Falcon Series Frequency Converter Module

X-Band to L-Band Agile Downconverter

X-Band to L-Band agile downconverter 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
For balancing input signals.

Frequency Conversion
Down conversion from X-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 Downconverter Module - RF Parameters		Redundancy - RF Parameters		
Model Numbers		FN-D-X3L1-24477AA-XXXX	SWF-G1S-KX-109A-xxxx	SWF-G1S-KX-115-xxxx
Size		4 slots wide	4 slots wide	4 slots wide
Redundancy		Standalone module	1+1 (**Note:** This column denotes specs for 24477 in 1+1 configuration)	2+1 (**Note:** This column denotes specs for 24477 in 2+1 configuration)
Input Frequency Range		7250 - 8500 MHz (tuneable in 1 KHz steps)		
Output Frequency Range		950 - 2150 MHz		
Mean Conversion Gain		Max +35 ± 1.5 dB / Min. +5 ± 1.5 dB	Max +33.8 ± 2.3 dB / Min +3.8 ± 2.3 dB	Max +34 ± 2.6 dB / Min +4 ± 2.6 dB
Gain Step Size		0.25 ± 0.15 dB		
Gain Flatness (50 Ohm)		Full band: ±1.0 dB Any 500MHz Band: ±0.6 dB Any 36MHz: ±0.3 dB	Full band: ±1.3 dB	Full band: ±1.6 dB
Input Return Loss (RF-band, 50 Ohm)		Typ. -18 dB / Min.-15 dB	Typ -12 dB / Min.-9 dB	Typ -12 dB / Min.-9 dB
Output Return Loss (IF-band, 50 Ohm)		Typ. -18 dB / Min.-15 dB	Typ -15 dB / Min.-11 dB	Typ -15 dB / Min.-12 dB
Maximum Operational Input level		- 30 dBm at max gain		
Noise Figure At max. gain		Typ. 8 dB / Max 10 dB	Typ. 10.5 dB / Max. 12.5 dB	Typ. 10.5 dB / Max. 12.5 dB
OP1dB At max. gain		Typ. +15 dBm / Min.+13 dBm	Typ. +13.5 dBm / Min.+10.5 dBm	Typ. +13.5 dBm / Min.+10.5 dBm
OIP3 At max. gain		Typ. +25 dBm / Min. +22 dBm	Typ. +23.5 dBm / Min.+20.5 dBm	Typ. +23.5 dBm / Min.+20.5 dBm
Internal Reference Stability		± 5 x 10-8 over 0 to 50°C		
Slope Compensation		0-6 dB (pivot point at 2150MHz)		
Slope Control Steps		1 dB		
Phase Noise (Typical Values)	@10 Hz offset	-68 dBc / Hz		
	@100 Hz offset	-80 dBc / Hz		
	@1 KHz offset	-90 dBc / Hz		
	@10 KHz offset	-110 dBc / Hz		
	@100 KHz offset	-115 dBc / Hz		
	@1 MHz offset	-120 dBc / Hz		
Spurs In-band (@-5dBm Output) Non-harmonic	Non-carrier related	<-75 dBm		
	Carrier Related >1MHz Offset (dBc)	<-60 dBc		
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 Input Frequency		10MHz or 100MHz (auto detection)		
External Reference Input Level		0dBm ± 10dB		
Mute		60 dB		
IF Monitor Port		Yes		
Number of conversion stages		Single		
Spectral Inversion		Non-inverting		
Spec version		0.2	1.1	1.1

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.