

Falcon Series Frequency Converter Module

X-Band to L-Band Agile Downconverter

X-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 X-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-X3L1-24477AA-XXXX	SWF-G1S-KX-109A-xxxx	SWF-G1S-KX-115-xxxx	
Size		4 slots wide		4 slots wide	
Redundancy		Standalone module		1+1 (Note: This column denotes specs for 24477 in 1+1 configuration)	2+1 (Note: This column denotes specs for 24477 in 2+1 configuration)
Input Frequency Range		7250—8500 MHz			
Output Frequency Range		950 –2150 MHz			
Mean Conversion Gain		Max +35 ± 1.5 dB / Min. +5 ± 1.5 dB	Max +33.8 ± 2.3 dB / Min +3.8 ± 2.3 dB	Max +34 ± 2.6 dB / Min +4 ± 2.6 dB	
Gain Step Size		0.25 ± 0.15 dB			
Gain Flatness (50 Ohm)		Full band: ±1.0 dB Any 500MHz Band: ±0.6 dB Any 36MHz: ±0.3 dB	Full band: ±1.3 dB	Full band: ±1.6 dB	
Input Return Loss (RF-band, 50 Ohm)		Typ. -18 dB / Min.-15 dB	Typ -12 dB / Min.-9 dB	Typ -12 dB / Min.-9 dB	
Output Return Loss (IF-band, 50 Ohm)		Typ. -18 dB / Min.-15 dB	Typ -15 dB / Min.-11 dB	Typ -15 dB / Min.-12 dB	
Maximum Operational Input level		- 30 dBm at max gain			
Noise Figure At max. gain		Typ. 8 dB / Max 10 dB	Typ. 10.5 dB / Max. 12.5 dB	Typ. 10.5 dB / Max. 12.5 dB	
OP1dB At max. gain		Typ. +15 dBm / Min.+13 dBm	Typ. +13.5 dBm / Min.+10.5 dBm	Typ. +13.5 dBm / Min.+10.5 dBm	
OIP3 At max. gain		Typ. +25 dBm / Min. +22 dBm	Typ. +23.5 dBm / Min.+20.5 dBm	Typ. +23.5 dBm / Min.+20.5 dBm	
Internal Reference Stability		± 5 x 10-8 over 0 to 50°C			
Slope Compensation		0-6 dB (pivot point at 2150MHz)			
Slope Control Steps		1 dB			
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	-110 dBc / Hz			
	@100 KHz offset	-115 dBc / Hz			
	@1 MHz offset	-120 dBc / Hz			
Spurs In-band (@-5dBm Output) Non-harmonic	Non-carrier related	<-75 dBm			
	Carrier Related >1MHz Offset (dBc)	<-60 dBc			
Spurs Out-of-band (@-5dBm Output)	Carrier related	<-60 dBc			
	Non-carrier related	<-75 dBm			
LO Breakthrough		< -75 dBm			
Image Rejection		>60 dB Typical			
External Reference Input Frequency		10MHz or 100MHz (auto detection)			
External Reference Input Level		0dBm ± 10dB			
Mute		60 dB			
IF Monitor Port		Yes			
Number of conversion stages		Single			
Spectral Inversion		Non-inverting			
Spec version		0.2	1.1	1.1	

Frequency Downconverter Module - RF Parameters		
Model Numbers	FN-D-X3L1-24477AC-S5S5	
Size	4 slots wide	
Redundancy	Standalone module	
Input Frequency Range	7250—8400 MHz	
Output Frequency Range	900 –2100 MHz	
Mean Conversion Gain	Max +35 ± 1.5 dB / Min +5 ± 1.5 dB	
Gain Step Size	0.25 ± 0.15 dB	
Gain Flatness (50 Ohm)	Full band: ±1.0 dB Any 40MHz: ±0.3 dB	
Input Return Loss (RF-Band, 50 Ohm)	Typ. -18 dB / Min.-15 dB	
Output Return Loss (IF-Band, 50 Ohm)	Typ. -18 dB / Min.-15 dB	
Maximum Operational Input level	-30 dBm (At max gain)	
Noise Figure At max. gain	Typ. 8 dB / Max. 10 dB	
OP1dB At max. gain	Typ. +15 dBm / Min.+13 dBm (At max gain)	
OIP3 At max. gain	Typ. +25 dBm / Min.+22 dBm (At max gain) ($\Delta f = 5$ MHz two carriers 0 dBm each)	
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	-110 dBc / Hz
	@100 KHz offset	-115 dBc / Hz
	@1 MHz offset	-120 dBc / Hz
Spurs In-band (@ -5 dBm output) Non-harmonic	Non-carrier related	<-75 dBm
	Carrier Related >1MHz Offset (dBc)	<-60 dBc
Spurs Out-of-band (@ -5 dBm output)	Carrier related	<-60 dBc
	Non-carrier related	<-75 dBm
LO Breakthrough	< -75 dBm	
Image Rejection	>60 dB Typical	
External Reference Input Frequency	10MHz or 100MHz (auto detection)	
External Reference Input Level	0dBm ± 10dB	
Mute	60 dB	
IF Monitor Port	Yes	
Number of conversion stages	Single	
Spectral Inversion	Non-inverting	
Spec version	0.1	

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.