



Falcon Series Frequency Converter Module X-Band Block 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

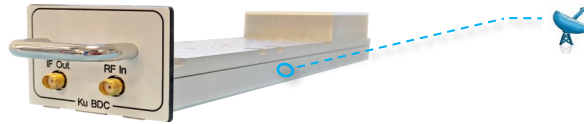
Secure protocols with SNMPv3 and HTTPS

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	17 module slots available in total. 1 slot will be used for fan (if required) and 1 slot used for 10 MHz EXT inject module, leaving 15 slots.
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-X3L1-24127-XXXX	SWF-G1S-KX-109	SWF-G1S-KX-107
Size	3 Slots wide	4 Slots wide	6 Slots wide
Redundancy	Standalone module	1+1 (Note: This column denotes specs for 24127in 1+1 configuration)	2+1 (Note: This column denotes specs for 24127 in 2+1 configuration)
Input Frequency Range	7250 - 8400 MHz		
Output Frequency Range	950 – 2100 MHz		
LO	6300 MHz		
Conversion Gain	Max 35 ± 2 dB, Min 5 ± 2 dB	Max 33.8 ± 2.3 dB, Min 3.8 ± 2.3 dB	Max 34 ± 2.6 dB, Min 4 ± 2.6 dB
Gain Step Size	0.25 ± 0.15 dB		
Gain Flatness	Full Output band: ±1.25 dB Any 40MHz: ±0.25 dB	Full Output band: ±1.55 dB Any 40MHz: ±0.55 dB	Full Output band: ±1.85 dB Any 40MHz: ±0.85 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.-12dB
Noise Figure	Typ. 8 dB Max. 10 dB (at max gain)	Typ. 10.5 dB Max. 12.5 dB (at max gain)	Typ. 10.5 dB Max. 12.5 dB (at max gain)
Maximum Operational Input Level	-35dBm @ max gain		
OP1dB At max. gain	Typ. +15 dBm Min. +12 dBm	Typ. +13.5 dBm Min. +10.5 dBm	Typ. +13.5 dBm Min. +10.5 dBm
OIP3 At max. gain (Δf = 5 MHz two carriers 0 dBm each)	Typ. +25 dBm Min. 22 dBm	Typ. +23.5 dBm Min. 20.5 dBm	Typ. +23.5 dBm Min. 20.5 dBm
Internal Reference Stability	±5x10 ⁻⁸ over 0 to 50°C		
Phase Noise (Typical)	@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 (At max gain and Pout=-5dBm)	Carrier related	<-60 dBc	
	Non-carrier related	<-75 dBm	
Spurs Out-of-band (At max gain and Pout=-5dBm)	Carrier related	<-60 dBc	
	Non-carrier related	<-75 dBm	
LO Breakthrough	<-75 dBm		
Image Rejection	>60 dB typical		
External Reference	Input Freq. 10 MHz (Auto-detection) Input Level +3 dBm ± 3 dB		
Mute	60 dB		
Number of conversion stages	Single		
Spectral Inversion	Non-inverting		
Spec version	0.3	1.1	1.1

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.