

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.

Hot Swap & Replaceable

RF Frequency Converter modules

Variable Gain & Slope

For balancing input signals.

Redundancy Configurations

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

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 or 140 ± 40 MHz user selectable		
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	70MHz input: Max. ± 0.5 dB 140MHz input: Max. ± 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. -18 dB / Max. -16 dB	Typ. -15 dB / Max. -13 dB	Typ. -15 dB / Max. -13 dB
Output Return Loss (IF-band, 50 Ohm)	Typ. -18 dB / Max. -14 dB	Typ. -14 dB / Max. -10 dB	Typ. -13 dB / Max. -9 dB
Noise Figure At max. gain	Typ. 8 dB / Max 10 dB	Typ. 9 dB / Max 11 dB	Typ. 9.5 dB / Max 13 dB
Maximum Operational Input level	- 30 dBm at max gain		
OP1dB At max. gain	Typ. +13 dBm / Min. +10 dBm	Typ. +12 dBm / Min. +9dBm	Typ. +9 dBm / Min. +6 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 dBm / Min. +21 dBm	Typ. +21 dBm / Min. +18 dBm
Internal Reference Stability	±5 x 10 ⁻⁸ over 0 to 50°C		
Phase Noise (Typical values, measured with internal 100MHz reference)	@10 Hz offset	-75 dBc / Hz typ.	-65 dBc / Hz max.
	@100 Hz offset	-90 dBc / Hz typ.	-80 dBc / Hz max.
	@1 KHz offset	-100 dBc / Hz typ.	-90 dBc / Hz max.
	@10 KHz offset	-110 dBc / Hz typ.	-100 dBc / Hz max.
	@100 KHz offset	-112 dBc / Hz typ.	-102 dBc / Hz max.
	@1 MHz offset	-120 dBc / Hz typ.	-110 dBc / Hz max.
Spurs In-band @ -5dBm output	Carrier related >1MHz Offset	70MHz input: <-60 dBc	140MHz input: <-55 dBc
	Non-carrier related	70MHz input: <-70 dBm	140MHz input: <-60 dBm
Spurs Out-of- band @ -5dBm output	Carrier Related	70MHz input: <-60 dBc	140MHz input: <-55 dBc
	Non-carrier related	70MHz input: <-70 dBm	140MHz input: <-60 dBm
LO Breakthrough / Image Rejection	< -75 dBm / >60 dB typical		
External Reference Input Frequency	10MHz or 100MHz (auto detection)		
External Reference Input Level	0dBm ± 10dB		
Mute	60 dB		
Spectral Inversion / IF Power Monitor	Non-inverting / Yes		
Number of conversion stages	Triple		
Number of Modules per Chassis	4 max (Module 4-slots wide, 16-slots per chassis)		
Spec version	0.4	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.