

Falcon Series Frequency Converter Module

Ka-Band to L-Band Block Downconverter

Ka-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 Ka-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-K4L1-24425AA-K5S5	SWF-G1S-QX-108A-xxxx	SWF-G1S-QX-116-xxxx	
Size		4 slots wide		4 slots wide	
Redundancy		Supported (based on chassis configuration)		1+1 (Note: This column denotes specs for 24425 in 1+1 configuration)	2+1 (Note: This column denotes specs for 24425 in 2+1 configuration)
Input Frequency Range		Mode 1: 27.0 – 28.00 GHz, Mode 2: 27.50 – 28.50 GHz , Mode 3: 28.50 – 29.50 GHz, Mode 4: 29.50 – 30.50 GHz, Mode 5: 30.00—31.00 GHz (User selectable frequency range via software command).			
Output Frequency Range		1150 - 2150 MHz			
Instantaneous Bandwidth		1000 MHz			
Mean Conversion Gain		Max. 35 ± 2.0 dB / Min. 5 ± 2.0 dB	Max. 31 ± 2.0 dB / Min 1.0 ± 2.0 dB	Max. 27.8 ± 2.0 dB / Min -2.2 ± 2.0 dB	
Gain Step Size		0.25 ± 0.15 dB			
Gain Flatness		Full IF-band: ±2.0 dB / Any 40 MHz ±0.3 dB			
Slope Compensation		0-6dB			
Slope Control		1 dB			
Input Return Loss (Ka-band)		Typ. -18 dB / Min. -14 dB	Typ. -15 dB / Min. -12 dB	Typ. -15 dB / Min. -12 dB	
Output Return Loss (Ka-band)		Typ. -20 dB / Min. -18 dB	Typ. -17 dB / Min. -14 dB	Typ. -17 dB / Min. -14 dB	
Noise Figure At max. gain		Typ. 14 dB / Max 17 dB	Typ. 17.0 dB / Max 20.0 dB	Typ. 18.5 dB / Max 21.5 dB	
Input Power Range		-75 to -30 dBm			
OP1dB At max. gain		Typ. +12 dBm / Min. +9 dBm	Typ. +11 dBm / Min. +8 dBm	Typ. +9.3 dBm / Min. +6.3 dBm	
OIP3 At max. gain		Typ. +22 dBm / Min. +19 dBm	Typ. +21 dBm / Min. +18 dBm	Typ. +19.3 dBm / Min. +16.3 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	-107 dBc / Hz			
	@10 MHz offset	-130 dBc / Hz			
Spurs In-band (Characterised at -5dBm out)	Non-carrier related	<-70 dBm			
	Carrier related (>1MHz Offset)	<-60 dBc			
Spurs Out-of-band (Characterised at -5dBm out)	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			
Spectral Inversion		Non-inverting			
IF Monitor		Yes. Internal RF detector monitored			
Spec version		0.2	1.0	0.1	

Frequency Downconverter Module - RF Parameters		Redundancy - RF Parameters			
Model Numbers		FN-D-K4L1-24425AB-K5S5	SWF-G1S-QX-108A-xxxx	SWF-G1S-QX-116-xxxx	
Size		4 slots wide		4 slots wide	
Redundancy		Supported (based on chassis configuration)		1+1 (Note: This column denotes specs for 24425 in 1+1 configuration)	2+1 (Note: This column denotes specs for 24425 in 2+1 configuration)
Input Frequency Range		Mode 1: 27.0 – 28.00 GHz, Mode 2: 27.50 – 28.50 GHz , Mode 3: 28.50 – 29.50 GHz, Mode 4: 29.50 – 30.50 GHz, Mode 5: 30.00—31.00 GHz (User selectable frequency range via software command).			
Output Frequency Range		950 - 1950 MHz			
Mean Conversion Gain		Max. 35 ± 2.0 dB / Min. 5 ± 2.0 dB	Max. 31 ± 2.0 dB / Min 1.0 ± 2.0 dB	Max. 27.8 ± 2.0 dB / Min -2.2 ± 2.0 dB	
Gain Step Size		0.25 ± 0.15 dB			
Gain Flatness		Full IF-band: ±2.0 dB / Any 40 MHz ±0.3 dB			
Slope Compensation		0-6dB			
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Input Return Loss (Ka-band)		Typ. -18 dB / Min. -14 dB	Typ. -15 dB / Min. -12 dB	Typ. -15 dB / Min. -12 dB	
Output Return Loss (Ka-band)		Typ. -20 dB / Min. -18 dB	Typ. -17 dB / Min. -14 dB	Typ. -17 dB / Min. -14 dB	
Noise Figure At max. gain		Typ. 14 dB / Max 17 dB	Typ. 17.0 dB / Max 20.0 dB	Typ. 18.5 dB / Max 21.5 dB	
Input Power Range		-75 to -30 dBm			
OP1dB At max. gain		Typ. +12 dBm / Min. +9 dBm	Typ. +11 dBm / Min. +8 dBm	Typ. +9.3 dBm / Min. +6.3 dBm	
OIP3 At max. gain		Typ. +22 dBm / Min. +19 dBm	Typ. +21 dBm / Min. +18 dBm	Typ. +19.3 dBm / Min. +16.3 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	-107 dBc / Hz			
	@10 MHz offset	-130 dBc / Hz			
Spurs In-band (Characterised at -15 dBm out)	Non-carrier related	<-70 dBm			
	Carrier related (>1MHz Offset)	<-60 dBc			
Spurs Out-of-band (Characterised at -15 dBm out)	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		0.3	1.0	0.1	