



Falcon Series

Frequency Converter Module

Ku-Band Agile Downconverter

Typical applications:

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

Ku to IF-band Agile Downconverter. 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.

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 four 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) <i>Above Mean Sea Level</i>
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 Connectors	Dependant upon module fitted





Frequency Converter Module
Compact form factor allowing multiple modules to be housed in 1U chassis. Each module uses 4 slots in the chassis.

Frequency Downconverter Module - RF Parameters		Redundancy Module - RF Parameters	
Model Numbers	FN-D-K1F2-24138-S5XX	SWF-G1S-KX-109	SWF-G1S-KX-115
Size	4 slots wide	4 slots wide	4 slots wide
Redundancy	Standalone module	1+1 (Note: This column denotes specs for 24138 in 1+1 configuration)	2+1 (Note: This column denotes specs for 24138 in 2+1 configuration)
Input Frequency Range	10.7 – 12.75 GHz		
Output Frequency Range	70MHz Output: 50 - 90 MHz 140MHz Output: 100 - 180 MHz - User selectable		
Mean Conversion Gain	Max. 35 ± 1.5 dB / Min. 5 ± 1.5 dB	Max. 33 ± 1.8 dB / Min. 3 ± 1.8 dB	Max. 32.5 ± 2 dB / Min. 2.5 ± 2 dB
Gain steps	0.25 ± 0.15 dB		
Gain Flatness (50 Ohm)	Full IF Band ±0.35 dB	Full IF Band ±0.65 dB	Full IF Band ±0.85 dB
Input Return Loss (50 Ohm)	Typ. -14 dB / Min. -10 dB	Typ. -11 dB / Min. -8 dB	Typ. -11 dB / Min. -8 dB
Output Return Loss (50 Ohm)	Typ. -18 dB / Min. -14 dB	Typ. -15 dB / Min. -11 dB	Typ. -15 dB / Min. -12 dB
Noise Figure At max. gain	Typ. 12 dB / Max 15 dB	Typ. 14 dB / Max 17 dB	Typ. 17 dB / Max 17 dB
Input Power Range	-75 to -30 dBm		
OP1dB At max. gain	Typ. +15 dBm / Min. +12 dBm	Typ. +14.5 dBm / Min. +11.5 dBm	Typ. +14 dBm / Min. +11 dBm
OIP3 At max. gain (Δf = 5 MHz two carriers 0 dBm each)	Typ. +27 dBm / Min. +24 dBm	Typ. +26.5 dBm / Min. +23.5 dBm	Typ. +26 dBm / Min. +23 dBm
Internal Reference Stability	± 5 x 10 ⁻⁸ over 0 to 50°C		
Phase Noise (Typical values)	@10Hz offset	-65 dBc / Hz	
	@100Hz offset	-70 dBc / Hz	
	@1KHz offset	-75 dBc / Hz	
	@10KHz offset	-80 dBc / Hz	
	@100KHz offset	-80 dBc / Hz	
	@1MHz offset	-110 dBc / Hz	
Spurs In-band	Carrier related (> 1MHz offset)	< -60 dBc	
	Non-carrier related	< -70 dBm	
Spurs Out-of-band	Carrier related	< -60 dBc	
	Non-carrier related	< -70 dBm	
LO Breakthrough	< -70 dBm		
Image Rejection	>60 dB		
Conversion stages	Dual		
External Reference	Input Freq. 10MHz Input Level +3 dBm±3dB		
Mute	60 dB		
Spectral Inversion	Non-inverting		
Redundancy	Supported. Based on module configuration		
Spec version	1.0	1.2	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.

