Orbital’s LRD-200B low rate demodulator is a versatile digital receiver used in the reception of standard weather satellite formats. This high-quality Quorum Communications Digital Signal Processing (DSP) demodulator provides repeatable performance, long-term operation without component drift, and flexible multi-mode operation for current and future satellite formats.

Features

- 1U Rack Enclosure
- QPSK/BPSK/PSK demodulation up to 3.5 MSPS
- QPSK/BPSK BER performance within .05 dB of theoretical, typical
- Hardware Viterbi decoding
- 126 - 154 MHz RF input or 70 MHz IF input
- Selectable RF inputs and IF bandwidths for multimode flexibility
- -90 dBm to -20 dBm input range
- USB, RS-422, LVDS, TTL and 50 ohm TTL clock and NRZ data outputs
- Ethernet and USB control for setup, tuning, mode selection, and status
- 2 line, 20 character LCD display for status and signal level readout

Applications

- Demodulation of standard L-Band weather and EOS satellite signal formats:
  - NOAA
  - FY1
  - METOP
  - Meteosat
  - FY3

Configuration

- All Mode Polar Weather Receiver (rate 3/4 viterbi)
  - NOAA HRPT
  - Feng Yun 1 CHRPT
  - METOP AHRPT
  - Meteosat PDUS
  - Feng Yun 3 HRPT
# LRD-200B Low-Rate Demodulator Specifications

## RF
- **Input Frequency**: 126 to 154 MHz
- **Frequency Tuning Step Size**: 25 KHz
- **Input Dynamic Range**: -90 to -20 dBm nominal
- **Input Impedance**: 50 ohms
- **Image Rejection**: >60 dB
- **IF Frequency**: 70 MHz
- **IF Bandwidth (SAW Filter)**: 3 MHz, 6 MHz
- **Signal Strength (RSSI) Output**: 0 to 3 VDC, 30mV/dB nominal, -50 dBm = 2.50 volts

## Demodulator (DSP)
- **Demodulator Modes**: QPSK, BPSK, PSK
- **Demodulator Implementation Loss**: 0.5 dB @ 10E - 6 BER typical
- **Demodulator Type**: Digital Costas Loop
- **Baseband Filters**: Root Raised Cosine (RRC), typical $\alpha = 0.4$

## Data
- **Supported Data Encoding**: NRZ-L, NRZ-S, NRZ-M, Biphase-L
- **Supported Symbol Rates**: 0.1 to 3.5 MSPS
- **Convolutional Decoding**: Viterbi rate 1/2 and 3/4

## Interface
- **RF / IF Inputs**: Female Type N
- **Control Interface**: Ethernet / USB
- **Control Interface Connector**: Ethernet / RJ45
- **USB**: USB Type B
- **Data / Clock Interface**: RS-422, LVDS, TTL and 50 ohm TTL
- **Data / Clock Interface Connector**: 50 ohm TTL - SMA female
- **RS-422 Outputs / LVDS**: 15p Female Subminiature D

## Electrical, Mechanical, and Environmental
- **Input Voltage Frequency**: 100-240 VAC, .5A max, 50/60Hz
- **Input Power Connector**: NEMA Socket
- **Power Consumption**: 120VAC x 0.197amp = 23.6watts
- **Operating Temperature**: 0-50° C (32 to 122° F), non-condensing
- **Size**: 19" rack standard, 1U, ~25cm (10") deep
- **Support**: Fixed rear side rails
- **Weight**: 4.1 kg (9 lbs)