Falcon Series Frequency Converter Module

IF-Band to L-Band Agile Upconverter

IF-Band to L-Band agile 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.

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

Hot Swap & Replaceable
RF Frequency Converter modules

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

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

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

Secure protocols
with SNMPv3 and HTTPS

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

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

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

Indoor Chassis

Outdoor Unit

Frequency Upconverter Module - RF Parameters		Redundancy - RF Parameters	
Model Numbers	FN-U-L1F2-24405AA-XXXX	SWF-G1S-CX-111A-xxxx	SWF-G1S-CX-117-xxxx
Size	4 slots wide	4 slots wide	4 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		
Output Frequency Range	850-2450 MHz (tuneable 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 Step Size	0.1 ± 0.1 dB		
Gain Flatness (Full Instantaneous Band) ± dB	Max. ± 0.5 dB Typ. ± 0.3 dB	70MHz input: Max. ± 0.7 dB	70MHz input: Max. ± 0.8 dB
Input Return Loss (RF-band, 50 Ohm)	Typ. -20 dB / Max. -18 dB	Typ. -15 dB / Max. -13 dB	Typ. -15 dB / Max. -13 dB
Output Return Loss (IF-band, 50 Ohm)	Typ. –20 dB / Max. -18 dB	Typ. -14 dB / Max. -12 dB	Typ. -14 dB / Max. -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) @10 Hz offset	-70 dBc / Hz		
Phase Noise (Typical Values) @100 Hz offset	-84 dBc / Hz		
Phase Noise (Typical Values) @1 KHz offset	-98 dBc / Hz		
Phase Noise (Typical Values) @10 KHz offset	-104 dBc / Hz		
Phase Noise (Typical Values) @100 KHz offset	-107 dBc / Hz		
Phase Noise (Typical Values) @1 MHz offset	-112 dBc / Hz		
Spurs In-band @ -5dBm output Carrier related	<-60 dBm		
Spurs In-band @ -5dBm output Non-carrier related >1MHz Offset	< -75 dBm		
Spurs Out-of-band @ -5dBm output Carrier Related	<-60 dBc		
Spurs Out-of-band @ -5dBm output Non-carrier related	<-75 dBm		
LO Breakthrough	< -75 dBm		
Image Rejection	>60 dB typical		
External Reference Input Frequency	10MHz or 100MHz (auto detection)		
External Reference Input Level	0dBm ± 10dB		
Mute	60 dB		
Spectral Inversion	Non-inverting		
Number of conversion stages	Dual		
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

Frequency Upconverter Module - Physical and Environmental Specs	
Model Numbers	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

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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