

# Falcon Series Frequency Converter Module

## L-Band to IF-Band Agile Downconverter

L-Band to IF-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 L-Band to IF-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-L1F2-24404AA-XXXX           | SWF-G1S-CX-111A-xxxx                   | SWF-G1S-CX-117-xxxx                                                          |                                                                              |
| Size                                           |                     | 4 slots wide                     |                                        | 4 slots wide                                                                 |                                                                              |
| Redundancy                                     |                     | Standalone module                |                                        | 1+1 ( <b>Note:</b> This column denotes specs for 24404 in 1+1 configuration) | 2+1 ( <b>Note:</b> This column denotes specs for 24404 in 2+1 configuration) |
| Input Frequency Range                          |                     | 850-3150 MHz in 1 kHz step size  |                                        |                                                                              |                                                                              |
| Output Frequency Range                         |                     | 70 ± 20 MHz / 140 ± 40 MHz       |                                        |                                                                              |                                                                              |
| Mean Conversion Gain                           |                     | Max. 35 ± 2 dB / Min. 5 ± 2 dB   | Max. 34.4 ± 2.2 dB / Min. 4.4 ± 2.2 dB | Max. 34.4 ± 2.3 dB / Min. 4.4 ± 2.3 dB                                       |                                                                              |
| Gain Step Size                                 |                     | 0.1 ± 0.1 dB                     |                                        |                                                                              |                                                                              |
| Gain Flatness (50 Ohm)                         |                     | ±0.3 dB                          | ±0.5 dB                                | ±0.6 dB                                                                      |                                                                              |
| Input Return Loss (50 Ohm)                     |                     | Typ. -20 dB / Min. -16 dB        | Typ. -15 dB / Min. -10 dB              | Typ. -15 dB / Min. -10 dB                                                    |                                                                              |
| Output Return Loss (50 Ohm)                    |                     | Typ. -20 dB / Min. -16 dB        | Typ. -15 dB / Min. -10 dB              | Typ. -15 dB / Min. -10 dB                                                    |                                                                              |
| Maximum Operational Input level                |                     | - 30 dBm at max gain             |                                        |                                                                              |                                                                              |
| Noise Figure At max. gain                      |                     | Typ. 8 dB / Max 10 dB            | Typ. 8.7 dB / Max 10.7 dB              | Typ. 10.7 dB / Max 12.8 dB                                                   |                                                                              |
| OP1dB At max. gain                             |                     | Typ. +13 dBm / Min. +10 dBm      | Typ. +12.3 dBm / Min. +9.3 dBm         | Typ. +10.3 dBm / Min. +7.3 dBm                                               |                                                                              |
| OIP3 At max. gain                              |                     | Typ. +25 dBm / Min. +22 dBm      | Typ. +24.3 dBm / Min. +21.3 dBm        | Typ. +22.3 dBm / Min. +19.3 dBm                                              |                                                                              |
| Internal Reference Stability                   |                     | ± 5 x 10-8 over 0 to 50°C        |                                        |                                                                              |                                                                              |
| Phase Noise (Typical Values)                   | @10 Hz offset       | -70 dBc / Hz                     |                                        |                                                                              |                                                                              |
|                                                | @100 Hz offset      | -84 dBc / Hz                     |                                        |                                                                              |                                                                              |
|                                                | @1 KHz offset       | -98 dBc / Hz                     |                                        |                                                                              |                                                                              |
|                                                | @10 KHz offset      | -104 dBc / Hz                    |                                        |                                                                              |                                                                              |
|                                                | @100 KHz offset     | -107 dBc / Hz                    |                                        |                                                                              |                                                                              |
|                                                | @1 MHz offset       | -112 dBc / Hz                    |                                        |                                                                              |                                                                              |
| Spurs In-band (@ -5 dBm output)                | Carrier related     | < -60 dBc                        |                                        |                                                                              |                                                                              |
|                                                | Harmonic            | < -50 dBc                        |                                        |                                                                              |                                                                              |
|                                                | Non-carrier related | < -75 dBm                        |                                        |                                                                              |                                                                              |
| Spurs Out-of-band (@ -5 dBm output)            | Carrier related     | <-60 dBc                         |                                        |                                                                              |                                                                              |
|                                                | Harmonic            | < -50 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                            |                                        |                                                                              |                                                                              |
| Number of conversion stages                    |                     | Dual                             |                                        |                                                                              |                                                                              |
| Spectral Inversion                             |                     | Non-inverting                    |                                        |                                                                              |                                                                              |
| Spec version                                   |                     | 0.2                              | 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.