



Falcon Series

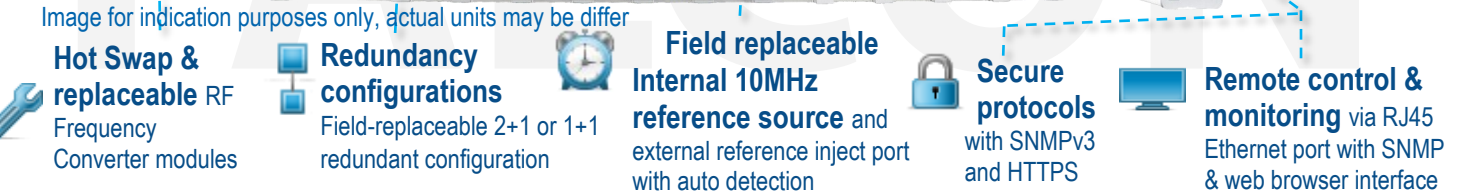
Frequency Converter Module

Ku-Band Agile Upconverter

Typical applications:

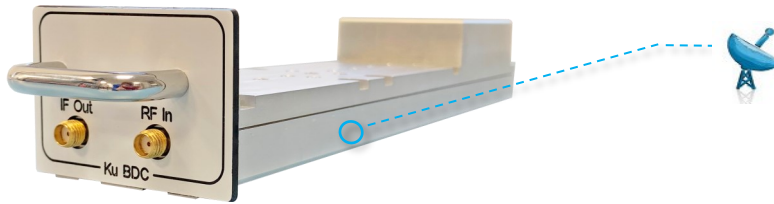
- Teleports & Earth Stations
- Satellite Operations
- Government & Defence applications
- Telemetry, Tracking & Command
- High Resilience applications

L- to Ku-Band frequency converter with variable gain and variable slope. The 1U chassis has the capacity for up to four hot-swap frequency converter modules. These can be all upconverters, all



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 Upconverter Module - RF Parameters		Redundancy Module - RF Parameters	
Model Numbers	FN-U-K1L1-24152-XXS5	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 24152 in 1+1 configuration)	2+1 (Note: This column denotes specs for 24152 in 2+1 configuration)
Input Frequency Range	950 – 2000 MHz		
Output Frequency Range	10700 - 12750 MHz		
LO Frequency Step Size	1 KHz		
Mean Conversion Gain	Max. 35 ± 1.5 dB / Min. 5 ± 1.5 dB	Max. 30.9 ± 1.5 dB / Min. 0.9 ± 1.5 dB	Max. 28.4 ± 1.5 dB / Min. -1.6 ± 1.5 dB
Gain steps	0.25 ± 0.15 dB		
Gain Flatness (50 Ohm)	Full IF band ±1.5 dB, any 40 MHz ±0.3 dB		
Input Return Loss (50 Ohm)	Typ. -18 dB / Min. -14 dB	Typ. -15 dB / Min. -11 dB	Typ. -15 dB / Min. -12 dB
Output Return Loss (50 Ohm)	Typ. -15 dB / Min. -10 dB	Typ. -11 dB / Min. -7 dB	Typ. -11 dB / Min. -7 dB
Noise Figure At max. gain	Typ. 10 dB / Max 12 dB	Typ. 11.8 dB / Max 13.9 dB	Typ. 12.8 dB / Max 14.9 dB
Input Power Range	-75 to -30 dBm		
OP1dB At max. gain	Typ. +12 dBm / Min. +10 dBm	Typ. +9.2 dBm / Min. +7.2 dBm	Typ. +7.7 dBm / Min. +5.7 dBm
OIP3 At max. gain	Typ. +22 dBm / Min. +20 dBm	Typ. +19.7 dBm / Min. +17.7 dBm	Typ. +18.2 dBm / Min. +16.2 dBm
Slope Compensation	0 –6 dB in 1 dB steps		
Internal Reference Stability	± 5 x 10 ⁻⁸ over 0 to 50°C		
Phase Noise (Typical values)	@10Hz offset	-65 dBc / Hz	
	@100Hz offset	-75 dBc / Hz	
	@1KHz offset	-80 dBc / Hz	
	@10KHz offset	-80 dBc / Hz	
	@100KHz offset	-85 dBc / Hz	
	@1MHz offset	-110 dBc / Hz	
Spurs In-band	Non-carrier related	< -75 dBm	
	Carrier related	< -50 dBc	
Spurs Out-of-band	Non-carrier related	< -80 dBm	
		< -80 dBm	
LO Breakthrough	< -80 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	1.0	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.

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