



# Falcon Series Frequency Converter Module L-Band Agile Downconverter

**Typical applications:**

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

L-band to L-band converter. 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. 1 slot will be used for fan (if required) and 1 slot will be used for 10 MHz EXT inject module.
Temperature	Operating: 0 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.
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
No. of modules per chassis	5 Max. Module 3 slots wide





**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-L1F2-24114-XXXX	SWF-G1S-CX-111	SWF-G1S-CX-110
Size	3 slots wide	4 slots wide	6 slots wide
Redundancy	Standalone Module	1+1 (Note. This column denotes specs for 24114 in 1+1 configuration)	2+1 (Note. This column denotes specs for 24114 in 2+1 configuration)
Input Frequency Range	850 – 2150 MHz (1kHz step size)		
Output Frequency Range	1050 – 1350 MHz		
Conversion Gain	Max 35 ± 2 dB / Min 5 ± 2 dB	Max 31 ± 2 dB / Min 1 ± 2 dB	Max 30 ± 2 dB / Min 0 ± 2 dB
Gain Steps	0.25 ± 0.2 dB		
Gain Flatness (50 Ohm)	Full IF band: ±1.0 dB Centre Frequency ≥ 1200MHz		
Input Return Loss (RF-Band, 50 Ohm)	Typ. -18 dB / Min.-12 dB (50 Ohm)	Typ. -15 dB / Min.-10 dB	Typ. -15 dB / Min.-10 dB
Output Return Loss (IF-Band, 50 Ohm)	Typ. -18 dB / Min.-15 dB (50 Ohm)	Typ. -15 dB / Min.-12 dB	Typ. -15 dB / Min.-12 dB
Noise Figure (At max gain)	Typ. 8 dB / Max. 10 dB	Typ. 10 dB / Max. 12.1 dB	Typ. 10.5 dB / Max. 12.6 dB
Maximum Operational Input Level	-30 dBm (At max gain)		
OP1dB (At max gain)	Typ. +13 dBm / Min.+10 dBm	Typ. +10.5 dBm / Min.+7.5 dBm	Typ. +10 dBm / Min.+7 dBm
OIP3 (At max gain)	Typ. +25 dBm / Min.+22 dBm	Typ. +23 dBm / Min.+20 dBm	Typ. +22.5 dBm / Min.+19.5 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	-70 dBc / Hz	
	@100Hz offset	-80 dBc / Hz	
	@1KHz offset	-95 dBc / Hz	
	@10KHz offset	-100 dBc / Hz	
	@100KHz offset	-103 dBc / Hz	
	@1MHz offset	-115 dBc / Hz	
Spurs In-band	Non-carrier related	<-70 dBm	
Spurs Out-of-band	Non-carrier related	<-70 dBm	
LO Breakthrough	<-60 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. Subject to change		
Mute	60 dB		
Number of conversion stages	Dual		
Spectral Inversion	Non-inverting		
Redundancy	Supported, based on chassis configuration		
Spec version	0.5	0.1	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.

