



ETL Systems
Excelling in RF Engineering

Model Number:
FN-U-C2L1-24140-XXS5

Falcon Series

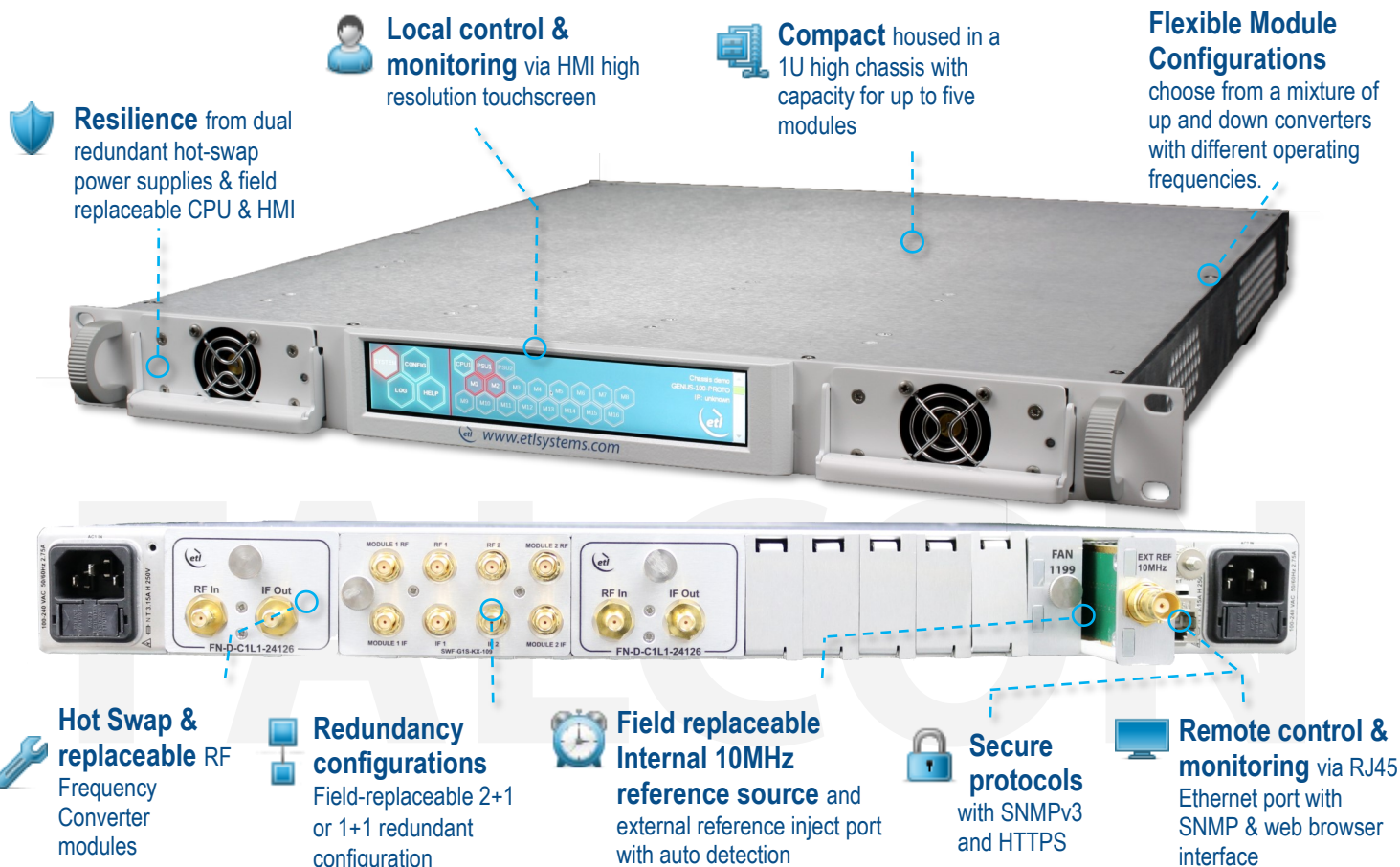
Frequency Converter Module

C-Band Block Upconverter

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.



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 will be used for fan (if required) and 1 slot will be used for 10 MHz EXT inject module.
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





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Compact form factor allowing multiple modules to be housed in 1U chassis. Each module uses 3 slots in the chassis.

Frequency Upconverter Module - RF Parameters

Model Numbers		FN-U-C2L1-24140-XXS5	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 24140 in 1+1 configuration)	2+1 (Note: This column denotes specs for 24140 in 2+1 configuration)
Input Frequency Range		950 - 1950 MHz		
Output Frequency Range		Mode 1 5725—6725 MHz Mode 2 5850—6850 MHz		
Fixed LO		Mode 1 4775 MHz Mode 2 4900 MHz		
Conversion Gain		Max. 35 ± 1.5 dB / Min 5 ± 1.5 dB	Max. 32 ± 1.5 dB / Min 2 ± 1.5 dB	Max. 29.5 ± 1.5 dB / Min -0.5 ± 1.5 dB
Gain steps		0.5 ± 0.25 dB		
Gain Flatness (50 Ohm)		Full IF band: ±1.5 dB Any 40MHz: ±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. -15dB / 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. 11.5 dB / Max 13.5 dB	Typ. 12.5 dB / Max 14.6 dB
Input Power Range		-75 to -30 dBm		
OP1dB At max. gain		Typ. +12 dBm / Min. +10 dBm	Typ. +10 dBm / Min. +8 dBm	Typ. +8.5 dBm / Min. +6.5 dBm
OIP3 At max. gain		Typ. +22 dBm / Min. +20 dBm	Typ. +20.5 dBm / Min. +18.5 dBm	Typ. +19 dBm / Min. +17 dBm
Slope Compensation		0-6 dB, at L-band		
Slope Control Steps		1 dB		
Group Delay (max pk-pk)		2 ns		
Internal Reference Stability		± 5 x 10 ⁻⁸ over 0 to 50°C		
Phase Noise (Typical values)	@10Hz offset	-70 dBc / Hz		
	@100Hz offset	-85 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	Non-carrier related	< -75 dBm		
Spurs Out-of-band	Carrier related	< -50 dBc		
	Non-carrier related	< -80 dBm		
LO Breakthrough		< -80 dBm		
Image Rejection		> 60 dB typical		
External Reference		Input Freq. 10MHz Input Level +3 dBm±3 dB		
Mute		60 dB		
IF Monitor		Yes. Internal RF detector monitored		
Spectral Inversion		Non-inverting		
Number of conversion stages		Single		
Redundancy		Supported. Based on module configuration		
Spec version		0.2	0.1	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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