dB / Max 11.5 dB
Input Power Range		-75 to -30 dBm		
OP1dB At max. gain		Typ. +12 dBm / Min. +10 dBm	Typ. +9.5 dBm / Min. +7.5 dBm	Typ. +9.5 dBm / Min. 7.5 dBm
OIP3 At max. gain		Typ. +22 dBm / Min. +20 dBm	Typ. +19.5 dBm / Min. +17.5 dBm	Typ. +19.5 dBm / Min. +17.5 dBm
Slope Compensation		0-6 dB, at L-band		
Slope Control Steps		1 dB		
Internal Reference Stability		± 5 x 10-8 over 0 to 50°C		
Phase Noise (Typical Values)	@10 Hz offset	-65 dBc/Hz typ. -55 dBc/Hz max.		
	@100 Hz offset	-80 dBc/Hz typ. -70 dBc/Hz max.		
	@1 KHz offset	-90 dBc/Hz typ. -80 dBc/Hz max.		
	@10 KHz offset	-100 dBc/Hz typ. -90 dBc/Hz max.		
	@100 KHz offset	-103 dBc/Hz typ. -93 dBc/Hz max.		
	@1 MHz offset	-112 dBc/Hz typ. -102 dBc/Hz max.		
Integrated Phase Noise		142.1 fs (RMS typical; 10kHz-1MHz at 6850MHz)		
Spurs In-band (@-5dBm Output)	Non-carrier related	<-70 dBm		
	Carrier related	<-50 dBc		
Spurs Out-of-band (@-5dBm Output)	Carrier Related	<-50 dBc		
	Non-carrier related	<-70 dBm		
LO Breakthrough		<-60 dBm		
Image Rejection		>60 dB typ.		
External Reference Input Frequency		10MHz or 100MHz (auto detection)		
External Reference Input Level		+0dBm ± 10dB		
Mute		60 dB		
Number of conversion stages		Single		
Spectral Inversion		Non-inverting		
IF Monitor Port		Yes. Internal RF detector monitored		
Redundancy		Supported. Based on module configuration		
Spec version		0.4	1.1	1.1

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.

Frequency Upconverter Module - RF Parameters				
Model Numbers		FN-U-C2L1-24440AB-XXXX	SWF-G1S-KX-109A-xxxx	SWF-G1S-KX-115-xxxx
Size		4 slots wide	4 slots wide	4 slots wide
Redundancy		Standalone module	1+1 (Note: This column denotes specs for 24440 in 1+1 configuration)	2+1 (Note: This column denotes specs for 24440 in 2+1 configuration)
Input Frequency Range		950 - 1525 MHz		
Output Frequency Range		5850—6425 MHz		
Conversion Gain		Max. 35 ± 1.5 dB / Min 5 ± 1.5 dB	Max. 33.9 ± 1.8 dB / Min 3.9 ± 1.8 dB	Max. 34 ± 2.1 dB / Min 4 ± 2.1 dB
Gain Step Size		0.25 ± 0.15 dB		
Gain Flatness (50 Ohm)		Full IF band: ±1.5 dB Any 40MHz: ±0.25 dB	Full IF band: ±1.8 dB Any 40MHz: ±0.55 dB	Full IF band: ±2.1 dB Any 40MHz: ±0.85 dB
Input Return Loss (RF-Band, 50 Ohm)		Typ. -18 dB / Min. -14 dB	Typ. -15 dB / Min. -11 dB	Typ. -15 dB / Min. -12 dB
Output Return Loss (IF-Band, 50 Ohm)		Typ. -18 dB / Min. -14 dB	Typ. -15 dB / Min. -11 dB	Typ. -15 dB / Min. -12 dB
Noise Figure At max. gain		Typ. 8 dB / Max 10 dB	Typ. 9.5 dB / Max 11.5dB	Typ. 9.5 dB / Max 11.5 dB
Input Power Range		-75 to -30 dBm		
OP1dB At max. gain		Typ. +12 dBm / Min. +10 dBm	Typ. +9.5 dBm / Min. +7.5 dBm	Typ. +9.5 dBm / Min. 7.5 dBm
OIP3 At max. gain		Typ. +22 dBm / Min. +20 dBm	Typ. +19.5 dBm / Min. +17.5 dBm	Typ. +19.5 dBm / Min. +17.5 dBm
Slope Compensation		N/A		
Slope Control Steps		N/A		
Internal Reference Stability		± 5 x 10-8 over 0 to 50°C		
Phase Noise (Typical Values)	@10 Hz offset	-65 dBc/Hz typ. -55 dBc/Hz max.		
	@100 Hz offset	-80 dBc/Hz typ. -70 dBc/Hz max.		
	@1 KHz offset	-90 dBc/Hz typ. -80 dBc/Hz max.		
	@10 KHz offset	-100 dBc/Hz typ. -90 dBc/Hz max.		
	@100 KHz offset	-103 dBc/Hz typ. -93 dBc/Hz max.		
	@1 MHz offset	-112 dBc/Hz typ. -102 dBc/Hz max.		
Integrated Phase Noise		151.5 fs (RMS typical; 10kHz-1MHz at 6425MHz)		
Spurs In-band (@-5dBm Output)	Non-carrier related	<-70 dBm		
	Carrier related	<-50 dBc		
Spurs Out-of-band (@-5dBm Output)	Carrier Related	<-50 dBc		
	Non-carrier related	<-70 dBm		
LO Breakthrough		<-60 dBm		
Image Rejection		>60 dB typ.		
External Reference Input Frequency		10MHz or 100MHz (auto detection)		
External Reference Input Level		0dBm ± 10dB		
Mute		60 dB		
Number of conversion stages		Single		
Spectral Inversion		Non-inverting		
IF Monitor Port		Yes. Internal RF detector monitored		
Redundancy		Supported. Based on module configuration		
Spec version		0.4	1.1	1.1

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