



Falcon Series Frequency Converter Module Ku-Band to L-Band Downconverter

Typical applications:

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

Ku-Band to L-Band 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 Ku-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 Downconverter Module - RF Parameters		Redundancy - RF Parameters	
Model Numbers	FN-D-K1L1-24400AA-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 24400 in 1+1 configuration)	2+1 (Note: This column denotes specs for 24400 in 2+1 configuration)
Input Frequency Range (user selectable)	Mode 1: 10.7 - 11.75 GHz Mode 2: 11.7 - 12.75 GHz		
Output Frequency Range	1100 - 2150 MHz		
LO Frequency	Mode 1: 9.75 GHz Mode 2: 10.75 GHz		
Mean Conversion Gain	Max. 35 ± 1.5 dB / Min. 0 ± 1.5 dB	Max. 33.7 ± 1.8 dB / Min. 3.7 ± 1.8 dB	Max. 33.8 ± 2.1 dB / Min. 3.8 ± 2.1 dB
Gain steps	0.25 ± 0.15 dB		
Gain Flatness (50 Ohm)	Full band: ±1.5 dB Any 40MHz: ±0.3 dB	Full band: ±1.8 dB Any 40MHz: ±0.6 dB	Full band: ±2.1 dB Any 40MHz: ±0.9 dB
Input Return Loss (50 Ohm)	Typ. -18 dB / Min. -15 dB	Typ. -11 dB / Min. -8 dB	Typ. -11 dB / Min. -8 dB
Output Return Loss (50 Ohm)	Typ. -18 dB / Min. -15 dB	Typ. -15 dB / Min. -11 dB	Typ. -15 dB / Min. -12 dB
Noise Figure At max. gain	Typ. 10 dB / Max 12 dB	Typ. 12.5 dB / Max 14.5 dB	Typ. 12.5 dB / Max 14.5 dB
Maximum Input Power Range	-30 dBm		
OP1dB At max. gain	Typ. +15 dBm / Min. +13 dBm	Typ. +13.5 dBm / Min. +11.5 dBm	Typ. +13.5 dBm / Min. +11.5 dBm
OIP3 At max. gain	Typ. +27 dBm / Min. +25 dBm	Typ. +25.5 dBm / Min. +23.5 dBm	Typ. +25.5 dBm / Min. +23.5 dBm
Slope Compensation	0 - 6 dB, in 1dB steps		
Internal Reference Stability	± 5 x 10 ⁻⁹ over 0 to 50°C		
Phase Noise (Typical values)	@10Hz offset	-66 dBc / Hz	
	@100Hz offset	-80 dBc / Hz	
	@1KHz offset	-92 dBc / Hz	
	@10KHz offset	-108 dBc / Hz	
	@100KHz offset	-110 dBc / Hz	
	@1MHz offset	-115 dBc / Hz	
Spurs In-band (At -5dBm output)	Carrier related	< -60 dBc (> 1MHz offset)	
	Non-carrier related	< -75 dBm	
Spurs Out-of-band (At -5dBm output)	Carrier related	< -60 dBc	
	Non-carrier related	< -75 dBm	
LO Breakthrough	< -75 dBm		
Image Rejection	>60 dB		
Conversion stages	Single		
External Reference Input Frequency	10MHz or 100MHz (auto detection)		
External Reference Input Level	0 dBm ± 10 dB		
IF Monitor Port	Yes		
Mute	60 dB		
Spectral Inversion	Non-inverting		
Redundancy	Supported. Based on module configuration		
Spec version	0.1	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.



Frequency Downconverter Module - RF Parameters		Redundancy - RF Parameters	
Model Numbers	FN-D-K1L1-24400AB-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 24400 in 1+1 configuration)	2+1 (Note: This column denotes specs for 24400 in 2+1 configuration)
Input Frequency Range	10.7 - 12.75 GHz (tuneable in 1 KHz steps)		
Output Frequency Range	1100 - 2150 MHz		
Mean Conversion Gain	Max. 35 ± 1.5 dB / Min. 0 ± 1.5 dB	Max. 33.7 ± 1.8 dB / Min. 3.7 ± 1.8 dB	Max. 33.8 ± 2.1 dB / Min. 3.8 ± 2.1 dB
Gain steps	0.25 ± 0.15 dB		
Gain Flatness (50 Ohm)	Full band: ±1.5 dB Any 40MHz: ±0.3 dB	Full band: ±1.8 dB Any 40MHz: ±0.6 dB	Full band: ±2.1 dB Any 40MHz: ±0.9 dB
Input Return Loss (50 Ohm)	Typ. -18 dB / Min. -15 dB	Typ. -11 dB / Min. -8 dB	Typ. -11 dB / Min. -8 dB
Output Return Loss (50 Ohm)	Typ. -18 dB / Min. -15 dB	Typ. -15 dB / Min. -11 dB	Typ. -15 dB / Min. -12 dB
Noise Figure At max. gain	Typ. 10 dB / Max 12 dB	Typ. 12.5 dB / Max 14.5 dB	Typ. 12.5 dB / Max 14.5 dB
Maximum Input Power Range	-30 dBm		
OP1dB At max. gain	Typ. +15 dBm / Min. +13 dBm	Typ. +13.5 dBm / Min. +11.5 dBm	Typ. +13.5 dBm / Min. +11.5 dBm
OIP3 At max. gain	Typ. +27 dBm / Min. +25 dBm	Typ. +25.5 dBm / Min. +23.5 dBm	Typ. +25.5 dBm / Min. +23.5 dBm
Slope Compensation	0 - 6 dB, in 1dB steps		
Internal Reference Stability	± 5 x 10 ⁻⁸ over 0 to 50°C		
Phase Noise (Typical values)	@10Hz offset	-66 dBc / Hz	
	@100Hz offset	-80 dBc / Hz	
	@1KHz offset	-92 dBc / Hz	
	@10KHz offset	-108 dBc / Hz	
	@100KHz offset	-110 dBc / Hz	
	@1MHz offset	-115 dBc / Hz	
Spurs In-band (At -5dBm output)	Carrier related	< -60 dBc (> 1MHz offset)	
	Non-carrier related	< -75 dBm	
Spurs Out-of-band (At -5dBm output)	Carrier related	< -60 dBc	
	Non-carrier related	< -75 dBm	
LO Breakthrough	< -75 dBm		
Image Rejection	>60 dB		
Conversion stages	Single		
External Reference Input Frequency	10MHz or 100MHz (auto detection)		
External Reference Input Level	0 dBm ± 10 dB		
IF Monitor Port	Yes		
Mute	60 dB		
Spectral Inversion	Non-inverting		
Redundancy	Supported. Based on module configuration		
Spec version	0.1	1.1	1.1

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