ETL Systems
New technologies
in RF distribution

Model Number:
FN-D-K4L1-24225-XXXX

Falcon Series
Frequency Converter Module
Ka-Band Block Downconverter

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

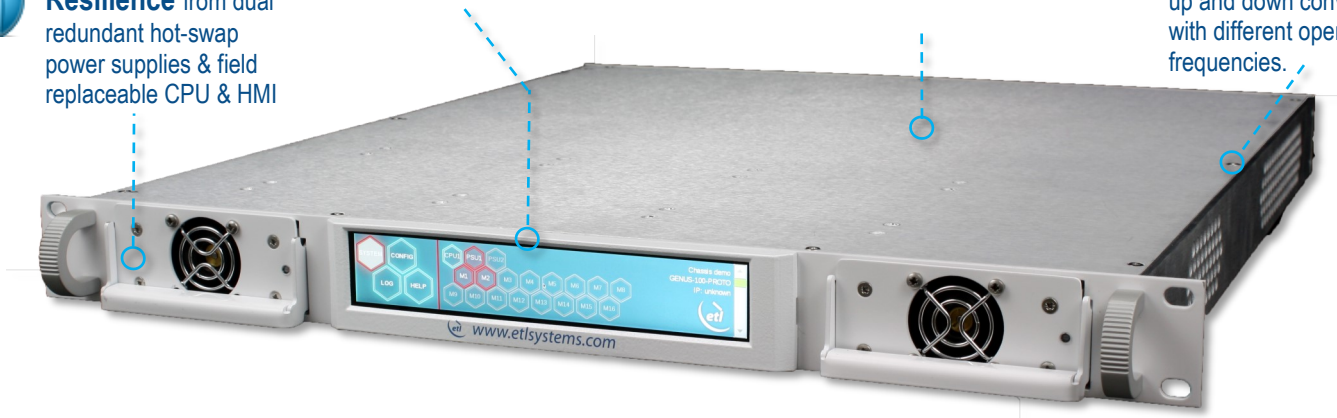
Converting Ka-band to L-band with dual stage conversion, variable gain and variable slope. Housed in a 1U chassis with capacity for up to four converter modules.

Local control & monitoring via HMI high resolution touchscreen

Compact housed in a 1U high chassis

Flexible Module Configurations choose from a mixture of up and down converters with different operating frequencies.

Resilience from dual redundant hot-swap power supplies & field replaceable CPU & HMI



Hot Swap & replaceable RF Frequency Converter modules

Redundancy configurations available

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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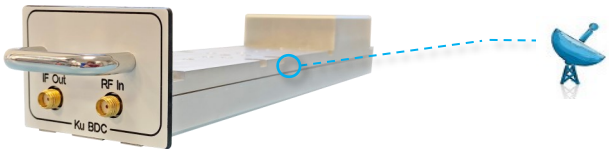

Frequency Converter Module

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				
Model Numbers		FN-D-K4L1-24225-XXXX	SWF-G1S-QX-108A-xxxx	SWF-G1S-QX-116-xxxx
Size		4 slots wide	4 slots wide	4 slots wide
Redundancy		Supported (based on chassis configuration)	1+1 (**Note.** This column denotes specs for 24225 in 1+1 configuration)	2+1 (**Note.** This column denotes specs for 24225 in 2+1 configuration)
Input Frequency Range		**Mode 1:** 27.0 – 28.00 GHz, **Mode 2:** 27.50 – 28.50 GHz , **Mode 3:** 28.50 – 29.50 GHz, **Mode 4:** 29.50 – 30.50 GHz, **Mode 5**: 30.00—31.00 GHz (User selectable frequency range via software command. Other modes [with 1.2 GHz BW] available.)		
Output Frequency Range		950 - 1950 MHz		
Mean Conversion Gain		Max. 35 ± 2.0 dB / Min. 5 ± 2.0 dB	Max. 31 ± 2.0 dB / Min 1.0 ± 2.0 dB	Max. 27.8 ± 2.0 dB / Min –2.2 ± 2.0 dB
Gain Step Size		0.25 ± 0.15 dB		
Gain Flatness		Full IF-band: ±2.0 dB / Any 40 MHz ±0.3 dB		
Slope Compensation		0-6dB		
Slope Control		1dB		
Input Return Loss (Ka-band)		Typ. -14 dB / Min.-10 dB	Typ -11 dB / Min –8 dB	Typ -11 dB / Min –8 dB
Output Return Loss (Ka-band)		Typ. -18 dB / Min.-14 dB	Typ –15 dB / Min –12 dB	Typ –15 dB / Min –12 dB
Noise Figure (at max. gain)		Typ. 14 dB / Max. 17 dB	Typ 17.0 dB / Max 20.0 dB	Typ 18.5 dB / Max 21.5 dB
Input Power Range		-75 to -30 dBm		
OP1dB		Typ. +12 dBm / Min.+9 dBm	Typ. +11 dBm / Min. +8 dBm	Typ. +9.3 dBm / Min. +6.3 dBm
OIP3		Typ. +22 dBm / Min.+19 dBm	Typ. +21 dBm / Min. +18 dBm	Typ. +19.3 dBm / Min. +16.3 dBm
Internal Reference Stability		±5 x 10^{-8} over 0 to 50°C		
Phase Noise (Typical values)	@10Hz offset	-55 dBc / Hz		
	@100Hz offset	-65 dBc / Hz		
	@1KHz offset	-75 dBc / Hz		
	@10KHz offset	-80 dBc / Hz		
	@100KHz offset	-83 dBc / Hz		
	@1MHz offset	-95 dBc / Hz		
Spurs In-band (Characterised at -5dBm out)	Non-carrier related	<-70 dBm		
	Carrier Related	<-50 dBc		
Spurs Out-of-band (Characterised at -5dBm out)	Carrier related	<-50 dBc		
	Non-carrier related	<-70 dBm		
LO Breakthrough		<-80 dBm		
Image Rejection		> 60 dB		
External Reference Input Freq.		10 MHz (Target 5 MHz or 10 MHz Auto detection)		
External Reference Input Level		+3 dBm ± 3dB (Subject to change)		
Mute		60 dB		
Number of conversion stages		Dual		
Spectral Inversion		Non-inverting		
Spec version		1.2	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.

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