

# Falcon Series Frequency Converter Module

## C-Band to L-Band Block Downconverter

C-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.

### 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**  
from C-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-C1L1-24426AB-XXXX                          | SWF-G1S-CX-111A-xxxx                   | SWF-G1S-CX-117-xxxx                                                  |                                                                      |
| Size                                           |                                | 4 slots wide                                    |                                        | 4 slots wide                                                         |                                                                      |
| Redundancy                                     |                                | Standalone module                               |                                        | 1+1 (Note: This column denotes specs for 24426 in 1+1 configuration) | 2+1 (Note: This column denotes specs for 24426 in 2+1 configuration) |
| Input Frequency Range                          |                                | 3400 - 4200 MHz                                 |                                        |                                                                      |                                                                      |
| Output Frequency Range                         |                                | 950 - 1750 MHz                                  |                                        |                                                                      |                                                                      |
| Mean Conversion Gain                           |                                | Max. 35 ± 1.5 dB / Min. 0 ± 1.5 dB              | Max. 33.9 ± 2.2 dB / Min. 3.9 ± 2.2 dB | Max. 34 ± 2.5 dB / Min. 4 ± 2.5 dB                                   |                                                                      |
| Gain steps                                     |                                | 0.25 ± 0.15 dB                                  |                                        |                                                                      |                                                                      |
| Gain Flatness (50Ohm)                          |                                | Full L-Band ±1.5 dB<br>Any 40MHz ±0.3 dB        | Full L-Band ±1.7 dB                    | Full L-Band ± 2.0 dB                                                 |                                                                      |
| Slope Compensation                             |                                | N/A                                             |                                        |                                                                      |                                                                      |
| Input Return Loss (50Ohm)                      |                                | Typ. -18 dB / Min. -15 dB                       | Typ. -13 dB / Min. -9 dB               | Typ. -13 dB / Min. -9 dB                                             |                                                                      |
| Output Return Loss (50Ohm)                     |                                | Typ. -18 dB / Min. -15 dB                       | Typ. -13 dB / Min. -10 dB              | Typ. -13 dB / Min. -10 dB                                            |                                                                      |
| Noise Figure At max. gain                      |                                | Typ. 12 dB / Max 14 dB                          | Typ. 14.5 dB / Max 16.5 dB             | Typ. 15 dB / Max 17 dB                                               |                                                                      |
| Maximum Operational Input level                |                                | -30 dBm At max gain                             |                                        |                                                                      |                                                                      |
| OP1dB At max. gain                             |                                | Typ. +18 dBm / Min. +15 dBm                     | Typ. +15.5 dBm / Min. +12.5 dBm        | Typ. +15 dBm / Min. +12 dBm                                          |                                                                      |
| OIP3 At max. gain                              |                                | Typ. +28 dBm / Min. +25 dBm                     | Typ. +26 dBm / Min. +23 dBm            | Typ. +25.5 dBm / Min. +22.5 dBm                                      |                                                                      |
| Group Delay pk-pk                              |                                | Typ. 1 ns / Max. 2 ns (Full instantaneous band) |                                        |                                                                      |                                                                      |
| Internal Reference Stability                   |                                | ± 5 x 10-8 over 0 to 50°C                       |                                        |                                                                      |                                                                      |
| 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                 | -102 dBc / Hz                                   |                                        |                                                                      |                                                                      |
|                                                | @100 KHz offset                | -103 dBc / Hz                                   |                                        |                                                                      |                                                                      |
|                                                | @1 MHz offset                  | -112 dBc / Hz                                   |                                        |                                                                      |                                                                      |
| Spurs In-band                                  | Non-carrier related            | < -75 dBm (At -5dBm Output. Non-Harmonic)       |                                        |                                                                      |                                                                      |
|                                                | Harmonic                       | < -50 dBc                                       |                                        |                                                                      |                                                                      |
|                                                | Carrier related (>1MHz Offset) | < -60 dBc (At -5dBm Output. Non-Harmonic)       |                                        |                                                                      |                                                                      |
| Spurs Out-of-band                              | Carrier Related                | < -60 dBc (At -5dBm Output)                     |                                        |                                                                      |                                                                      |
|                                                | Harmonic                       | < -50 dBc                                       |                                        |                                                                      |                                                                      |
|                                                | Non-carrier related            | < -75 dBm (At -5dBm Output)                     |                                        |                                                                      |                                                                      |
| LO Breakthrough                                |                                | < -75 dBm                                       |                                        |                                                                      |                                                                      |
| Image Rejection                                |                                | Typ. 80 dB                                      |                                        |                                                                      |                                                                      |
| Conversion stages                              |                                | Dual                                            |                                        |                                                                      |                                                                      |
| External Reference Input Frequency             |                                | 10MHz or 100MHz (auto detection)                |                                        |                                                                      |                                                                      |
| External Reference Input Level                 |                                | 0dBm ± 10dB                                     |                                        |                                                                      |                                                                      |
| IF Monitor Port                                |                                | Yes                                             |                                        |                                                                      |                                                                      |
| Mute                                           |                                | 60 dB                                           |                                        |                                                                      |                                                                      |
| Spectral Inversion                             |                                | Non-inverting                                   |                                        |                                                                      |                                                                      |
| Spec version                                   |                                | 1.0                                             | 1.0                                    | 0.1                                                                  |                                                                      |

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.