



# Falcon Series Frequency Converter Module

## K-Band to L-Band Block Downconverter

**Typical applications:**

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

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.



**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 K-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-KXL1-24424AA-XXXX

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	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	<b>Mode 1:</b> 17.3-18.3 GHz, <b>Mode 2:</b> 17.7 – 18.7 GHz, <b>Mode 3:</b> 18.6 – 19.6 GHz, <b>Mode 4:</b> 19.5 – 20.5 GHz, <b>Mode 5:</b> 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 40MHz: ±0.3 dB		
Input Return Loss (Ka-Band, 50 Ohm)	Typ.-18 dB / Min.-15 dB	Typ. –11dB / -8 Min. dB	Typ. –11dB / Min. –7dB
Output Return Loss (L-Band, 50 Ohm)	Typ.-18 dB / Min.-15 dB	Typ. –15dB / Min. –12dB	Typ. -15dB / Min. -12dB
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	±5x10 <sup>-8</sup> over 0 to 50°C		
Phase Noise (Typical values)	@10Hz offset	-68 dBc / Hz	
	@100Hz offset	-80 dBc / Hz	
	@1KHz offset	-90 dBc / Hz	
	@10KHz offset	-105 dBc / Hz	
	@100KHz offset	-107 dBc / Hz	
	@1MHz 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	10 MHz or 100 MHz (Auto-detection)		
External Reference Input Level	0 dBm ± 10 dB		
Mute	60 dB		
Number of conversion stages	Dual		
IF Monitor	Yes. Internal RF detector monitored		
Spectral Inversion	Non-inverting		
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.

ETL SYSTEMS LIMITED  
Coldwell Radio Station  
Madley  
Hereford  
England HR2 9NE

TELEPHONE  
+44 (0)1981 259020

WEB  
www.etlsystems.com

EMAIL  
info@etlsystems.com

