

Falcon Series Frequency Converter Module

K-Band to L-Band Block Downconverter

K-Band to L-Band block downconverter 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

For balancing input signals.

Frequency Conversion

Down conversion from K-Band to L-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 Downconverter Module - RF Parameters		Redundancy - RF Parameters			
Model Numbers		FN-D-KXL1-24424AA-XXXX	SWF-G1S-QX-108A-xxxx	SWF-G1S-QX-116-xxxx	
Size		4 slots wide		4 slots wide	
Redundancy		Standalone module		1+1 (Note: This column denotes specs for 24424 in 1+1 configuration)	2+1 (Note: This column denotes specs for 24424 in 2+1 configuration)
Input Frequency Range		Mode 1: 17.3-18.3 GHz, Mode 2: 17.7 – 18.7 GHz, Mode 3: 18.6 – 19.6 GHz, Mode 4: 19.5 – 20.5 GHz, Mode 5: 20.2 – 21.2 GHz User selectable frequency range via software command			
Output Frequency Range		1150 - 2150 MHz			
Mean Conversion Gain		Max. 35 ± 1.5 dB / Min. 0 ± 1.5 dB	Max. 31 ± 1.5 dB / Min 1.0 ± 1.5 dB	Max. 27.7 ± 1.5 dB / Min -2.3 ± 1.5 dB	
Gain Step Size		0.25 ± 0.15 dB			
Gain Flatness (50 Ohm)		Full IF-band: ±1.5 dB / Any 40 MHz ±0.3 dB			
Input Return Loss (Ka-band, 50 Ohm)		Typ. -18 dB / Min. -15 dB	Typ. -11 dB / Min. -8 dB	Typ. -11 dB / Min. -7 dB	
Output Return Loss (L-band, 50 Ohm)		Typ. -18 dB / Min. -15 dB	Typ. -15 dB / Min. -12 dB	Typ. -15 dB / Min. -12 dB	
Maximum Operational Input Level		-30 dBm			
Noise Figure At max. gain		Typ. 10 dB / Max 12 dB	Max 15.0 dB	Max 16.6 dB	
OP1dB At max. gain		Typ. +15 dBm / Min. +13 dBm	Typ. +14 dBm	Typ. +11.7 dBm	
OIP3 At max. gain		Typ. +27 dBm / Min. +25 dBm	Typ. +26 dBm	Typ. +24.2dBm	
Slope Compensation		0-6 dB (pivot point at 2150MHz)			
Slope Control Steps		1 dB			
Internal Reference Stability		±5 x 10-8 over 0 to 50°C			
Phase Noise (Typical Values)	@10 Hz offset	-68 dBc / Hz			
	@100 Hz offset	-80 dBc / Hz			
	@1 KHz offset	-90 dBc / Hz			
	@10 KHz offset	-105 dBc / Hz			
	@100 KHz offset	-107 dBc / Hz			
	@1 MHz offset	-115 dBc / Hz			
Spurs In-band (@ -5 dBm output)	Non-carrier related	<-70 dBm			
	Carrier related	<-60 dBc			
Spurs Out-of-band (@ -5 dBm output)	Carrier Related	<-60 dBc			
	Non-carrier related	<-70 dBm			
LO Breakthrough		< -75 dBm			
Image Rejection		>60 dB			
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		0.1	1.0	0.2	

Frequency Downconverter Module - RF Parameters		Redundancy - RF Parameters			
Model Numbers		FN-D-KXL1-24424AD-XXXX	SWF-G1S-QX-108A-xxxx	SWF-G1S-QX-116-xxxx	
Size		4 slots wide		4 slots wide	
Redundancy		Standalone module		1+1 (Note: This column denotes specs for 24424 in 1+1 configuration)	2+1 (Note: This column denotes specs for 24424 in 2+1 configuration)
Input Frequency Range		Mode 1: 17.3-18.3 GHz, Mode 2: 18.1 – 19.1 GHz User selectable frequency range via software command			
Output Frequency Range		950 - 1950 MHz			
Mean Conversion Gain		Max 35 ±1.5 dB, Min 0 ± 1.5 dB	Max 31 ±1.5 dB, Min 1.0 ± 1.5 dB	Max 27.7 ±1.5 dB, Min -2.3 ± 1.5 dB	
Gain Step Size		0.25 ± 0.15 dB			
Gain Flatness (50 Ohm)		Full IF-band: ±1.5 dB / Any 40 MHz ±0.3 dB			
Input Return Loss (Ka-band, 50 Ohm)		Typ. -18 dB / Min. -15 dB	Typ. -11 dB / Min. -8 dB	Typ. -11 dB / Min. -7 dB	
Output Return Loss (L-band, 50 Ohm)		Typ. -18 dB / Min. -15 dB	Typ. -15 dB / Min. -12 dB	Typ. -15 dB / Min. -12 dB	
Maximum Operational Input Level		-30 dBm			
Noise Figure At max. gain		Typ. 10 dB, Max 12 dB	Max. 15.0dB	Max. 16.6dB	
OP1dB At max. gain		Typ +15 dBm, Min +13 dBm	Typ. +14.0dBm	Typ. +11.7dBm	
OIP3 At max. gain		Typ +27 dBm, Min +25 dBm	Typ. +26.0dBm	Typ. +24.2dBm	
Slope Compensation		0-6 dB (pivot point at 2150MHz)			
Slope Control Steps		1 dB			
Internal Reference Stability		± 5 x 10-8 over 0 to 50°C			
Phase Noise (Typical Values)	@10 Hz offset	-68 dBc / Hz			
	@100 Hz offset	-80 dBc / Hz			
	@1 KHz offset	-90 dBc / Hz			
	@10 KHz offset	-105 dBc / Hz			
	@100 KHz offset	-107 dBc / Hz			
	@1 MHz offset	-115 dBc / Hz			
Spurs In-band (@ -5 dBm output)	Non-carrier related	<-70 dBm			
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Spurs Out-of-band (@ -5 dBm output)	Carrier related	<-60 dBc			
	Non-carrier related	<-70 dBm			
LO Breakthrough		< -75 dBm			
Image Rejection		>60 dB			
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		0.1	1.0	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.