

X-Band Low-Noise Block Down Converter Series

Amplifiers



Application

Our X-Band Low-Noise Block Down Converter Series (LNB) meets or exceeds system requirements for commercial and military geosynchronous satellites worldwide. Their compact design and rugged construction make them ideal for transportable applications and severe environments. They have a comprehensive set of options to accommodate systems ranging from Very Small Amplifier Terminal (VSATs) to major earth stations. The X-Band LNB allows for interfacing, at the antenna, with our LPOD family of X-Band outdoor BUCs for sourcing of the LNB bias voltage and high stability reference in either single or redundant configurations.

Technology

The amplifiers incorporate both HEMT devices for low-noise temperature performance and GaAs FET devices for low intermodulation. The units use surface mounted components for robotic manufacturing techniques, thereby ensuring maximum product consistency and enhanced reliability. The X-Band LNB includes integrated filtering to address adjacent power issues peculiar to demanding X-Band terminals.

Reliability

The amplifier series utilizes proprietary circuitry and high-quality components to achieve an MTBF in excess of 160,000 hours. Each unit is subjected to a 72-hour burn-in and temperature cycled from -40 to 140°F (-40 to +60°C).

Construction

The LNBs are housed in waterproof enclosures with small profiles to better accommodate redundancy configurations. The enclosures also provide a pressurizable, integral waveguide flange.

Accessories

Transmit reject filters, cables and other integration materials are offered as required.

Subsystems

1+1 (one backup for one primary) and 1+2 (one backup for two primary) redundant LNB systems are available, complete with mounting plate, brackets and indoor redundancy controller/power supply. Transmit reject filters, cables and other integration materials are offered as required.

Specifications

Electrical

Input Frequency Range	7.25 to 7.75 GHz
Output Frequency Range	950 to 1450 MHz
Noise Temperature	40, 45 K
Gain	50, 60 dB
Stability (Over Temp. & Frequency)	± 1.5 dB over Full Band typical 0.50 dB p-p over 40 MHz typical
Level @ 1 dB Comp.	+10 dBm, (15 dBm opt.)
Third Order Intercept	+20 dBm (+25 dBm opt.)
AM-PM Conversion	0.1°/dB @ 0dBm
De-sense level (transmit reject)	-25 dBm min.
Image Reject	60dB
Spurious in-band	-65 dBc @ 0 dBm
Linear Group Delay	± .05 ns/MHz
Parabolic Group Delay	± .005 ns/MHz ²
Ripple	± 1 ns p-p
Input VSWR	1.25:1 Maximum
Output Return Loss	15 dB minimum
External Reference Input	10 MHz 0 ± 5 dBm at input

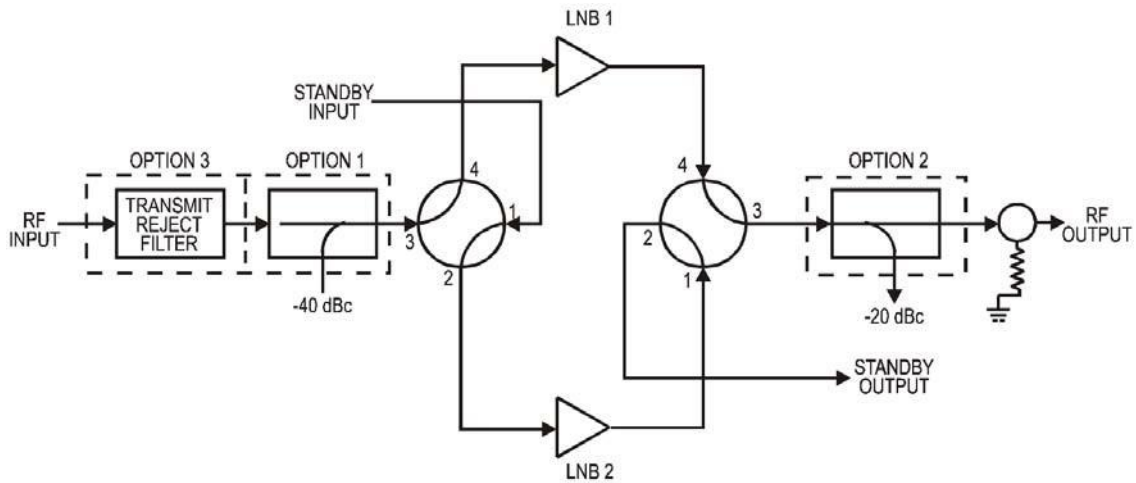
Environmental and Physical

Operating Temp.	-40 to 140°F, (-40 to +60°C)
Non-Operating Temperature	-50° to +71°C (58° to 160°F)
Humidity	100% with condensation
Operating Altitude	10,000 ft above sea level

Mechanical

Dimensions (height x width x depth)	1.9" x 3.2" x 6.9"
Weight	< 2 lbs
Power Connectors	Coaxial, ITT KPT02A8-4P Male or ITT MS3112E10-6P Male
Input Waveguide	CPR112
Output Connector	Type N Standard, Optional SMA

1:1 Redundant LNB System Block Diagram



1:2 Redundant LNB System Block Diagram

