



Falcon Series Frequency Converter Module Ku-Band Block Downconverter

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

The 1U chassis has the capacity for up to five hot-swap frequency converter modules. These can be all upconverters, all downconverters or a mix of both.

Resilience from dual redundant hot-swap power supplies & field replaceable CPU & HMI

Local control & monitoring via HMI high resolution touchscreen

Compact housed in a 1U high chassis with capacity for up to five modules

Flexible Module Configurations choose from a mixture of up and down converters with different operating frequencies.

Hot Swap & replaceable RF Frequency Converter modules

Redundancy configurations Field-replaceable 2+1 or 1+1 redundant configuration

Field replaceable Internal 10MHz reference source and external reference inject port with auto detection

Secure protocols with SNMPv3 and HTTPS

Remote control & monitoring via RJ45 Ethernet port with SNMP & web browser interface

| Chassis - Specification | |
|--------------------------------|--|
| Dimensions / Weight / Colour | 1U high x 550mm deep x 19" wide / <10 kg / RAL9003—White (Semi-matte) |
| Capacity | Total of 17 module slots. Note that 1 slot will be used for fan (if required) and 1 slot will be used for 10MHz EXT inject module. |
| Temperature | Operating: 0 to 45°C / Storage: -20°C to +75°C |
| Location / Humidity / Altitude | Indoor use only / 20 to 90% non-condensing / 10,000 feet AMSL (Operational) 30,000 feet AMSL (Storage) Above Mean Sea Level |
| Control & Monitoring | Local: HMI touch screen Remote: Ethernet via RJ45, 10BaseT/100 BaseTx. TCP/IP, SNMP V3 & HTTPS & Web browser interface HMI and CPU field replaceable. |
| MTTR | 20 minutes (15 minutes to retrieve spare part and 5 mins to replace) Applies to LRUs only and assumed in house stock |
| AC Input / Consumption | 85-264Vac 50/60Hz / 150W |
| PSU Redundancy | Dual redundant and alarmed Diode OR. Hot swappable |
| Input & Output ports | Dependant upon module fitted |
| No. of modules per chassis | 5 max. Module 3 slots wide |

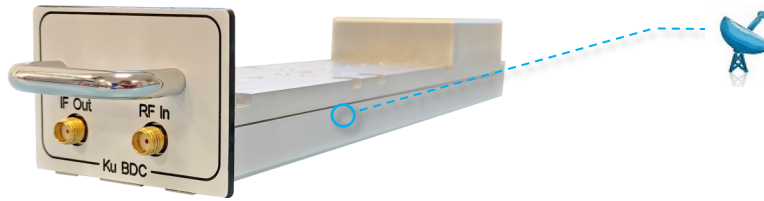




ETL Systems

Excelling in RF Engineering

Model Number:
FN-D-K1L1-24100-S5XX,



Frequency Converter Module
Compact form factor allowing multiple modules to be housed in 1U chassis. Each module uses 3 slots in the chassis.

| Frequency Downconverter Module - RF Parameters | | Redundancy Module - RF Parameters | |
|--|---|--|--|
| Model Numbers | FN-D-K1L1-24100-S5XX | SWF-G1S-KX-109 | SWF-G1S-KX-107 |
| Size | 3 slots wide | 4 slots wide | 6 slots wide |
| Redundancy | Standalone module | 1+1 (Note: This column denotes specs for 24100 in 1+1 configuration) | 2+1 (Note: This column denotes specs for 24100 in 2+1 configuration) |
| Input Frequency Range | Mode 1: 10.7 - 11.7 GHz Mode 2: 11.7 - 12.75 GHz | | |
| Output Frequency Range | Mode 1: 950 - 1950 MHz Mode 2: 950 - 2000 MHz | | |
| LO Frequency | Mode 1: 9.75 GHz Mode 2: 10.75 GHz | | |
| Conversion Gain | Max. 35 ± 1.5 dB / Min. 5 ± 1.5 dB | Max. 32 ± 1.5 dB / Min. 2 ± 1.5 dB | Max. 29.5 ± 1.5 dB / Min. -0.5 ± 1.5 dB |
| Gain steps | 0.5 ± 0.25 dB | | |
| Gain Flatness (50 Ohm) | Full band: ±1.5 dB Any 40MHz: ±0.3 dB | | |
| Input Return Loss (50 Ohm) | Typ. -15 dB / Min. -10 dB | Typ. -11 dB / Min. -7 dB | Typ. -11 dB / Min. -7 dB |
| Output Return Loss (50 Ohm) | Typ. -18 dB / Min. -14 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. 11.5 dB / Max 13.5 dB | Typ. 13 dB / Max 15.1 dB |
| Input Power Range | -75 to -30 dBm | | |
| OP1dB At max. gain | Typ. +17 dBm / Min. +15 dBm | Typ. +15 dBm / Min. +13 dBm | Typ. +14 dBm / Min. +12 dBm |
| OIP3 At max. gain | Typ. +27 dBm / Min. +25 dBm | Typ. +25.5 dBm / Min. +23.5 dBm | Typ. +24.5 dBm / Min. +22.5 dBm |
| Slope Compensation | 0 - 8 dB, in 1dB steps | | |
| Group Delay (max pk-pk) | 1 ns | | |
| Internal Reference Stability | ± 5 x 10 ⁻⁸ over 0 to 50°C | | |
| Phase Noise (Typical values) | @10Hz offset | -70 dBc / Hz | |
| | @100Hz offset | -83 dBc / Hz | |
| | @1KHz offset | -90 dBc / Hz | |
| | @10KHz offset | -90 dBc / Hz | |
| | @100KHz offset | -98 dBc / Hz | |
| | @1MHz offset | -120 dBc / Hz | |
| Spurs In-band | Non-carrier related | < -75 dBm | |
| | Carrier related | < -60 dBc | |
| | | Non-carrier related | < -75 dBm |
| LO Breakthrough | < -80 dBm | | |
| Image Rejection | >60 dB | | |
| Conversion stages | Single | | |
| External Reference | Input Freq. 10MHz Input Level +3 dBm±3dB | | |
| Mute | 60 dB | | |
| Spectral Inversion | Non-inverting | | |
| Redundancy | Supported. Based on module configuration | | |
| Spec version | 1.2 | 0.1 | 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.

ETL SYSTEMS LIMITED
Coldwell Radio Station
Madley
Hereford
England HR2 9NE

TELEPHONE
+44 (0)1981 259020

EMAIL
info@etlsystems.com

FACSIMILE
+44 (0)1981 259021

WEB
www.etlsystems.com

