



ETL Systems
New technologies
in RF distribution

Model Number:
FN-U-KXL1-24258-xxxx

Falcon Series Frequency Converter Module K-Band Agile Upconverter

Typical applications:

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

L to K-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



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.



Image for indication purposes only, actual units may be differ

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) 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. 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 ports	Dependant upon module fitted

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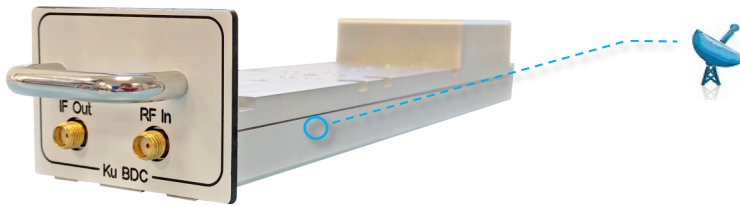
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Frequency Converter Module
Compact form factor allowing multiple modules to be housed in 1U chassis.
Each module uses 4 slots in the chassis.

Frequency Downconverter Module - RF Parameters		Redundancy Module - RF Parameters	
Model Numbers	FN-U-KXL1-24258-XXXX	SWF-G1S-QX-108A-xxxx	SWF-G1S-QX-116-xxxx
Size	4 slots wide	4 slots wide	4 slots wide
Redundancy	Standalone Module	1+1 (Note. This column denotes specs for 24258 in 1+1 configuration)	2+1 (Note. This column denotes specs for 24258 in 2+1 configuration)
Input Frequency Range	950—2150 MHz		
Output Frequency Range	17.3—21.2 GHz (Commands in 1kHz step. Min output freq @ 2150 MHz in = 18.5 GHz. Max output freq @ 950 MHz in = 20.0 GHz)		
Mean Conversion Gain	Max.	35 ± 2 dB	31.0 ± 2 dB
	Min.	5 ± 2 dB	1.0 ± 2 dB
Gain Steps	0.25 ± 0.15 dB		
Gain Flatness	Full IF Band ±1.75 dB Any 40 MHz ±0.3 dB		
Input Return Loss (L-band)	Typ -18 dB / Min -14 dB	Typ -15 dB / Min -12.0 dB	Typ -15 dB / Min -12.0 dB
Output Return Loss (K-Band)	Typ. -15 dB / Min.-10 dB	Typ -11 dB / Min -8.0 dB	Typ -11 dB / Min -7.0 dB
Noise Figure (@atmax gain)	Typ. 10 dB / Max. 12 dB	Typ 11.0 dB / Max 13.1 dB	Typ 12.8 dB / Max 15.0 dB
Input Power Range	-75 to -35 dBm		
OP1dB (at max gain)	Typ. +8 dBm / Min.+5 dBm	Typ. +5.0 dBm / Min. +2.0 dBm	Typ. +3.0 dBm / Min. 0 dBm
OIP3 (at max gain)	Typ. +18 dBm / Min.+15 dBm	Typ. +15.0 dBm / Min. +12.0 dBm	Typ. +13.5 dBm / Min. +10.5 dBm
Slope Compensation	0-6 dB at L-band		
Slope Control Steps	1 dB		
Internal Reference Stability	±5x10 ⁻⁸ over 0 to 50°C		
Phase Noise (Typical values)	@10Hz offset	-70 dBc / Hz	
	@100Hz offset	-80 dBc / Hz	
	@1KHz offset	-85 dBc / Hz	
	@10KHz offset	-85 dBc / Hz	
	@100KHz offset	-90 dBc / Hz	
	@1MHz offset	-110 dBc / Hz	
Spurs In-band (@ -5dBm Output)	Carrier related (> 1MHz offset) <-50 dBc Non-carrier related<-55 dBm		
Spurs Out-of-band (@ -5dBm Output)	Carrier related <-50 dBc Non-carrier related<-60 dBm		
LO Breakthrough	<-70 dBm		
Image Rejection	> 60 dB typ		
External Ref.	Input Frequency 10 MHz. Input Level +3 dBm ± 3 dB		
Mute	60 dB		
IF Monitor Port	Yes. Internal RF detector monitored		
Number of conversion stages	Dual		
Spectral Inversion	Non-inverting		
Spec version	0.5	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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