

# LNB(/HG)-1691.0-137.5

*Low Noise L-band Block Downconverter*

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## *Features*

- Low noise figure, 0.5 dB (38 K) typical
- Conversion gain, 52 dB typical
- Higher gain version available (special order)
- High stability phase locked oscillator
- Temperature stability,  $\pm 2.5$  ppm
- Low phase noise
- O-ring sealed 'N' connectors
- Weatherproof O-ring sealed machined aluminum case

## *Applications*

- Meteosat Second Generation (MSG) HRIT, LRIT and existing Meteosat PDUS reception
- GOES GVAR and LRIT reception
- MTSAT HiRID, HRIT, LRIT and existing GMS S-VISSR reception

## *Description*

The next generation of international geosynchronous weather satellites, including Europe's MSG (Meteosat Second Generation) and Japan's MTSAT (Multi-functional Transport Satellite), have been designed to provide users with upgraded data quality and quantity by implementing improved high and low speed digital downlinks based on industry standard protocols. The LNB-1691 has been specifically designed for these new digital formats.

The LNB-1691 is particularly suited for use in systems that require the highest performance from a small antenna. Typical receive system noise temperatures of 70K and G/T of greater than 15dB/K can be

expected when using the LNB-1691 with a good quality 12 ft (3.7 meter) antenna and the Quorum SFD-1691L scalar feed.

The LNB-1691 is designed to mount directly to the Quorum SFD-1691L Scalar Feed to eliminate cable losses for maximum performance. If small antenna size is important, the LNB-1691 can be used with the Quorum SFD-1691L to provide a high efficiency extremely low noise front end. When this configuration is used on a 7.5 ft (2.3 meter) antenna a receive system G/T greater than 10.5 dB/K can be achieved.

The LNB-1691 is a block downconverter that incorporates a phase locked and temperature compensated local oscillator. The low phase noise of the LNB-1691 is essential for quality reception of the downlinked digital data.

Satellite data reception front ends constructed from the LNB-1691, SFD-1691L and the Quorum MetCom DSP Receivers have been engineered to provide the ultimate in reliable performance from existing and next generation weather satellites.

**Specifications** (subject to change without notice)

**Electrical**

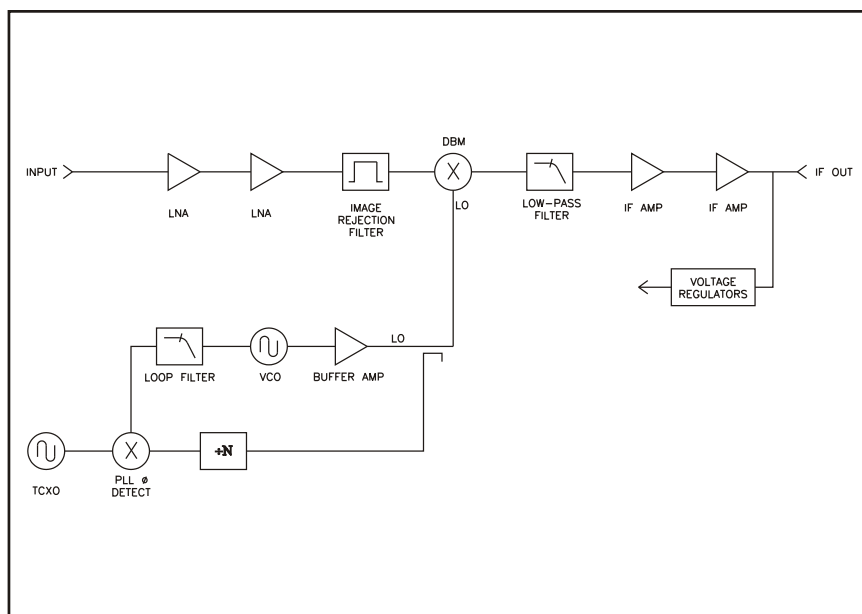
Noise Figure.....	0.5 dB (38 K) typical
Input Frequency.....	1691.000 MHz
Local Oscillator Frequency.....	1553.500 MHz
Output Frequency.....	137.500 Mhz
Converted Bandwidth.....	50 MHz @ 3 dB typical
Conversion Gain standard model.....	>50 dB, 52 dB typical
Conversion Gain high gain model.....	>70 dB, 72 dB typical
Image Rejection.....	>60 dB, 70 dB typical @ 1416 MHz
Input / Output Impedance.....	50 ohms
Output 1dB Compression Point.....	>+10 dBm
Local Oscillator Stability.....	±2.5 ppm (-30 to +60 C)
Local Oscillator Type.....	Internal PLL locked to TCXO
Phase Noise.....	-94 dBc/Hz @ 10 KHz typical -114 dBc/Hz @ 100 KHz typical
Input Voltage.....	+10 to +15 VDC @ 350 ma typical Power provided on IF output cable

**Environmental**

Temperature (operating).....	-40 to +140 F (-40 to 60 C)
Humidity.....	100%

**Mechanical**

Connectors.....	Type 'N' female
Size.....	4.21" x 2.53" x 1.11" (107.4 mm x 64.3 mm x 28.0 mm)
Weight.....	0.9 lb (0.4 kg)
Construction.....	Machined Aluminum Case, O-ring sealed, painted white



LNB-1691.0-137.5 L-band Downconverter Block Diagram

**System Usage Notes**

A typical Quorum Communications system for the reception of geosynchronous meteorological satellite high speed digital downlinks such as MSG HRIT or GOES GVAR would pair the **LNB-1691.0-137.5 Block Downconverter** with the Quorum **SFD-1691L high efficiency Scalar Feed**. The feed and downconverter would be mounted to a commercial quality 3.0 to 3.7 meter (10 to 12 foot) antenna such as the Prodelin 1300 series. This system with a 3.7m antenna would provide a typical system G/T of >15 dB/K.

The output of the downconverter would be connected to a Quorum **MetCom DSP Second Generation Receiver**. The MetCom DSP receiver provides state of the art demodulation using *Digital Signal Processing* techniques. In addition, the MetCom DSP can be configured to support a single downlink type or all of the current downlinks in a single unit. The MetCom DSP is housed in a PC friendly drivebay format for easy installation in most PC or Workstation enclosures.

PC and workstation based systems based on the Quorum Scalar Feed, LNB Downconverter and MetCom DSP Receivers are available from many suppliers worldwide.