



Falcon Series

Frequency Converter Module

IF-Band to L-Band Agile Upconverter

Typical applications:

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

IF-Band to L-Band block upconverter module with variable gain and slope.

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.

Frequency Converter Module



Frequency Converter Module

Compact form factor allowing multiple modules to be housed in the Genus chassis. Each module occupies 4 slots in the chassis.



Hot Swap & replaceable RF

Frequency Converter modules



Redundancy configurations

Field-replaceable 2+1 or 1+1 redundant configuration



Variable Gain & Slope

For balancing input signals.



Frequency Conversion Up

conversion from IF-Band to L-Band.

Chassis Options



Local control & monitoring via HMI high resolution touchscreen



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



Remote control & monitoring via RJ45 Ethernet port with SNMP & web browser interface



Compact indoor & outdoor chassis options, which can be part populated



Field replaceable Internal reference source and external reference inject port with auto detection



Secure protocols with SNMPv3 and HTTPS



Indoor Chassis



Outdoor Unit





Frequency Upconverter Module - RF Parameters		Redundancy - RF Parameters		
Model Numbers		FN-U-L1F2-24405AA-S5S5	SWF-G1S-CX-111A-xxxx	SWF-G1S-CX-110A-xxxx
Size		4 slots wide	4 slots wide	6 slots wide
Redundancy		Standalone Module	1+1 (Note. This column denotes specs for 24405 in 1+1 configuration)	2+1 (Note. This column denotes specs for 24405 in 2+1 configuration)
Input Frequency Range		70 ± 20 MHz or 140 ± 40 MHz user selectable		
Output Frequency Range		850-2450 MHz in 1 kHz steps		
Mean Conversion Gain		Max. 25 ± 1.5 dB / Min. -5 ± 1.5 dB	Max. 24.4 ± 1.7 dB / Min. -5.6 ± 1.7 dB	Max. 24.4 ± 1.8 dB / Min. -5.6 ± 1.8 dB
Gain steps		0.1 ± 0.1 dB		
Gain Flatness (Full Instantaneous Band) ± dB		Max. ± 0.5 dB Typ. ± 1.2 dB	70MHz input: Max. ± 0.7 dB 140MHz input: Max. ± 1.4 dB	70MHz input: Max. ± 0.8 dB 140MHz input: Max. ± 1.5 dB
Input Return Loss (RF-band, 50 Ohm)		Typ. -20 dB / Max. -18 dB	Typ. -15 dB / Min. -13 dB	Typ. -15 dB / Min. -13 dB
Output Return Loss (IF-band, 50 Ohm)		Typ. -20 dB / Max. -18 dB	Typ. -14 dB / Min. -12 dB	Typ. -14 dB / Min. -12 dB
Noise Figure At max. gain		Typ. 8 dB / Max 10 dB	Typ. 8.7 dB / Max 10.9 dB	Typ. 10.7 dB / Max 13.7 dB
Maximum Operational Input level		- 30 dBm at max gain		
OP1dB At max. gain		Typ. +13 dBm / Min. +10 dBm	Typ. +12.3 dBm / Min. +9.3 dBm	Typ. +10.3 dBm / Min. +7.3 dBm
OIP2 At max. gain		Typ. +35 dBm / Min. +32 dBm	TBD	TBD
OIP3 At max. gain		Typ. +25 dBm / Min. +22 dBm	Typ. +24.3 dBm / Min. +21.3 dBm	Typ. +22.3 dBm / Min. +19.3 dBm
Internal Reference Stability		± 5 x 10 ⁻⁸ over 0 to 50°C		
Phase Noise (Typical values)	@10Hz offset	-70 dBc / Hz		
	@100Hz offset	-84 dBc / Hz		
	@1KHz offset	-98 dBc / Hz		
	@10KHz offset	-104 dBc / Hz		
	@100KHz offset	-107 dBc / Hz		
	@1MHz offset	-112 dBc / Hz		
Spurs In-band @ -5dBm output	Carrier related	< -60 dBc		
	Non-carrier related	< -75 dBm		
Spurs Out-of-band @ -5dBm output	Carrier related	< -60 dBc		
	Non-carrier related	< -75 dBm		
LO Breakthrough		< -75 dBm		
Image Rejection		> 60 dB typical		
External Reference		10 MHz or 100 MHz (Auto detection)		
External Reference Input Leve		0 dBm ± 10 dB		
Mute		60 dB		
Number of conversion stages		Dual		
Spectral Inversion		Non-inverting		
IF Power Monitor		Yes		
Number of Modules per Chassis		4 max (Module 4-slots wide, 16-slots per chassis)		
Spec version		0.3	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.



ETL Systems

New technologies
in RF distribution

Model Number:
FN-U-L1F2-24405AA-XXXX

Frequency Upconverter Module - Physical and Environmental Specs	
Model Number	FN-U-L1F2-24405AA-XXXX
Control method	Via chassis (Local and remote as provided by chassis)
LNB Power	No
Operating Temperature	0°C to 50°C
Storage Temperature	-20°C to +75°C
Location	Indoor use only
Humidity	20 to 90% non-condensing
Altitude	Operational: 10,000ft/3000m AMSL Transport: 30,000ft/10000m AMSL
Weight	0.5 kg typ

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ETL SYSTEMS LIMITED
Coldwell Radio Station
Madley
Hereford
England HR2 9NE

TELEPHONE
+44 (0)1981 259020

EMAIL
info@etlsystems.com

WEB
www.etlsystems.com

