ETL Systems
Excelling in RF Engineering

Model Number:
FN-D-X3L1-24477XX-XXXX

Falcon Series
Frequency Converter Module
X-Band to L-Band Agile Downconverter

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

X-Band to L-Band block 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.

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 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

ETL Systems
New technologies
in RF distribution

Model Number:
FN-D-X3L1-24477AA-XXXX

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		
Output Frequency Range		950 –2150 MHz		
LO		5600—7050 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 Steps		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
Noise Figure (@ max gain)		Typ. 8 dB / Max. 10 dB	Typ. 10.5 dB / Max. 12.5 dB	Typ. 10.5 dB / Max. 12.5 dB
Maximum Operational Input Level		–30 dBm (At max gain)		
OP1dB		Typ. +15 dBm / Min.+13 dBm	Typ. +13.5 dBm / Min.+10.5 dBm	Typ. +13.5 dBm / Min.+10.5 dBm
OIP3		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		±5x10^{-8} over 0 to 50°C		
Slope Compensation		0-6 dB (pivot point at 2150MHz)		
Slope Control Steps		1 dB		
Phase Noise (Typical values)	@10Hz offset	-68 dBc / Hz		
	@100Hz offset	-80 dBc / Hz		
	@1KHz offset	-90 dBc / Hz		
	@10KHz offset	-110 dBc / Hz		
	@100KHz offset	-115 dBc / Hz		
	@1MHz offset	-120 dBc / Hz		
Spurs In-band (@-5dBm Output)	Non-carrier related	<-75 dBm		
	Carrier related	<-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 typ		
External Reference Input Frequency		10 MHz or 100 MHz. Auto detection.		
External Ref. Input Level		0 dBm ± 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.

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