



# Falcon Series Frequency Converter Module

## Ka-Band to L-Band Block Downconverter

**Typical applications:**

- Teleports & Earth Stations
- Satellite Operations
- Government & Defence applications
- Telemetry, Tracking & Command
- High Resilience applications

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.



**Hot Swap & replaceable RF**

Frequency Converter modules



**Redundancy configurations**

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



**Variable Gain & Slope**

For balancing input signals.



**Frequency Conversion** Down conversion from Ka-Band to L-Band.

### Chassis Options



**Local control & monitoring** via HMI high resolution touchscreen



**Flexible Module Configurations** choose from a mixture of up and down converters with different operating frequencies.



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



**Remote control & monitoring** via RJ45 Ethernet port with SNMP & web browser interface



**Compact indoor & outdoor** chassis options, which can be part populated



**Field replaceable Internal reference source** and external reference inject port with auto detection



**Secure protocols** with SNMPv3 and HTTPS



Indoor Chassis



Outdoor Unit





**ETL Systems**

New technologies  
in RF distribution

Model Number:  
FN-D-K4L1-24425AA-K5S5

Frequency Downconverter Module - 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	4 slots wide
Redundancy	Supported (based on chassis configuration)	1+1 (Note. This column denotes specs for 24225 in 1+1 configuration)	2+1 (Note. This column denotes specs for 24225 in 2+1 configuration)
Input Frequency Range	<b>Mode 1:</b> 27.0 – 28.00 GHz, <b>Mode 2:</b> 27.50 – 28.50 GHz, <b>Mode 3:</b> 28.50 – 29.50 GHz, <b>Mode 4:</b> 29.50 – 30.50 GHz, <b>Mode 5:</b> 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	1dB		
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 <sup>-8</sup> over 0 to 50°C		
Phase Noise (Typical values)	@10Hz offset	-70 dBc / Hz	
	@100Hz offset	-80 dBc / Hz	
	@1KHz offset	-90 dBc / Hz	
	@10KHz offset	-98 dBc / Hz	
	@100KHz offset	-101 dBc / Hz	
	@1MHz offset	-107 dBc / Hz	
	@10MHz offset	-130 dBc / Hz	
Spurs In-band (Characterised at -5dBm out)	Non-carrier related	<-70 dBm	
	Carrier Related >1 MHz 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	10 MHz or 100 MHz (Auto-detection)		
External Reference Input Level	0 dBm ± 10 dB		
Mute	60 dB		
Number of conversion stages	Dual		
Spectral Inversion	Non-inverting		
IF Monitor	Yes. Internal RF detector monitored		
Spec version	0.2	1.0	0.1

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Model Number:  
**FN-D-K4L1-24425AB-K5S5**

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Output Frequency Range	950 - 1950 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		
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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 <sup>-8</sup> over 0 to 50°C		
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