



# Falcon Series Frequency Converter Module X-Band Agile Downconverter

### Typical applications:

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

The 1U chassis has the capacity for up to five hot-swap frequency converter modules. These can be all upconverters, all downconverters or a mix of both.

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

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

**Compact** housed in a 1U high chassis with capacity for up to five modules

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

**Hot Swap & replaceable RF** Frequency Converter modules

**Redundancy configurations** Field-replaceable 2+1 or 1+1 redundant configuration

**Field replaceable Internal 10MHz reference source** and external reference inject port with auto detection

**Secure protocols** with SNMPv3 and HTTPS

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

### Chassis - Specification

Dimensions / Weight / Colour	1U high x 550mm deep x 19" wide / <10 kg / RAL9003—White (Semi-matte)
Capacity	Total of 17 module slots. Note that 1 slot may be used for fan (if required) and 1 slot may be used for 10 MHz EXT inject module (if required). Note actual modules may require >1 slot. Refer to required module spec table.
Temperature	Operating: 0°C to +45°C / Storage: -20°C to +75°C
Location / Humidity / Altitude	Indoor use only / 20 to 90% non-condensing / 10,000 feet AMSL (Operational) 30,000 feet AMSL (Storage) Above Mean Sea Level
Control & Monitoring	Local: HMI touch screen Remote: Ethernet via RJ45, 10BaseT/100 BaseTx. TCP/IP, SNMP V3 & HTTPS & Web browser interface HMI and CPU field replaceable. Each module independently monitored and reported.
MTTR	20 minutes (15 minutes to retrieve spare part and 5 mins to replace) Applies to LRUs only and assumed in house stock
AC Input / Consumption	85-264Vac 50/60Hz / 150W
PSU Redundancy	Dual redundant and alarmed Diode OR. Hot swappable
Input & Output ports	Dependant upon module fitted

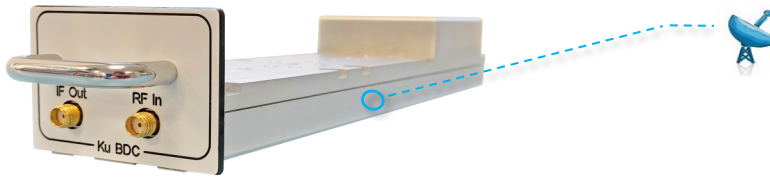




# ETL Systems

New technologies  
in RF distribution

Model Number:  
FN-D-X3L1-24237-XXXX



## Frequency Converter Module

Compact form factor allowing multiple modules to be housed in 1U chassis. Each module uses 3 slots in the chassis.

Frequency Downconverter Module - RF Parameters		Redundancy Module - RF Parameters	
Model Numbers	FN-D-X3L1-24237-XXXX	SWF-G1S-KX-109A-xxxx	SWF-G1S-KX-107A-xxxx
Size	3 slots wide	4 slots wide	6 slots wide
Redundancy	Standalone module	1+1 (Note: This column denotes specs for 24237 in 1+1 configuration)	2+1 (Note: This column denotes specs for 24237 in 2+1 configuration)
Input Frequency Range	7250—8400 MHz		
Output Frequency Range	950—2100 MHz		
LO	5750—6900 MHz		
Conversion Gain	Max 35 ± 2 dB / Min 5 ± 2 dB	Max 30.9 ± 2 dB / Min 0.9 ± 2 dB	Max 28.4 ± 2 dB / Min -0.5 ± 2 dB
Gain Steps	0.25 ± 0.15 dB		
Gain Flatness (50 Ohm)	Full band: ±1.0 dB		
Input Return Loss (RF-Band, 50 Ohm)	Typ. -18 dB / Min.-14 dB	Typ -12 dB / Min.-9 dB	Typ -12 dB / Min.-9 dB
Output Return Loss (IF-Band, 50 Ohm)	Typ. -18 dB / Min.-14 dB	Typ -15 dB / Min.-11 dB	Typ -15 dB / Min.-12 dB
Noise Figure	Typ. 8 dB / Max. 10 dB	Typ. 10.3 dB / Max. 12.4 dB	Typ. 11.8 dB / Max. 13.9 dB
Maximum Operational Input Level	-35 dBm (At max gain)		
OP1dB	Typ. +15 dBm / Min.+12 dBm	Typ. +12.7 dBm / Min.+9.7 dBm	Typ. +11.7 dBm / Min.+8.7 dBm
OIP3	Typ. +25 dBm / Min.+22 dBm	Typ. +23.2 dBm / Min.+20.2 dBm	Typ. +22.2 dBm / Min.+19.2 dBm
Group Delay (max pk-pk)	2 ns		
Internal Reference Stability	±5x10 <sup>-8</sup> over 0 to 50°C		
Phase Noise (Typical values)	@10Hz offset	-75 dBc / Hz	
	@100Hz offset	-80 dBc / Hz	
	@1KHz offset	-85 dBc / Hz	
	@10KHz offset	-88 dBc / Hz	
	@100KHz offset	-98 dBc / Hz	
	@1MHz offset	-115 dBc / Hz	
Spurs In-band (@-5dBm Output)	Non-carrier related	<-75 dBm	
	Carrier related	<-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 typ		
External Reference	Input Freq. 10 MHz. Auto detection. 1 required per chassis		
External Ref. Input Level	+3 dBm ± 3dB		
Mute	60 dB		
Number of conversion stages	Single		
Spectral Inversion	Non-inverting		
Spec version	1.0	1.0	1.0

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.



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