



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

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

Flexible Module Configurations including interchangeable frequency range options. User selectable via HMI or web browser

Local control & monitoring via HMI high resolution touchscreen

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



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 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-L1F2-24104-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 24104 in 1+1 configuration)	2+1 (Note: This column denotes specs for 24104 in 2+1 configuration)
Input Frequency Range	850-2450 MHz in 1 kHz step size		
Output Frequency Range	70 ± 20 MHz / 140 ± 40 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	0.1 ± 0.1 dB		
Gain Flatness (50 Ohm)	±0.3 dB		
Input Return Loss (50 Ohm)	Typ. -18 dB / Min. -15 dB	Typ. -15 dB / Min. -12 dB	Typ. -15 dB / Min. -12 dB
Output Return Loss (50 Ohm)	Typ. -18 dB / Min. -15 dB	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. +10.0 dBm / Min. +7.0 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	± 5 x 10 ⁻⁸ 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	< -75 dBm	
	Carrier related	< -60 dBc	
Spurs Out-of-band	Carrier related	< -60 dBc	
	Non-carrier related	< -75 dBm	
LO Breakthrough	< -60 dBm		
Image Rejection	>60 dB typical		
External Reference	Input Freq. 10MHz Input Level +3 dBm±3dB		
Mute	60 dB		
Number of conversion stages	Dual		
Spectral Inversion	Non-inverting		
Spec version	0.4	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.

